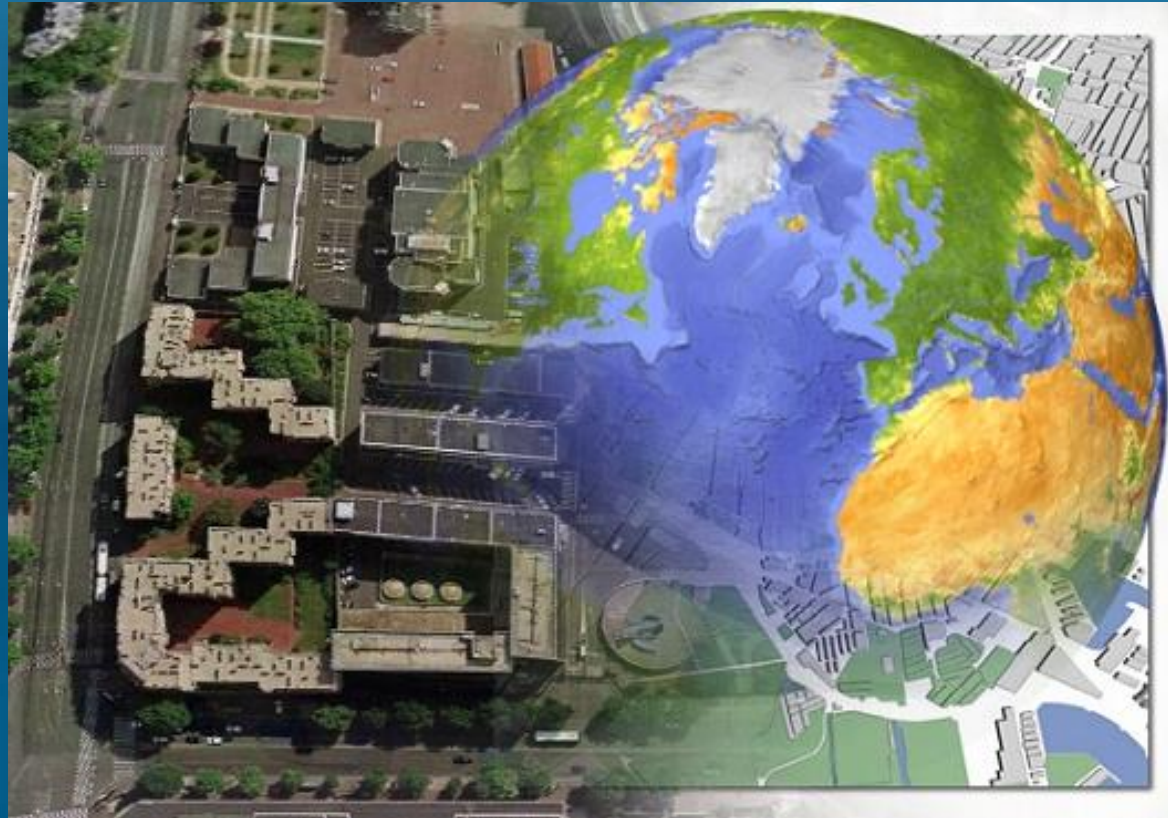


An Introduction to GIS and Spatial Data



Jennifer Anne Lentz, Ph.D.

Education Specialist at the Aquarium of the Pacific

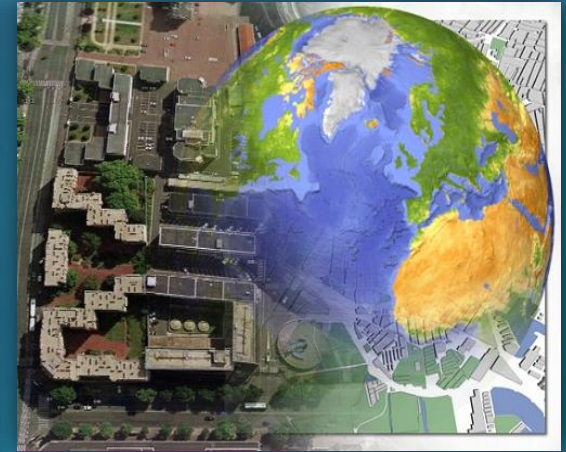
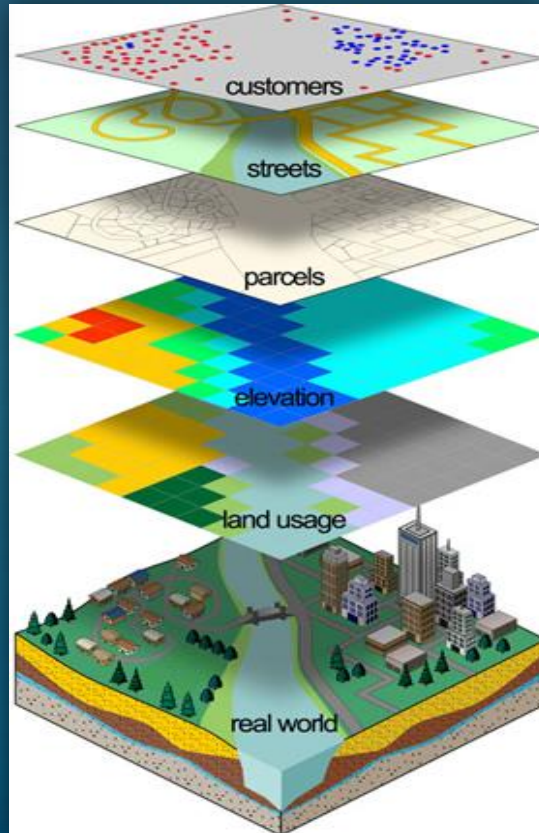
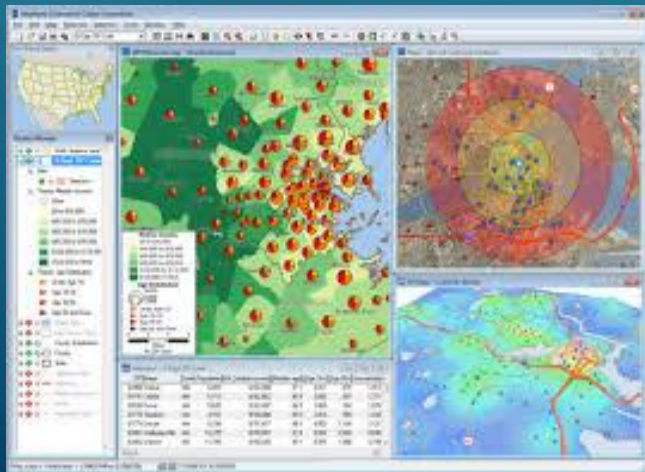
NASA Teacher Workshop Presentation

October 11th, 2013

Geographic Information Systems



Spatial Analysis



Remote Sensing



GIS Applications

Crime Analysis



Ecologic & Climate Science

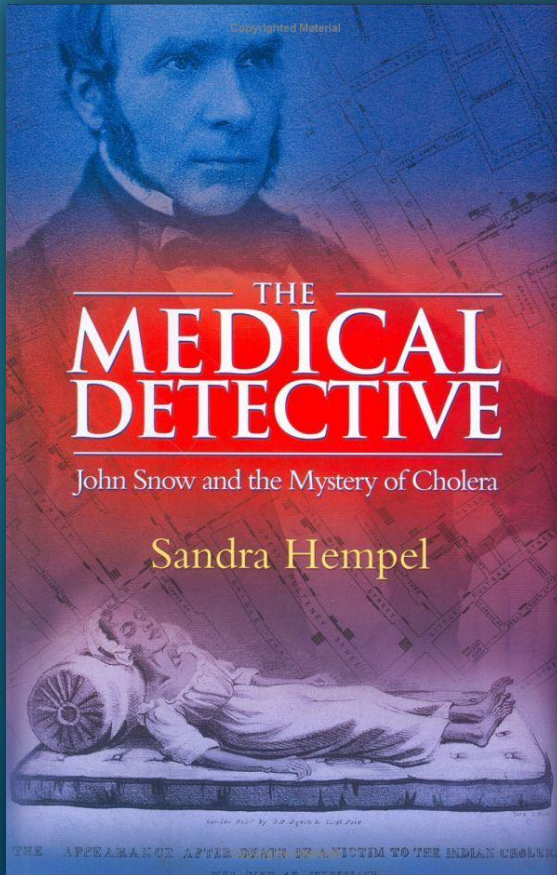


Medical Geography & Spatial Epidemiology



Dr. John Snow (1813-1858)

“Father of **Modern Epidemiology**”



ST. JAMES, WESTMINSTER.

The GOVERNORS and DIRECTORS of the POOR
HEREBY GIVE NOTICE,
That, with the view of affording prompt and Gratuitous assistance to Poor Persons resident in this Parish, affected with Bowel Complaints and

CHOLERA,

The following Medical Gentlemen are appointed, either of whom may be immediately applied to for Medicine and Attendance, on the occurrence of those Complaints, viz.—

Mr. FRENCH, 41, Gt. Marlborough St.
(Opposite, Bow's Court, Mansell Street)

Mr. HOUSLEY, 28, Broad Street.

Mr. WILSON, 16, Great Ryder St.

Mr. JAMES, - 49, Princes Street.

Mr. DAVIES, 25, Brewer Street.

SUGGESTIONS AS TO FOOD, CLOTHING, &c.

Regularity in the Hours of taking Meals, which should consist of any description of wholesome Food, with the moderate use of sound Beer.

Abstinence from Spirituous Liquors.

Warm Clothing and Cleanliness of Person.

The avoidance of unnecessary exposure to Cold and Wet, and the wearing of Damp Clothes, or Wet Shoes.

Regularity in obtaining sufficient Rest and Sleep.

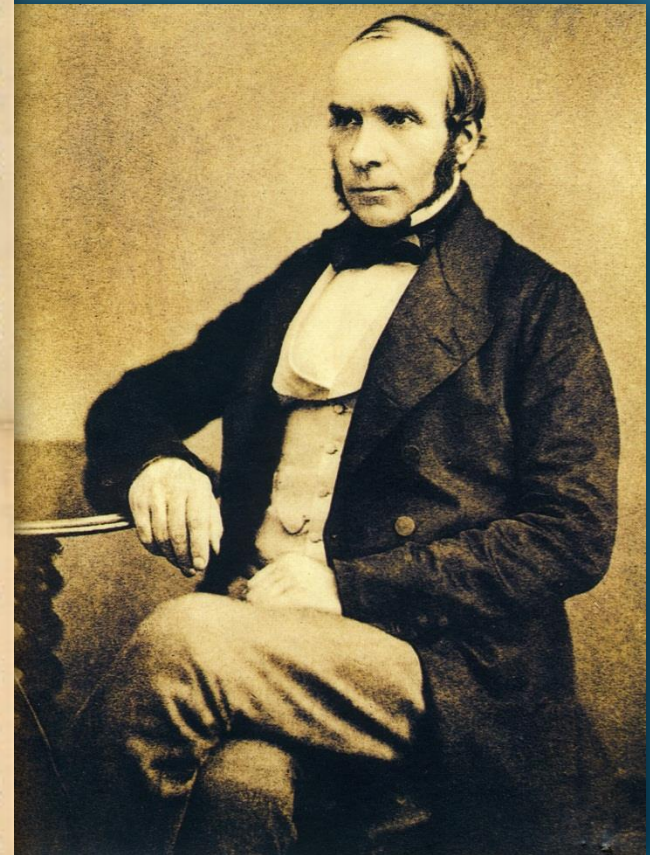
Cleanliness of Rooms, which should be aired by opening the Windows in the middle of each day.

By Order of the Board,
GEORGE BUZZARD,
Clerk.

FRENCH'S OFFICE, Palace Street,
20th November, 1831.

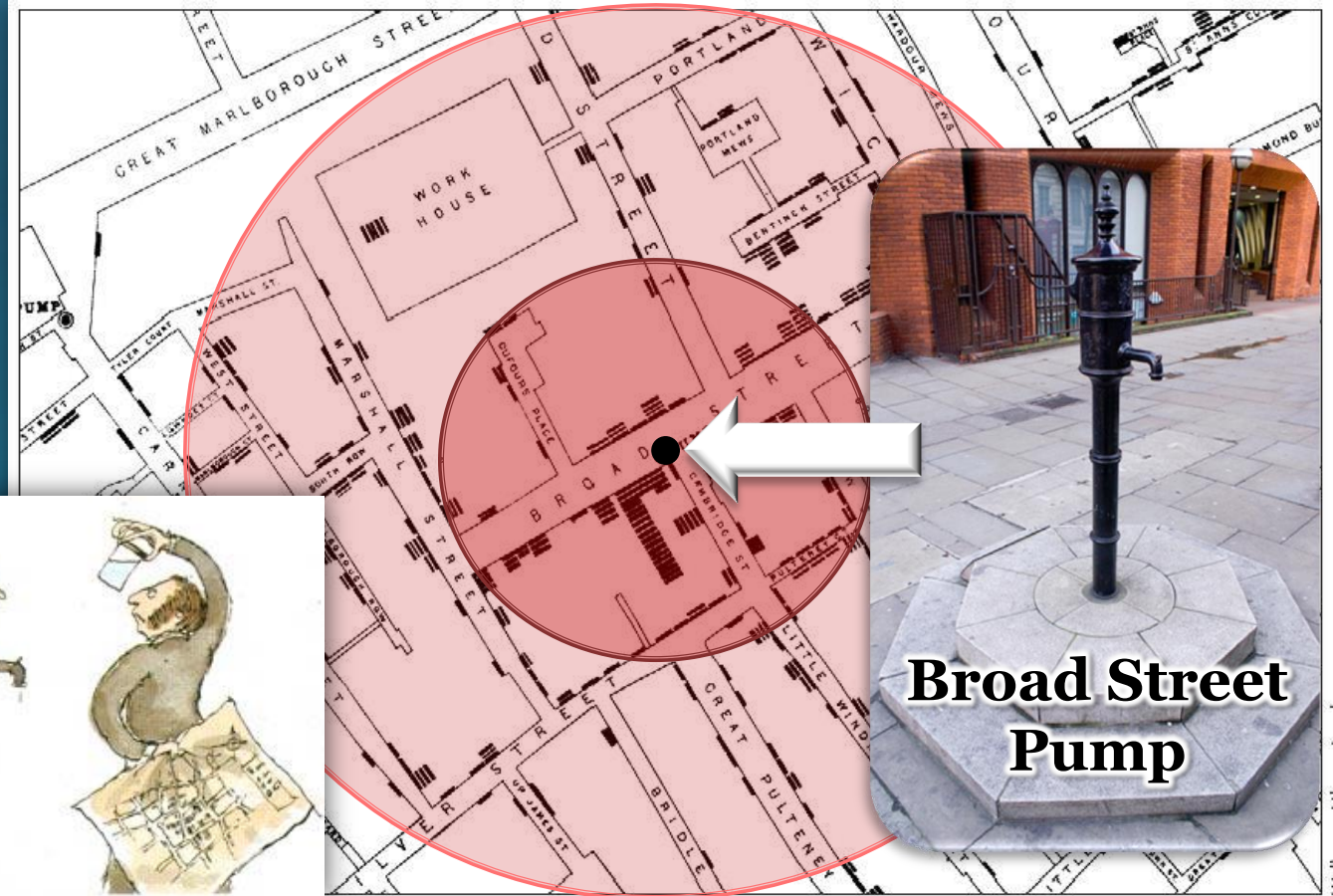
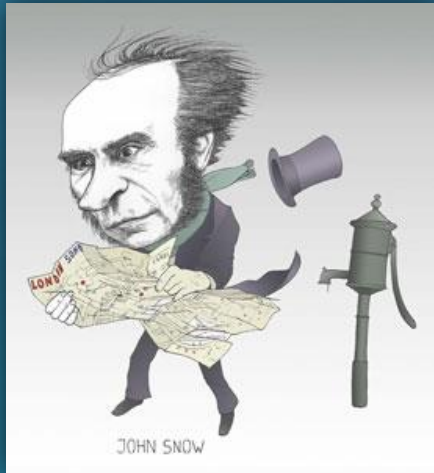
It is requested that this Paper be taken care of, and placed where it can be easily referred to.

PRINTED BY J. JOHNSON, ST. PAUL'S CHURCH-YARD, LONDON.



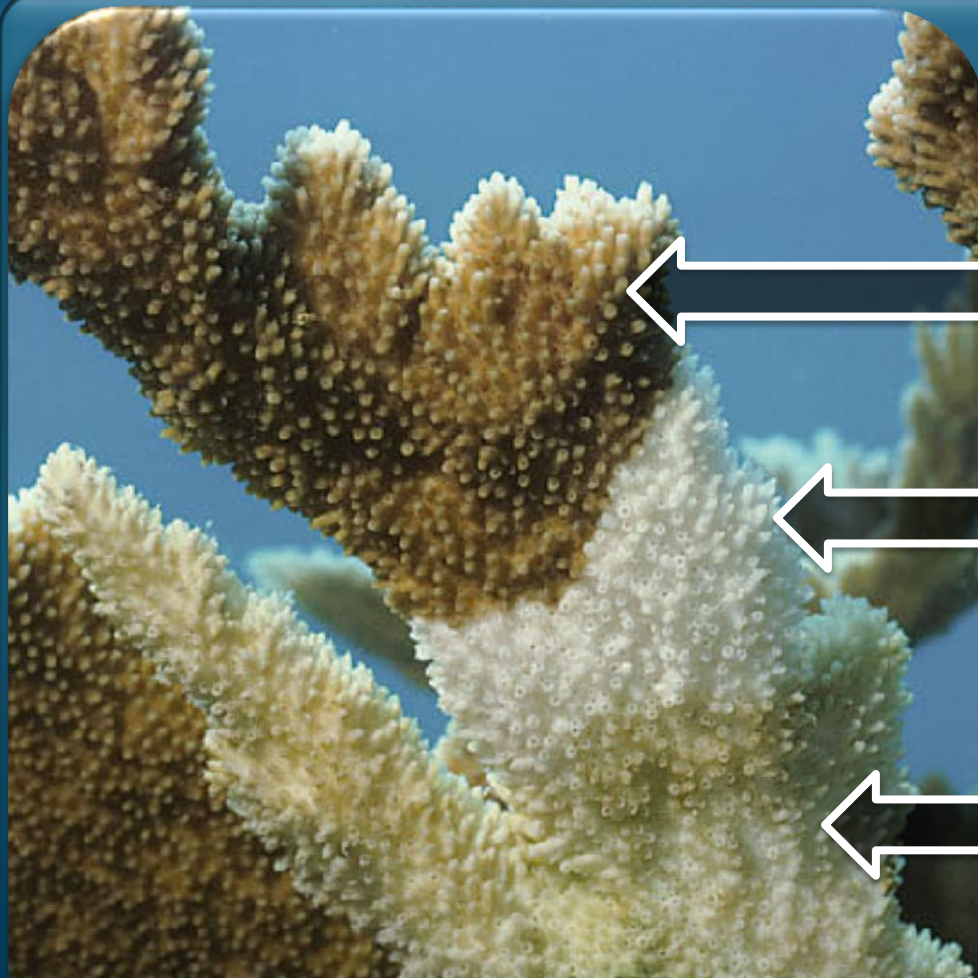
Dr. John Snow (1813-1858)

“Father of **Medical Geography**”



Street map of cholera deaths in Soho in 1853 from John Snow's *On the Mode of Communication of Cholera*

Coral Reef Diseases



Healthy Tissue

Active WBD

**Recently Dead tissue
killed by WBD**

Fig.4.19: WBD; Caribbean *Acropora palmata* infected with WBD-I.
Sutherland et al, 2004

Coral Reef Diseases

95% decline in Caribbean *Acropora* corals

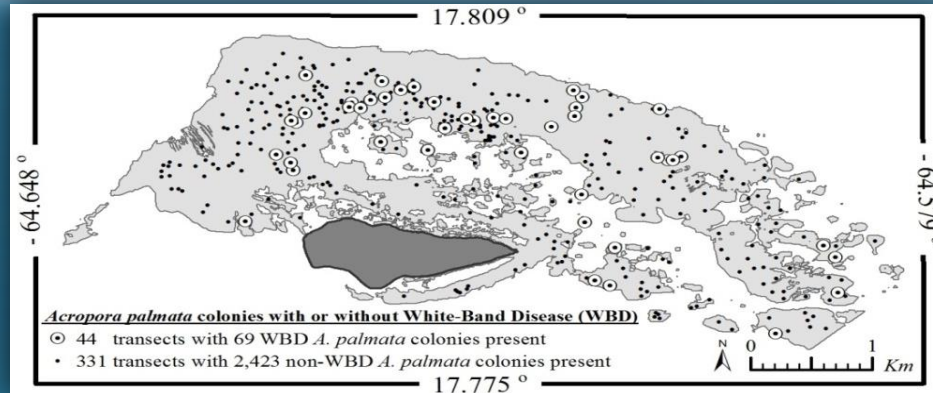
Past



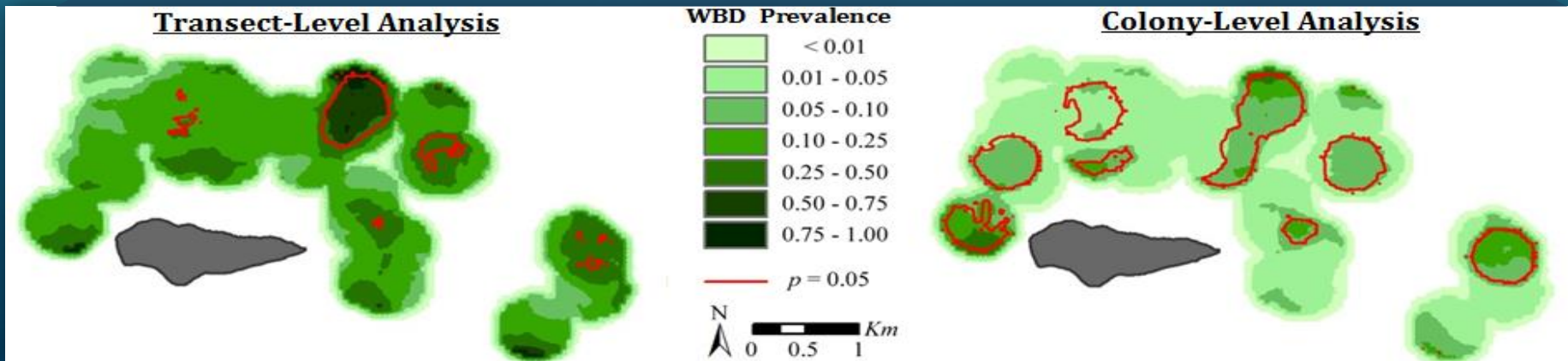
Present



Coral Reef Diseases



Transect versus Colony-Level Spatial Analysis of White-Band Disease (WBD) Prevalence



Home Range & Habitat Use

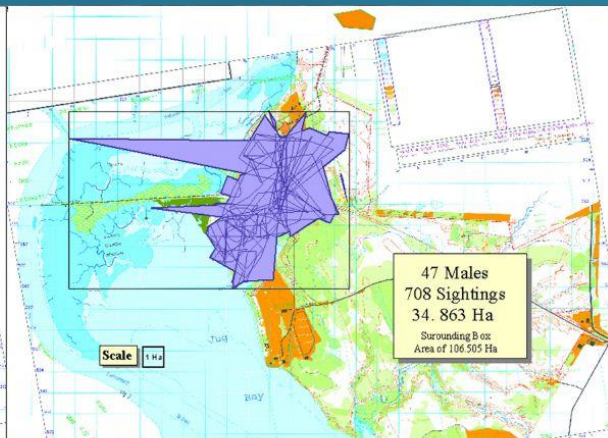
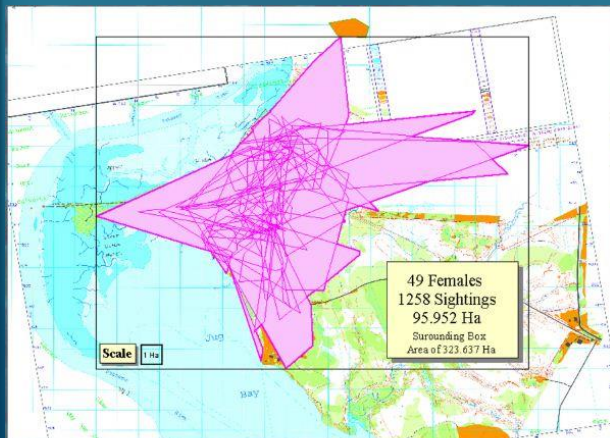
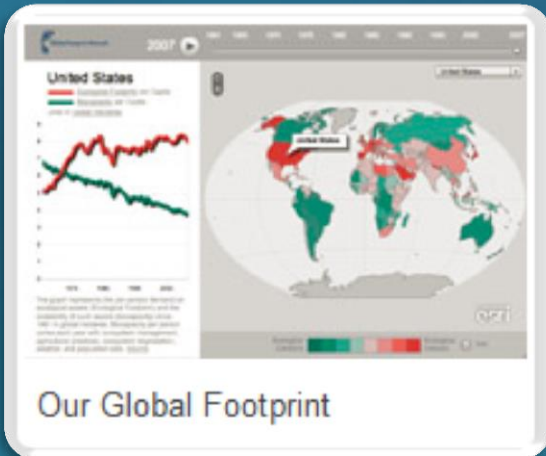


Fig. 6. Combined home ranges based on the Minimum Convex Polygon method. The home range of each individual turtle is depicted as a thin lined polygon; the total area used by each gender is depicted by a thick lined, shaded polygon.

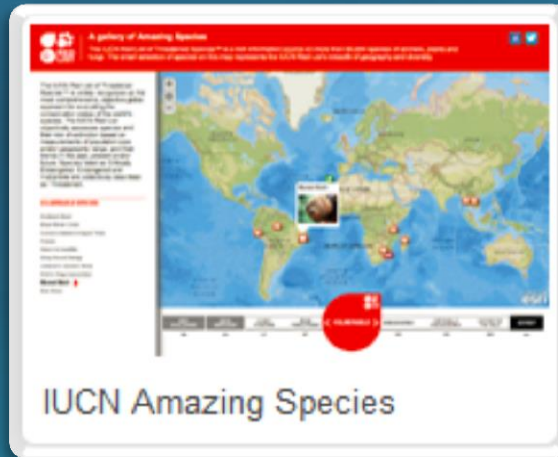
Story Maps

These Story Maps & Others can be found at: <http://storymaps.esri.com/>



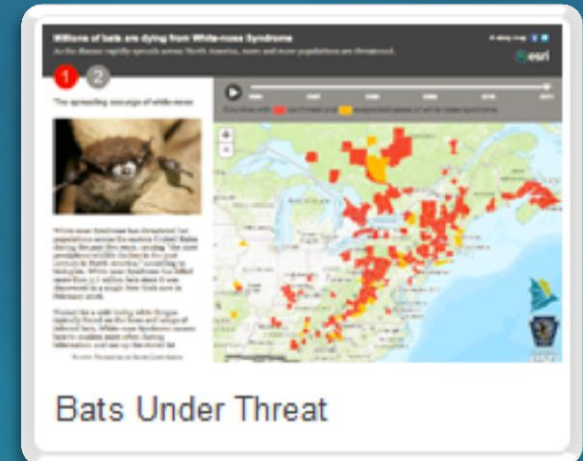
This story map, titled "United States", features a line graph on the left showing two data series over time from 1950 to 2000. The right side displays a world map with colored overlays representing the United States' global footprint. The map uses a color-coded legend to show different types of land use or resource consumption across various regions.

Our Global Footprint



This story map, titled "A gallery of Amazing Species", includes a text panel on the left with a list of species. The main part of the map shows a world map with red circular markers indicating the geographic locations of these species. A red circular callout is visible over the Pacific Ocean region.

IUCN Amazing Species



This story map, titled "Millions of bats are dying from White-nose Syndrome", features a photograph of a bat on the left. The right side shows a map of North America with a heatmap overlay in shades of red and yellow, indicating the distribution and impact of White-nose Syndrome. A play button icon is visible, suggesting an interactive or video component.

Bats Under Threat



This story map, titled "One World, Many Voices: Endangered Languages and Cultural Heritage", includes a photograph of a person on the left. The right side shows a world map with colored markers indicating the locations of endangered languages. The map is overlaid with a grid and various colored regions.

One World, Many Voices: ...



This story map, titled "A History of Royal Births", features a large, central photograph of a royal couple in formal attire, likely a wedding or a formal event. The image is high-quality and occupies most of the story map's frame.

A History of Royal Births



This story map, titled "A guided tour of Olympic host cities", includes a map of Australia on the left with a red marker over Sydney. On the right, there is a photograph of Olympic athletes celebrating with their medals. The map shows the outline of Australia and its major cities.

Olympic Host Cities

AOP Story Maps

HOME GALLERY MAP GROUPS MY CONTENT MY ORGANIZATION Jenny

AQUARIUM OF THE PACIFIC
A non-profit institution

OCEAN EXPLORATION

Story Maps Website

Story Maps in Progress

- AOP Volunteer Story Map
AOP Volunteers Story Map
Aquarium of the Pacific's Volunteers Story Map
- Boeing Teacher Institute Story Map
Boeing Teacher Institute (BTI) Story Map
- CELG Locations and Frequency of Extreme Weather Events
Story Map Working Draft
CELG Locations and Frequency of Extreme
- Desertification of the world
Web Map Working Draft
Desertification of the world

The Aquarium of the Pacific's mission is to instill a sense of wonder, respect, and stewardship for the Pacific Ocean, its inhabitants, and ecosystems. Our vision is to create an aquarium dedicated to conserving and building Natural Capital (Nature and Nature's services) by building Social Capital (the interactions between and among peoples).

The Aquarium of the Pacific is the fourth most-attended aquarium in the nation. It displays over 11,000 animals in more than 50 exhibits that represent the diversity of the Pacific Ocean. Each year more than 1.5 million people visit the Aquarium. Beyond its world-class animal exhibits, the Aquarium offers educational programs for people of all ages from hands-on activities to lectures by leading scientists. Through these programs and a variety of multimedia experiences, the Aquarium provides opportunities to delve deeper into ocean science and learn more about our planet. The Aquarium of the Pacific has redefined the modern aquarium. It is a community gathering place where diverse cultures and the arts are celebrated and a place where important topics facing our planet and our ocean are explored by scientists, policy-makers and stakeholders in the search for sustainable solutions.

<https://aop.maps.arcgis.com/>

Exploring Wildlife Data using GIS



GIS Wildlife Data Tutorial

GIS Wildlife Tutorial with links to FREE GIS Lesson Plans for K-12 Classrooms

available online at:

[http://jenniferalantz.info/Teaching/Tutorials/
Tutorial_UsingGISWildlifeData_2013.pdf](http://jenniferalantz.info/Teaching/Tutorials/Tutorial_UsingGISWildlifeData_2013.pdf)

This PowerPoint Presentation,
as well as other presentations and
teaching-related materials, are
available online at:

<http://JenniferALantz.info/Teaching/>

GIS Wildlife Data Tutorial

How to find, Map, & Spatially Analyze Wildlife Data
in a GIS System



This Tutorial was Created by
Jennifer Anne Lentz, Ph.D.
Education Specialist at the Aquarium of the Pacific

*This tutorial, and other teaching-related materials by Dr. Lentz are available online at:
<http://jenniferalantz.info/Teaching.html>*