



THE ROLE OF CONSERVATION IN PUBLIC HEALTH

Erin Jobman | MPH Candidate 2017 | Field Experience Report

A faint, light gray world map serves as the background for the slide. The continents are visible, with North and South America on the left and Europe and Africa in the center. The title 'CONSERVET PROGRAM' is overlaid on the map in a large, blue, sans-serif font.

CONSERVET PROGRAM

- Conservation medicine course
- Costa Rica
 - Soltis Center
 - Monteverde
- Goals of Program
 - Interface between human, animal, and environmental health
 - Biodiversity
 - Conservation strategies
 - Infectious disease prevalence

COSTA RICA

- 5% of the world's biodiversity
- Geography
 - Two coasts
 - Mountainous system
 - Volcanoes
- Eco-zones
 - Cloud Forests
 - Rain Forests



<http://www.worldatlas.com/webimage/countrys/namerica/camerica/lcolor/crcolor.htm>

CONSERVET 2015







SPECIES COLLECTION

- Avian
- Bat
- Insects
- Livestock













DISEASES OF INTEREST

- Avian Influenza
- West Nile Virus
- Dengue
- Chikungunya
- Viral Encephalitis
- Chagas Disease



ZOONOTIC DISEASES

- 60% of infectious diseases
 - 75% of emerging diseases
- Marked increase in emerging diseases
 - Land-use alterations
 - Urbanization
 - Agriculture
 - Trade and travel
 - Habitat encroachment
 - Increased awareness



ENVIRONMENTAL HEALTH

- Climate Envelopes
 - Temperature
 - Precipitation
 - Elevation
- Disease systems
 - Complex host-vector relationships
- Abiotic factors
 - Behavior
 - Social structure
 - Dispersal



DISEASE TRANSMISSION



- Changes alter pathogen transmission
- Requirements:
 - Necessary host and vector species
 - Conditions for pathogen survival
- Altered interactions increase risk of transmission
 - Climate change
 - Habitat destruction
 - Disappearance of species

EMERGENCE OF INFECTIOUS DISEASE

- Driving Factors:
 - Climate change
 - Habitat Destruction
 - Loss of biodiversity



CLIMATE CHANGE

- Result of increased carbon dioxide levels in the atmosphere
- Life cycles and transmission routes of infectious agents are affected by climate
 - Temperatures
 - Precipitation patterns
- Arboviruses
 - Replication kinetics
- Altered environments
 - Changing density and distribution of animal and insect reservoirs
 - Emergence into new territories
 - Naïve populations

CLIMATE CHANGE



http://www.bagheera.com/inthewild/van_anim_gldtoad.htm

- Declines in amphibian populations during warm years
 - Golden toad
 - Harlequin frog
- Warm temperatures
 - Reduced humidity
 - Favorable conditions for pathogens

HABITAT DESTRUCTION

- Land-clearing
 - Increased interactions with wildlife
 - Naïve exposure
- Examples
 - Nipah Virus
 - Marburg Virus
 - Severe Acute Respiratory Syndrome
 - Ebola



LOSS OF BIODIVERSITY



- Bats
 - Insect predators
 - Seed dispersers
 - Pollinators
- White-Nose Syndrome
 - 80% decline in North American species
- \$50 billion per year
- Highly specialized species

DISEASE EMERGENCE

- Driving Factors:
 - Climate change
 - Habitat Destruction
 - Loss of biodiversity
- Role of conservation



CONSERVATION STRATEGIES

- Government organizations
- Policy changes
- Biological corridors
- Sustainable agriculture



CONSERVATION STRATEGIES

- Preservation of Biodiversity
 - Bats
- Habitat Conservation
 - Biological Corridors
 - Sustainability
 - Carbon sinks





THANK YOU!

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A low-angle, upward-looking photograph of a dense forest. The image captures the intricate network of tree branches and a thick layer of green leaves. Sunlight filters through the canopy, creating bright, dappled patches of light against the darker green foliage. The perspective makes the trees appear to converge towards the top of the frame, emphasizing the height and density of the forest.

QUESTIONS?