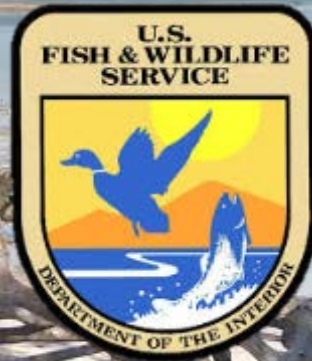


Refuge Resources: Sea Turtles and Lower Keys Marsh Rabbit



Adam Emerick
Refuge Biologist
National Key Deer Wildlife Refuge



Photo courtesy of IRG



Maintain seagrass ecosystems by foraging



Photo courtesy of IRG



Provide nutrients and natural disturbance to dune ecosystems

Green Sea Turtle (*Chelonia mydas*)

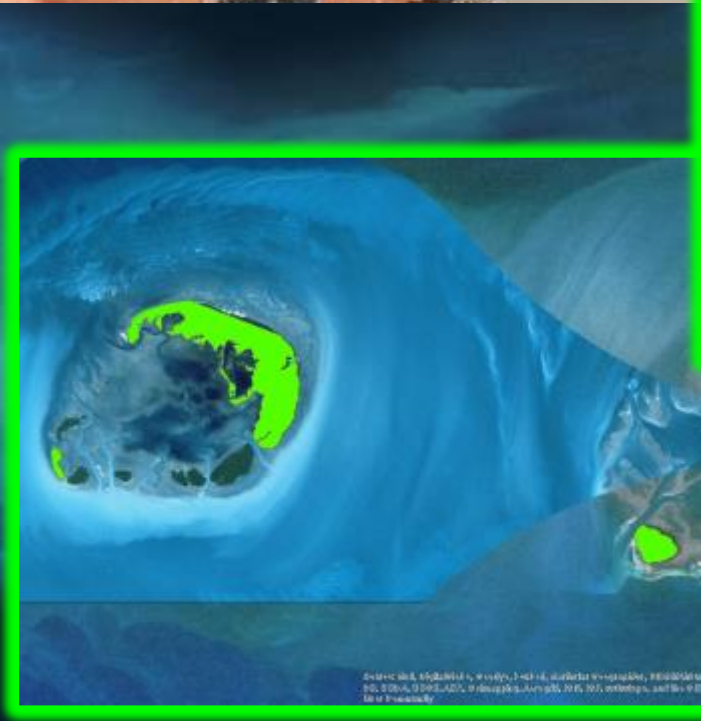


Endangered



Photos courtesy of IRG





— Key West NWR
 — Great White Heron NWR

Loggerhead (*Caretta caretta*)

Threatened

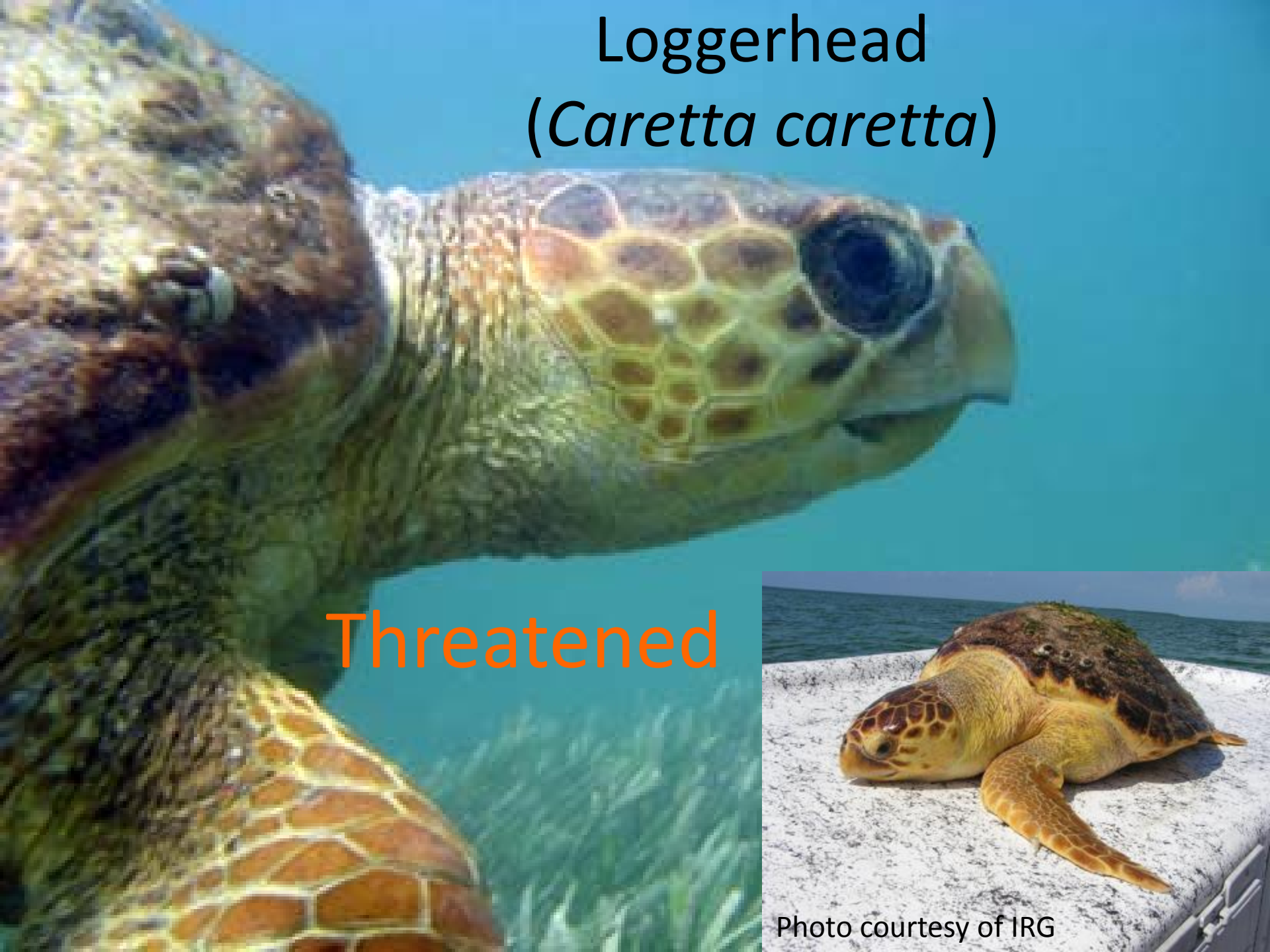
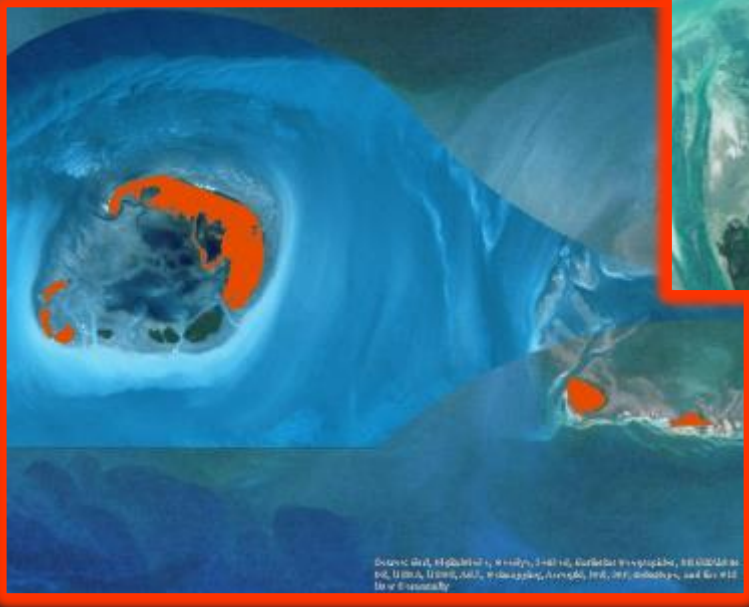


Photo courtesy of IRG





— Key West NWR

— Great White Heron NWR

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, SPP, Swisstopo, and the CIA

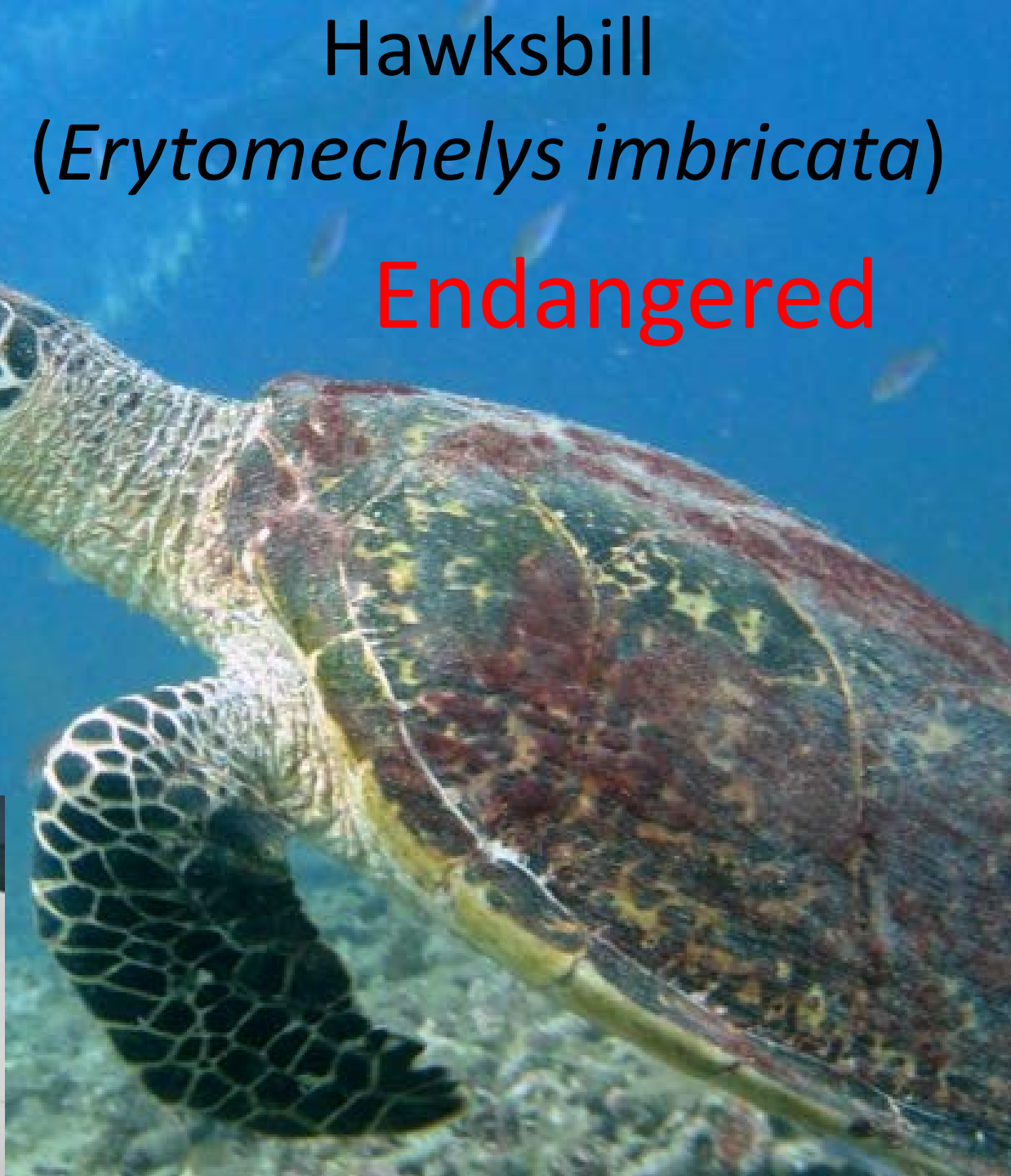
Hawksbill

(*Erytomechelys imbricata*)

Endangered



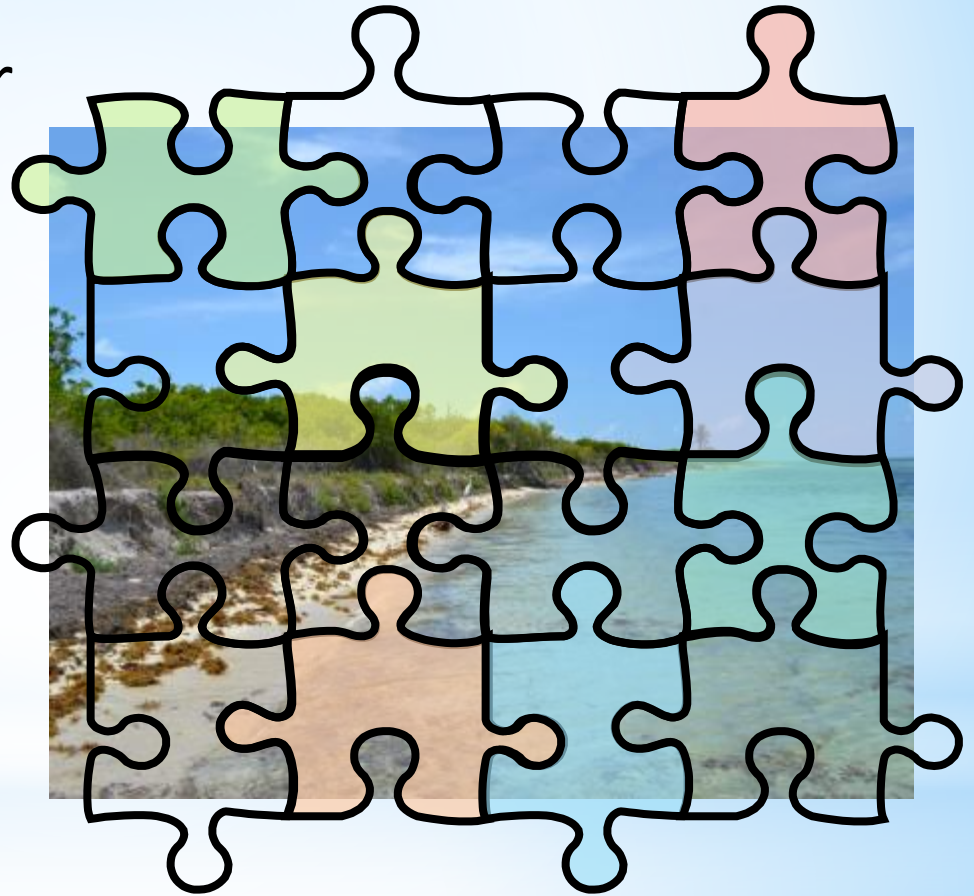
Photo courtesy of IRG





Management Challenges

- Increasing public use over large, isolated areas
 - Prohibited uses=
 - Disturbance to wildlife
 - Habitat damage
 - Loss of wilderness character
- Hurricanes
- Sea level rise/erosion



Recovery actions

- Protective measures
- Monitoring of nesting beaches and productivity
- Maintaining existing habitat
 - Informing public on site and outreach (prevention)
 - Restrictions on use
 - Removal of debris
- Collaborate with local, state, and federal groups



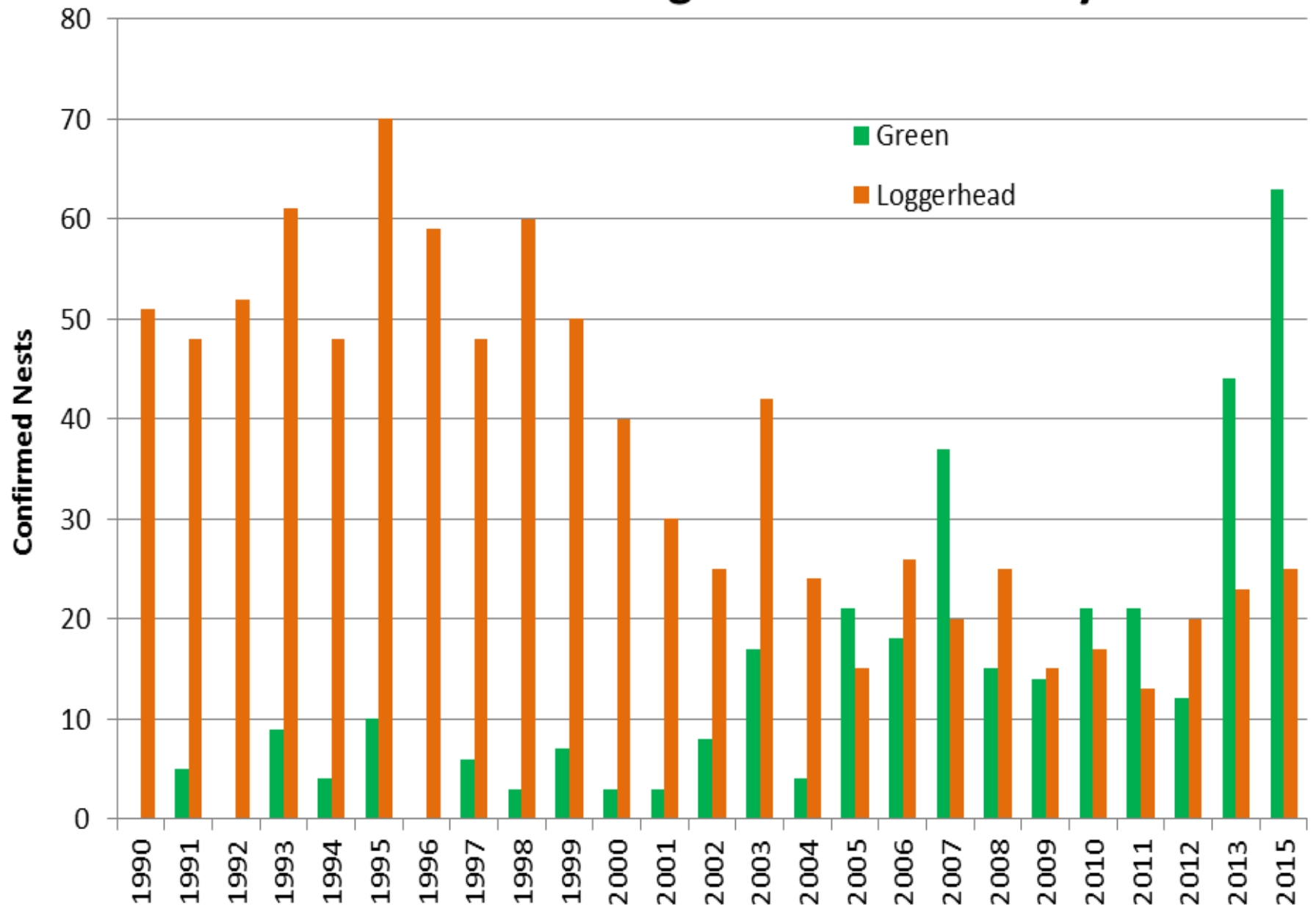
Monitoring



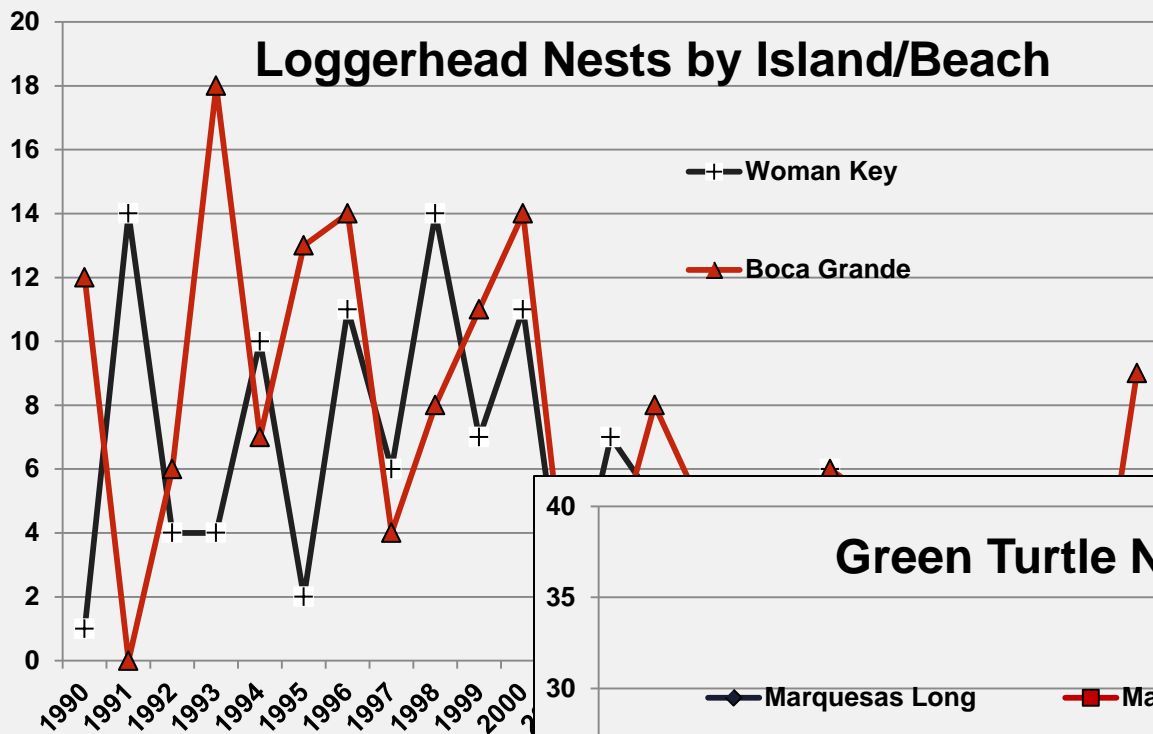
Monitoring



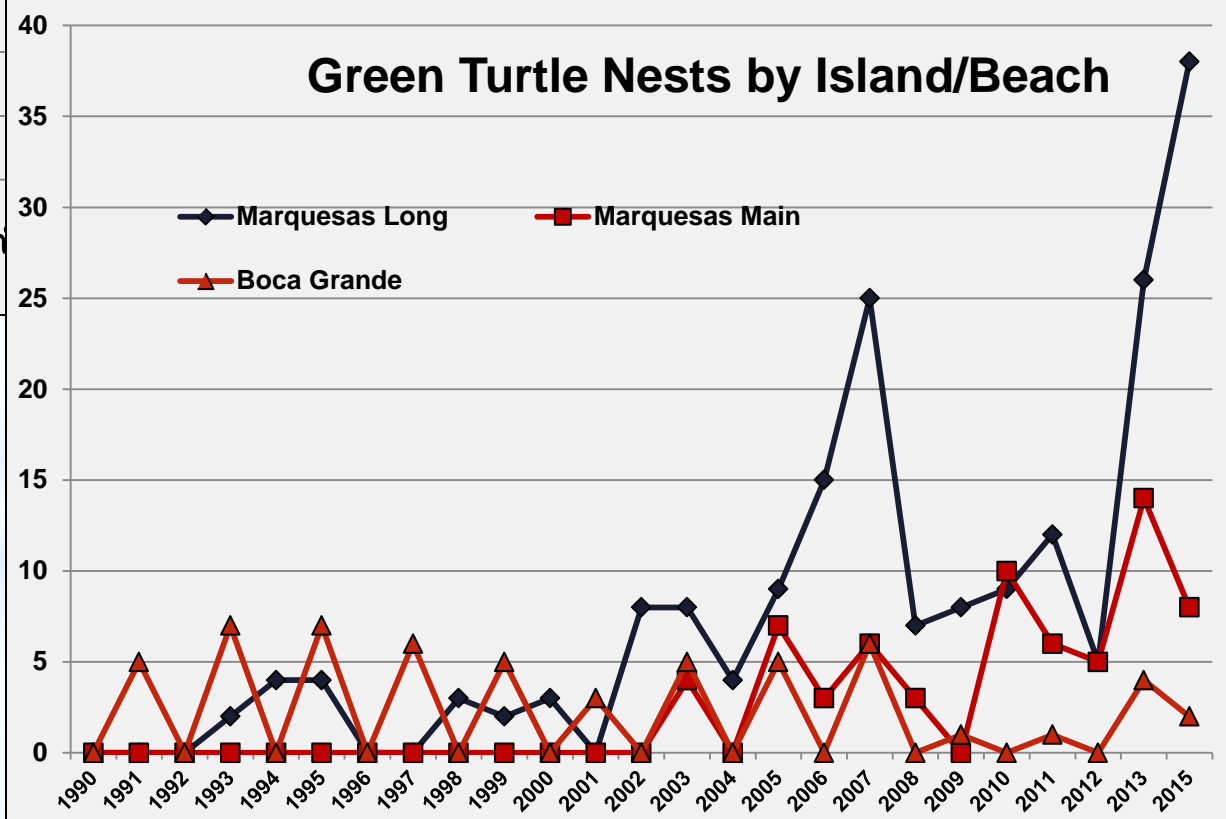
USFWS Nesting Census Lower Keys



Loggerhead Nests by Island/Beach



Green Turtle Nests by Island/Beach



Maintain Habitat- Inform Public/Restrict Use



Maintain Habitat- Reduce Disturbance



Maintain Habitat-
Remove Debris

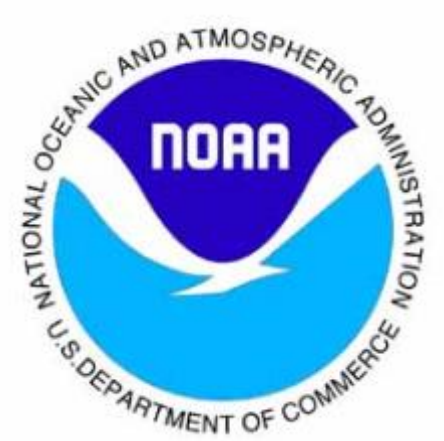


Maintain Habitat- Remove Debris





Teamwork



Lower Keys Marsh Rabbit

(Sylvilagus palustris hefneri)



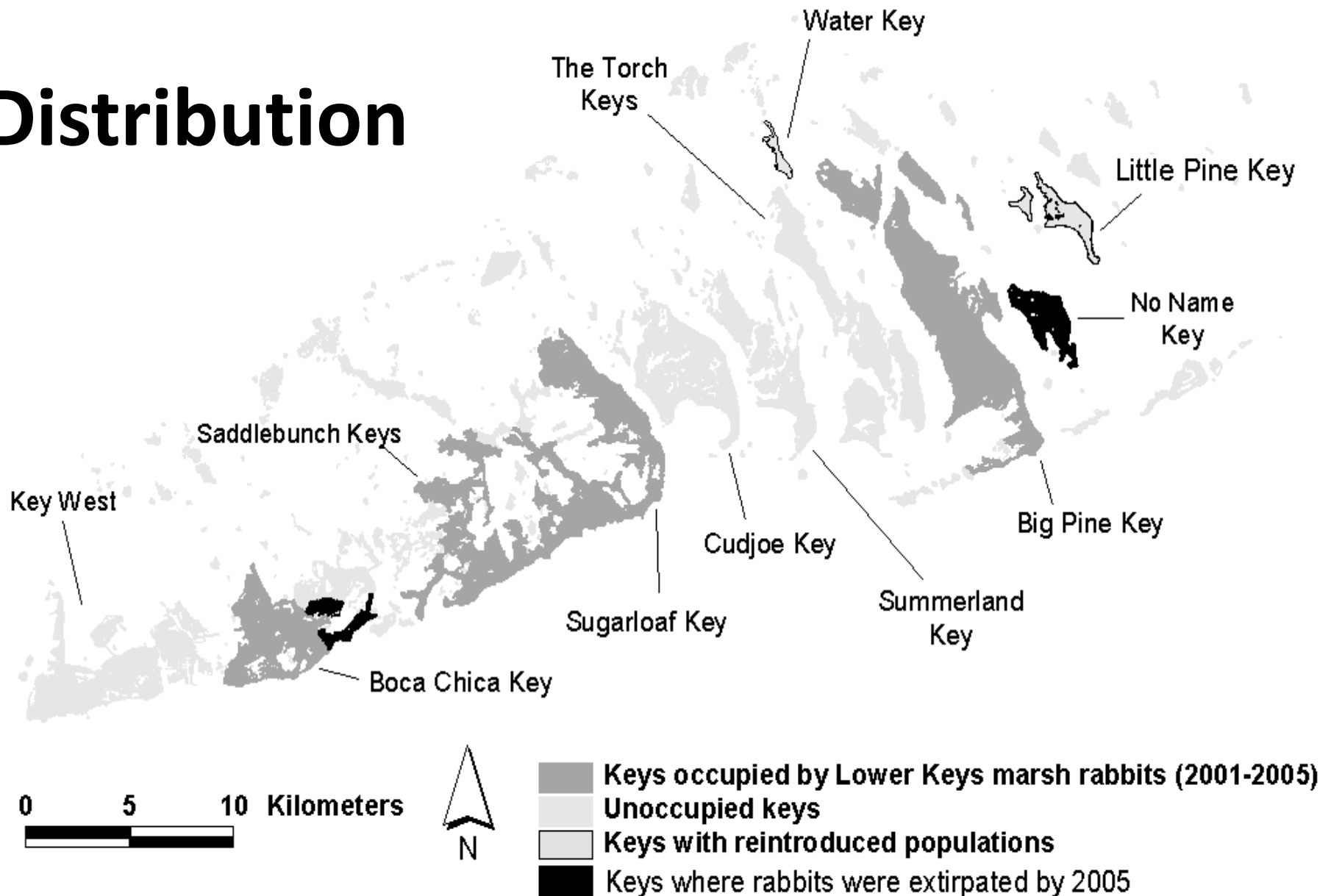
Listed as a federally endangered
subspecies endemic to Lower
Florida Keys in 1990
(USFWS 1999)

Habitat



- Grassy marshes and prairies (e.g. saltmarsh) important habitat for LKMR (USFWS 1999)
- Transition zone of grasses and sedges used for feeding, shelter, and nesting
- LKMR select for open areas with dense herbaceous vegetation (Perry 2006)

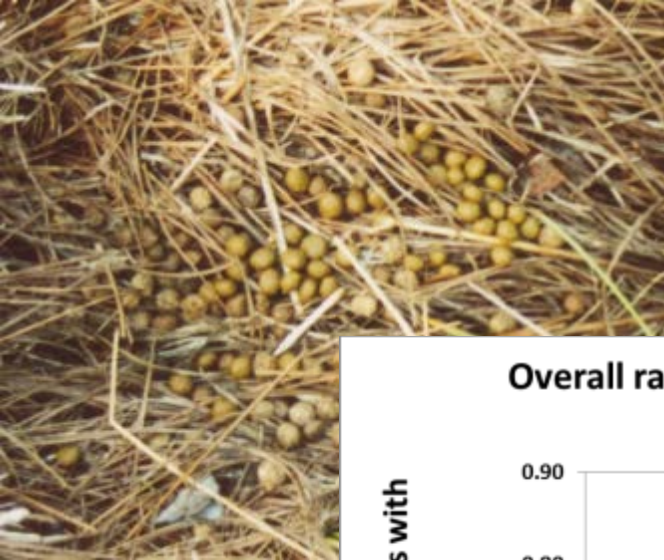
Distribution



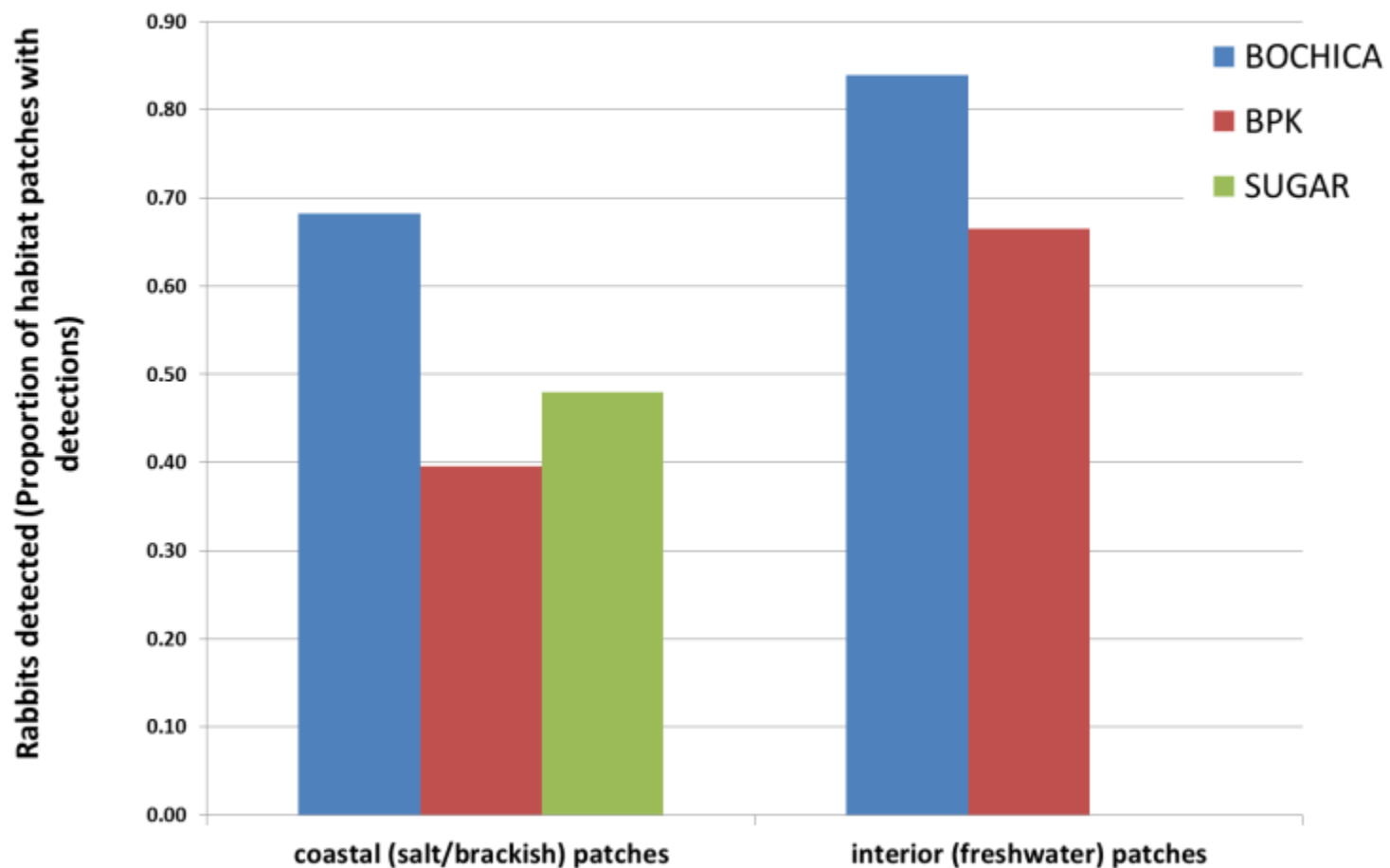
(Faulhaber et al. 2007)



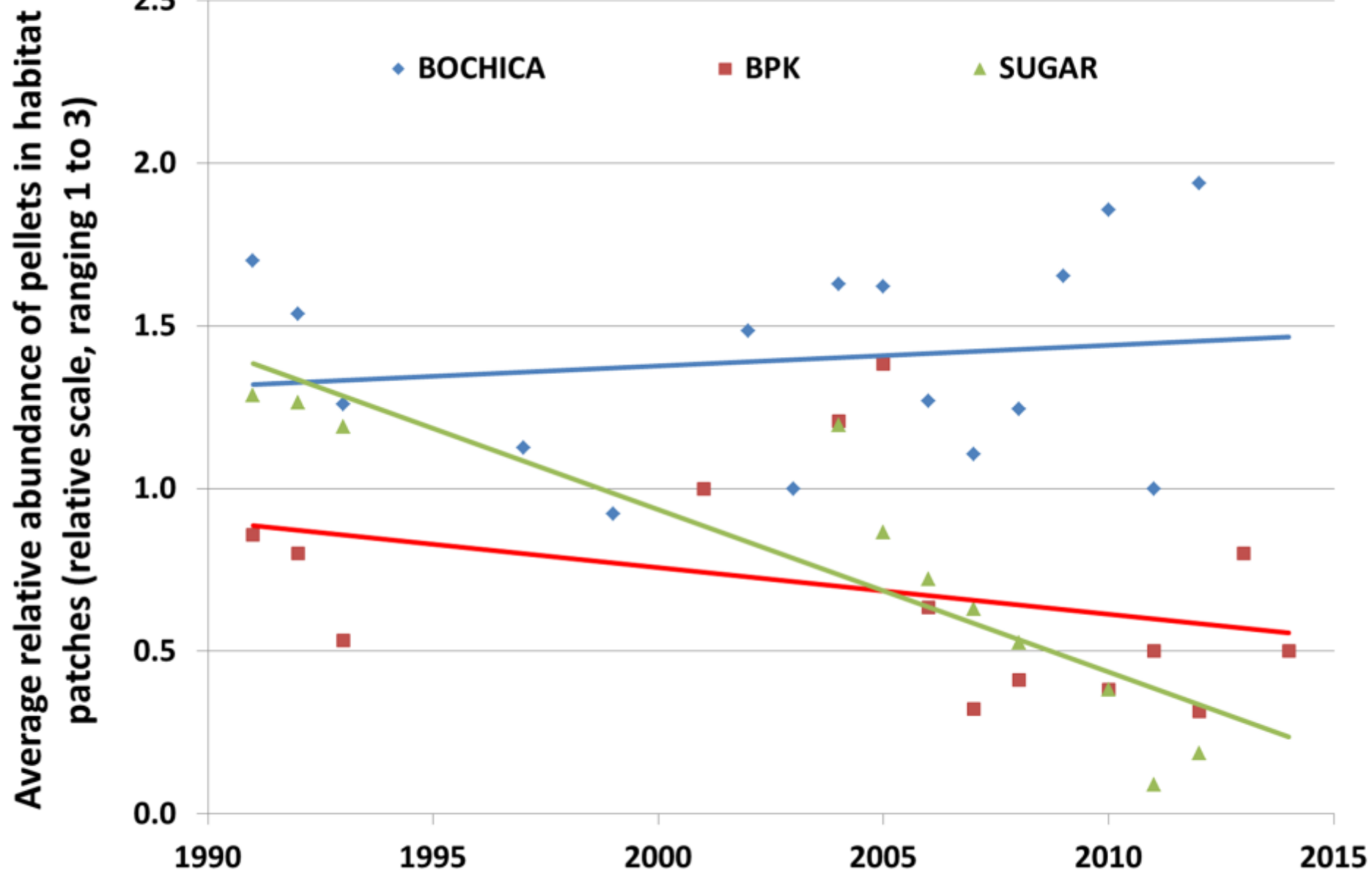
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, Aero, GeoManning, AeroGlobe, IGN, IGP, swisstopo, and the GIS



Overall rate of LKMR detections in patches, 1988-2014, by metapopulation and landscape setting



Overall average LKMR pellet abundance in patches, 1988-2014,
by metapopulation



Management Challenges/Recovery actions



- Loss of habitat
 - Development
 - Exotic vegetation
 - Natural succession
- Predation by free roaming cats
- Road mortality

- Rangewide monitoring & research
- Reducing predation pressure
- Maintain existing habitat



Cat predation represents a deterministic threat that undermines all habitat management techniques-(Forys and Humphrey 1999)

Monitoring

2015-10-26 7:15:03 AM M 1/10

23°C

2014-04-12 3:42:22 AM M 2/3

20°C



PC800 PROFESSIONAL

2015-10-27 2:44:14 AM M 3/10

25°C



PC800 PROFESSIONAL

RECONYA

2014-03-16 6:00:56 AM M 3/3

19°C



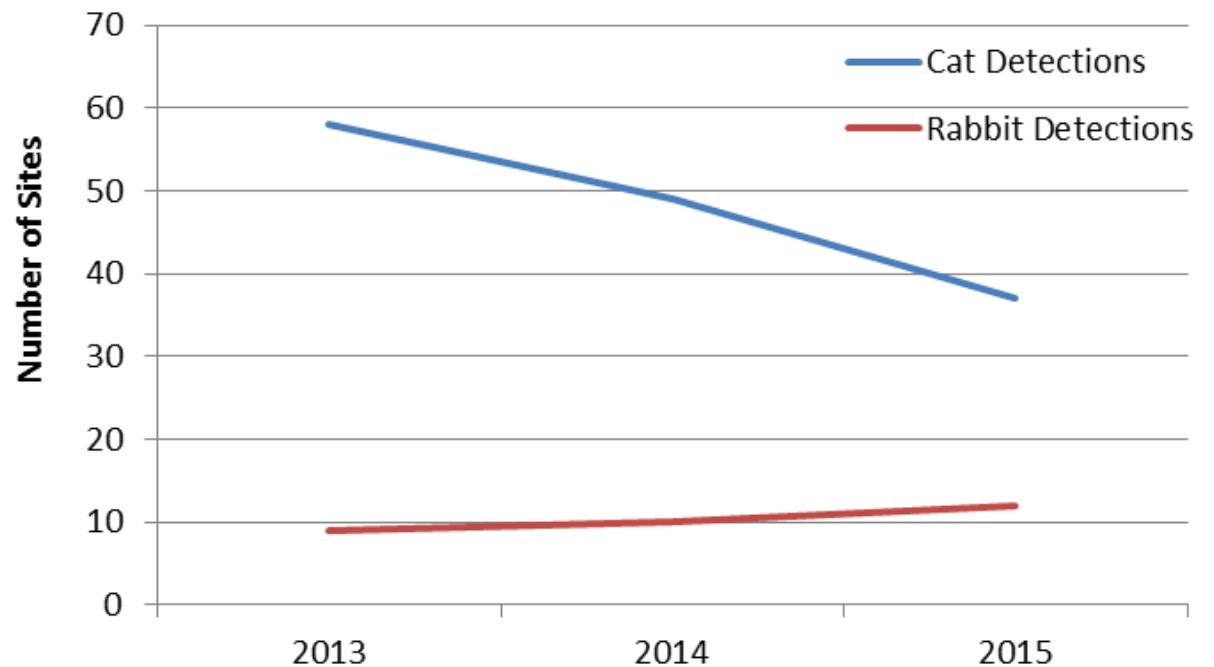
PC800 PROFESSIONAL

RECONYA

Predator Management



BPK Detections



Predator Management Outreach



Educating the public on responsible pet ownership that protects
wildlife

Maintain Habitat- Exotic Plant Removal



Prevents monocultures from forming and allows native vegetation to persist

Maintain Habitat- Prescribed Burns



A dramatic sky with a large, dark, billowing cloud formation over the ocean. The cloud is dark and textured, with bright light breaking through its top and sides, creating a high-contrast scene. The sky is a deep blue, and the ocean is visible at the bottom. A large, bright yellow question mark is overlaid on the center of the image.

Questions

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