

The Animal / Human Interface- from Wildlife Trade to Avian Influenza: A Global Perspective on Implications for the US

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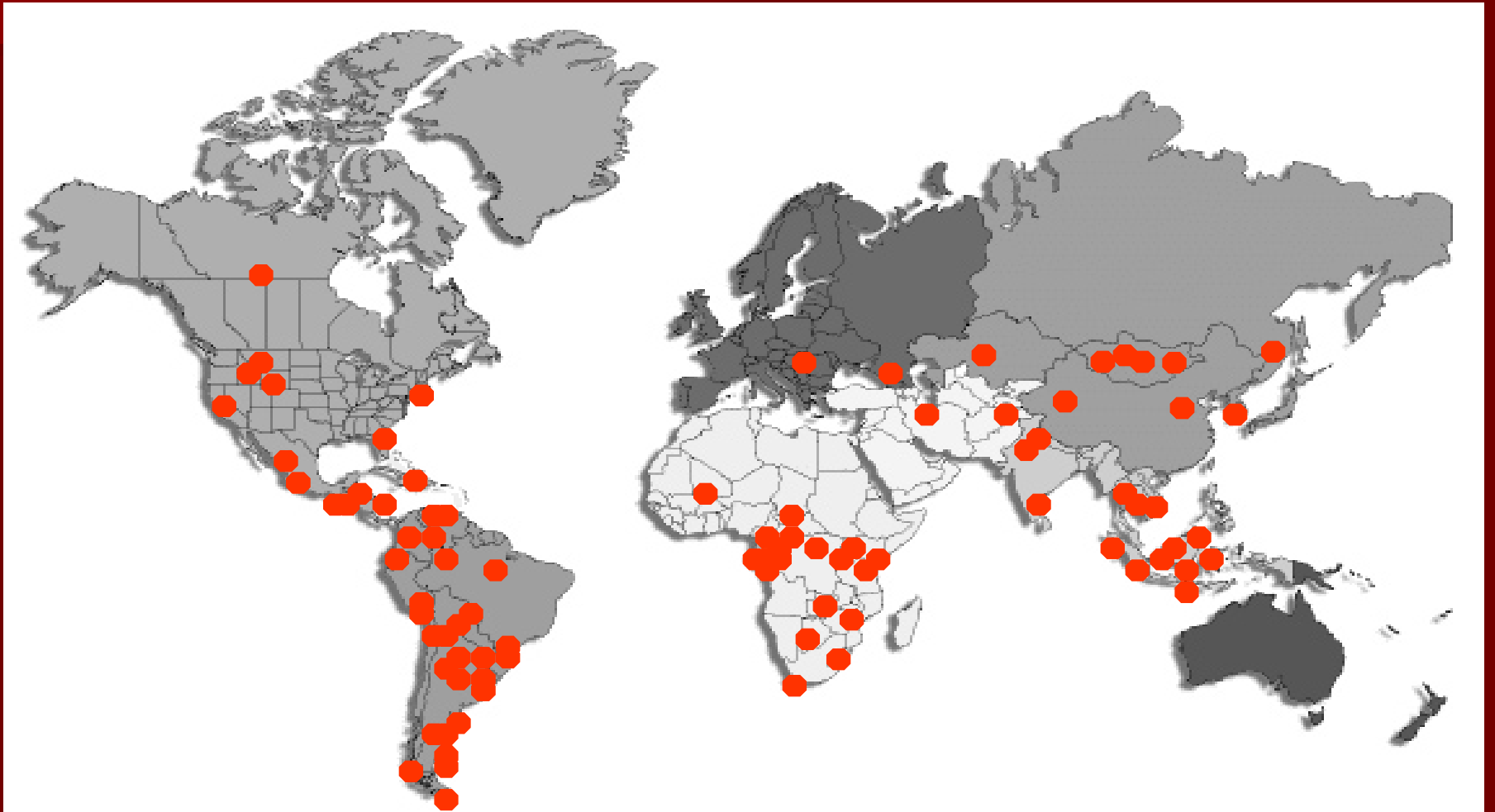




*Founded in 1895 as the
New York Zoological Society*

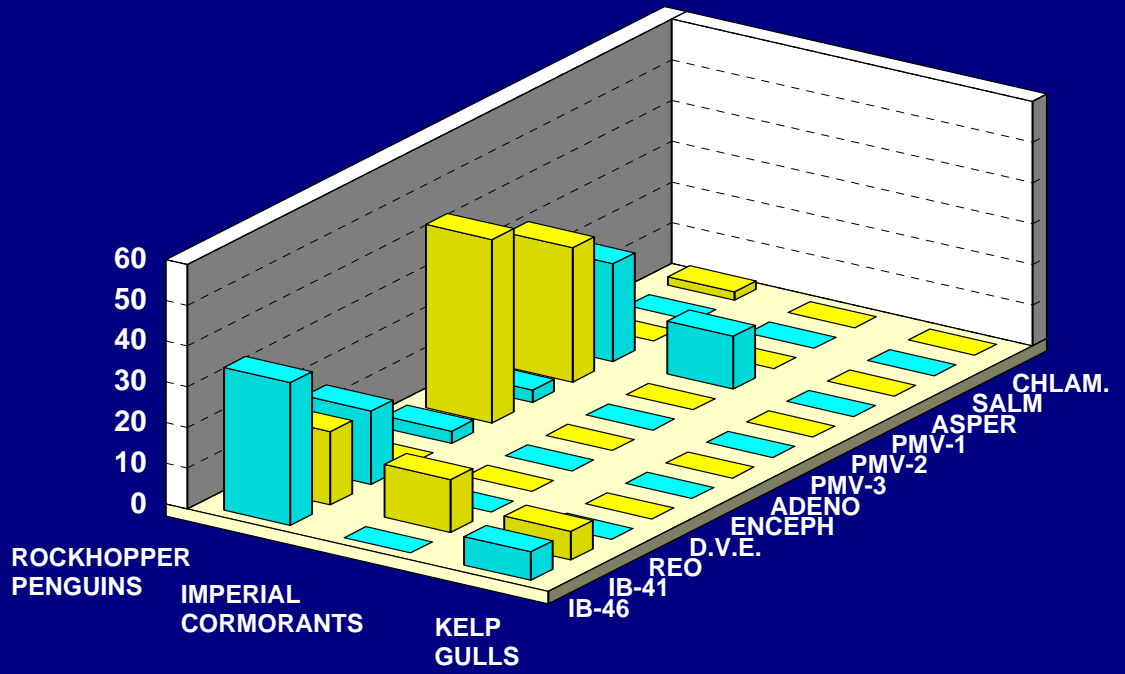


Global Health Program





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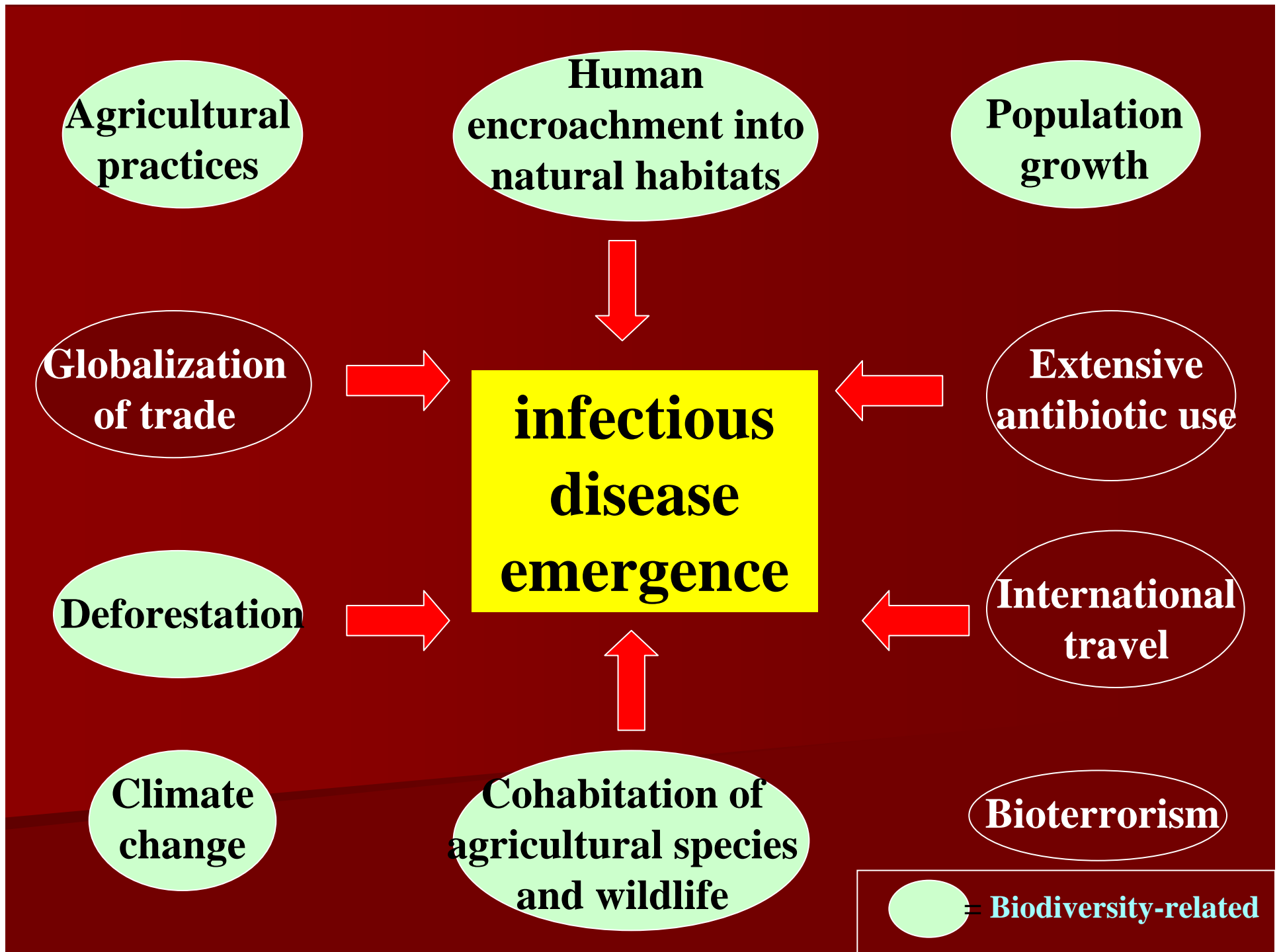


The Human, Wildlife, Livestock, Interface



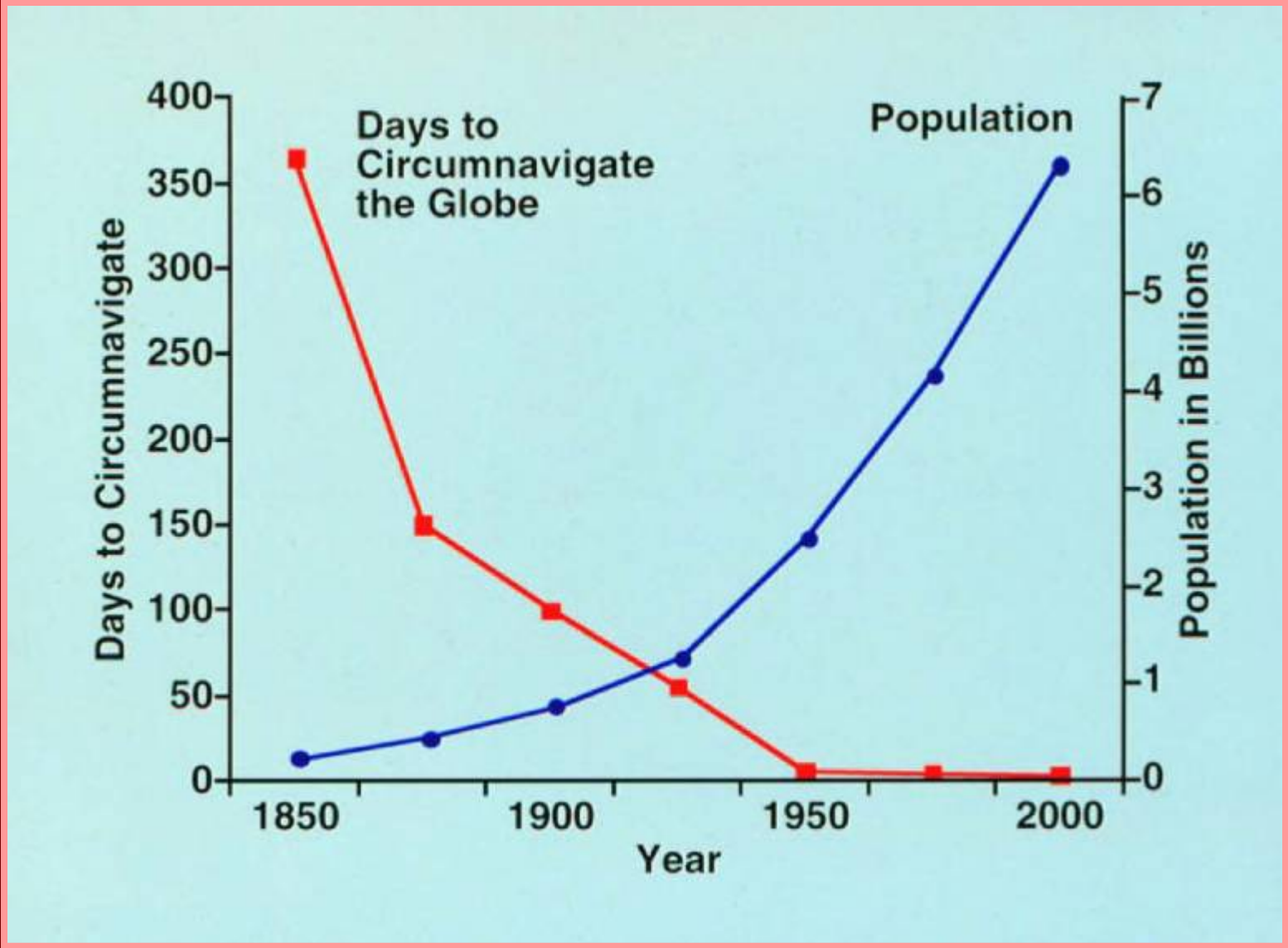


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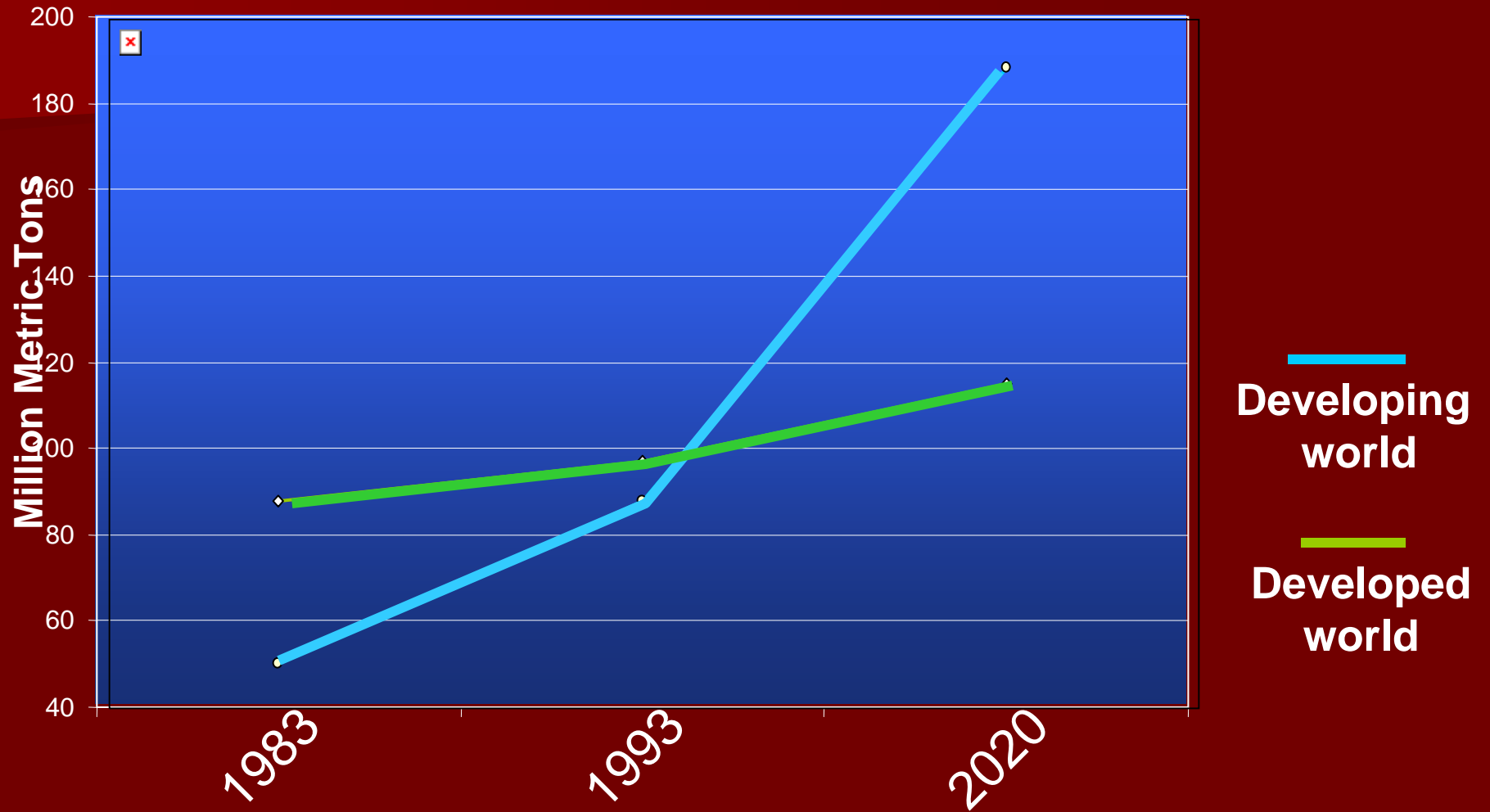
Emerging Infectious Diseases

- 26% of human deaths are caused by infectious diseases globally (World Health Report, 2004).
- Over 60% of pathogens are zoonoses (pathogens transmissible between animals and humans).
- Over 70% of zoonoses arise from interactions with wildlife.
- 96% of IUCN listed wild mammals threatened by disease shared these diseases with domestic animals (Pederson *et al*, 2007).



Murphy and Nathanson, Semin. Virol. 5, 87, 1994

World Meat Consumption: 1983-2020



Source: IFPRI, "Livestock to 2020: The Next Food Revolution"

FAO Annual Data. Total meat consumption for 1983 and 1993 are three-year moving averages.
2020 projections come from IFPRI's global model, IMPACT

Public health and education



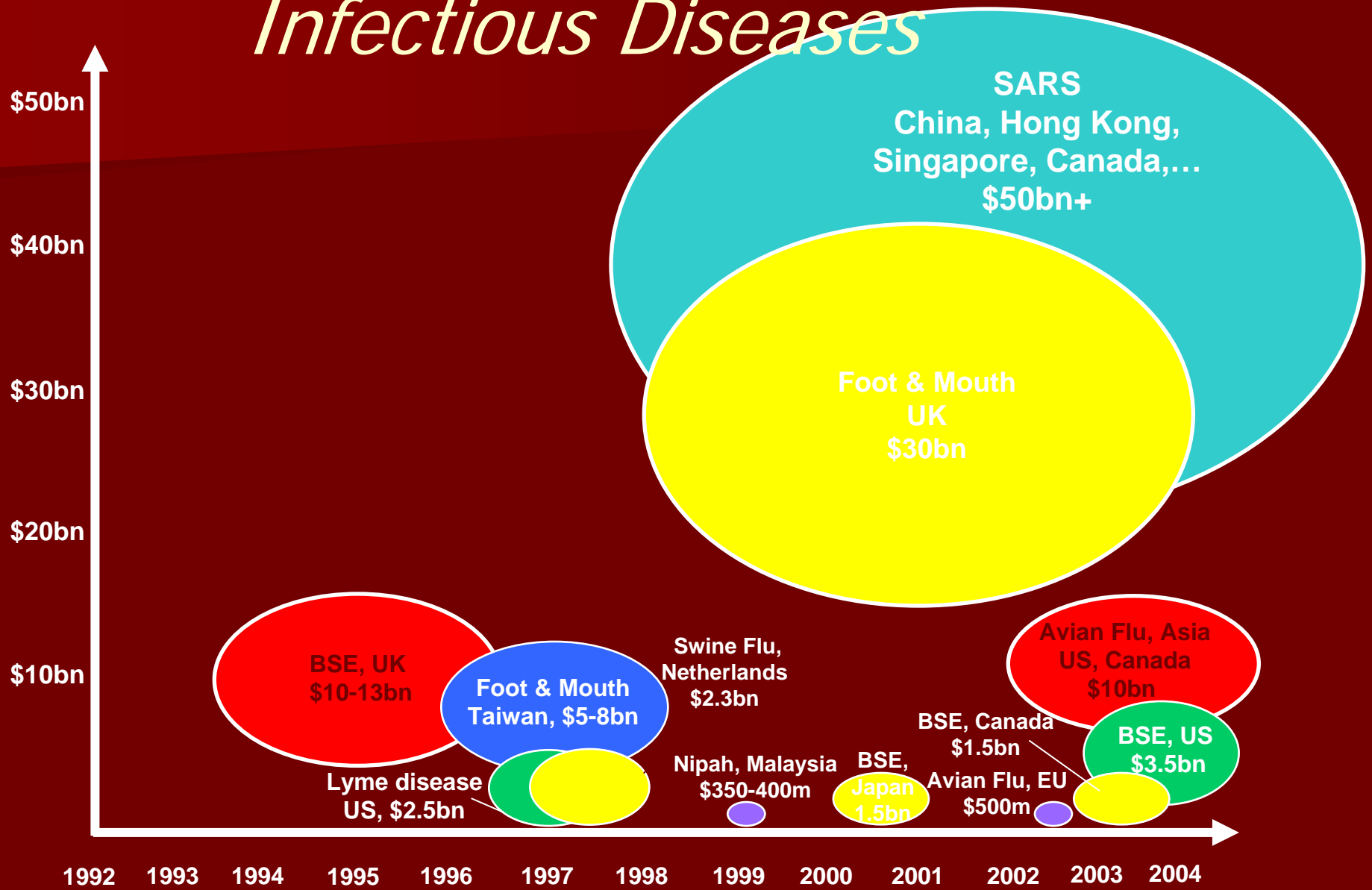
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Outbreak prevention via vaccination

- Vaccine development (NIH VRC, NIH NIAID)
 - Efficacy and safety
 - Delivery
 - Target populations
 - Priority great ape populations
 - Non-target species



Economic Impact of Selected Infectious Diseases



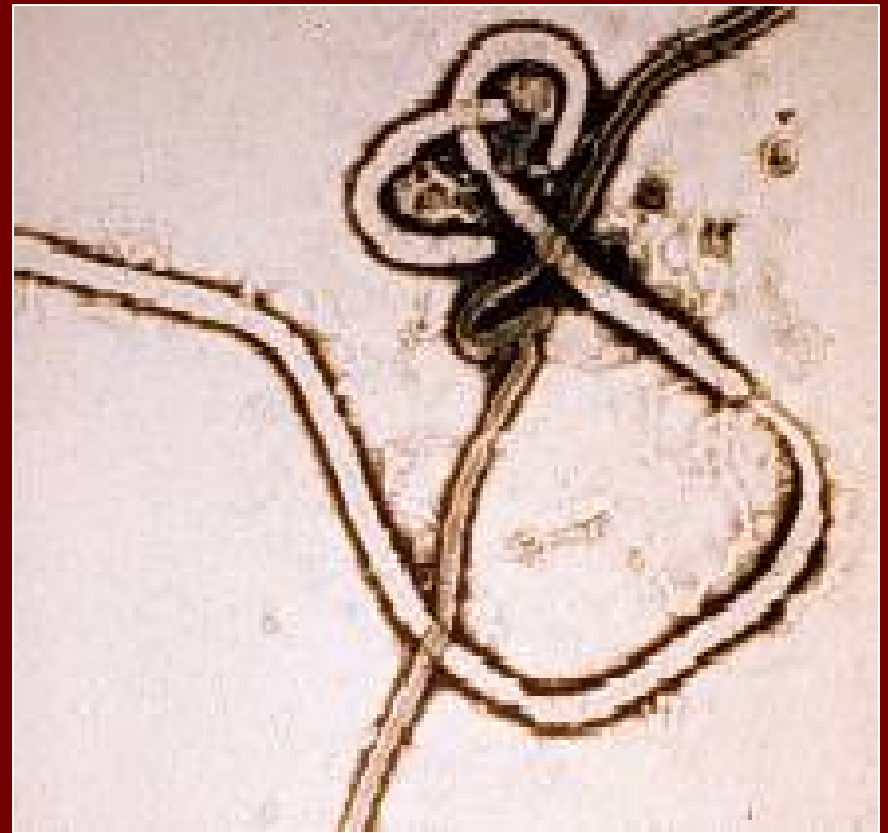
Figures are estimates and are presented as relative size. See table for more details.

The Human, Wildlife, Livestock, Interface

- Path forward:
 - Integrated approach to health solutions
 - Ongoing, open communication
 - Global information network
 - Professional cross-pollination
 - Identify loopholes

Ebola Hemorrhagic Fever

- The largest health threat to great apes in Central Africa
- Highly infectious
 - 50-90% mortality
- Est. 5,000 gorillas killed in 2005 epizootic
- Zoonotic



Great Ape Health Program



Department of Health and Human Services
Centers for Disease Control and Prevention



World Health Organization



Institut de recherche
pour le développement

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health

IUCN
The World Conservation Union



USAMRIID

United States Army Medical Research
Institute of Infectious Diseases



U.S.
FISH & WILDLIFE
SERVICE



ECOFAC



MORRIS ANIMAL FOUNDATION'S
MOUNTAIN GORILLA
VETERINARY PROJECT

ESTABLISHED 1986

ROBERT KOCH INSTITUT



Wildlife disease outbreak investigations -an early warning tool-



A Kilbourn / WCS



W. B. Karesh / WCS

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Animal Health for the Environment And Development

- 13 existing and proposed Transfrontier Conservation Areas covering 1.2 million km of Southern Africa
- Rationale dominated by ecological and tourism considerations
 - Restoring free movement of large wild mammals particularly elephant
 - Free movement of tourist across international borders
 - Fostering cooperation between countries– Peace Parks
- Concerns include spread of disease among wildlife, livestock, and wildlife; and affecting the livelihoods of agro-pastoralists living within the historically separated parks

Animal Health for the Environment And Development

As The Fences Come Down

*Emerging Concerns in Transfrontier
Conservation Areas*



**The Great Limpopo Transfrontier Conservation Area
and a Proposed Conceptual Framework for Progress**

*by the Animal Health for the Environment And Development—Great
Limpopo Transfrontier Conservation Area (ANEAD-GLTFCA) Working Group*



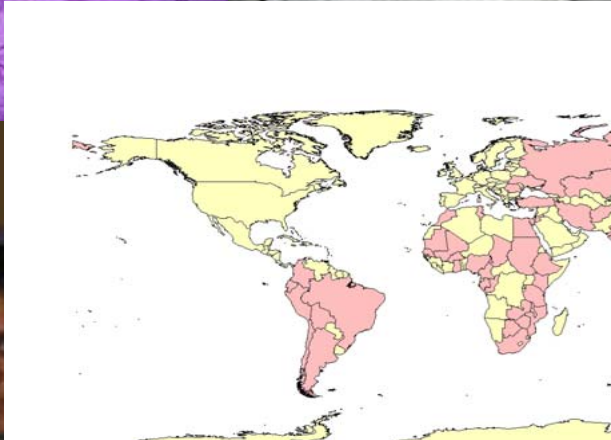
High Path Avian Influenza





Global Avian Influenza Network for Surveillance (GAINS)





© S Ostrowski/W

Global Avian Influenza Network for Surveillance (GAINS)

Global Avian Influenza Network for Surveillance
A program of the Global Animal Information Network for Surveillance

Map Tools > WISDOM Map Explorer Register | Login Search Go

Home | Contributors | Data Tools | Map Tools | Resources | About GAINS

Map Criteria | Map Data | Manage Sessions | Zoom to Location | Show Drawing Tools

Latitude: 34.5, Longitude: 116.8

Results Legend Help

ranogenicity: all, [View a Report](#)

Details for Niannaisuoma Village (Epidemiological unit: Village. This is an approximate location; see report)

- Phalacrocorax carbo
- Sample Events (1)
 - Sample Date: 05/21/2005
 - Diagnosis: H5N1High
 - Count: 1

Global Avian Influenza Network for Surveillance (GAINS)

- Encouraging transdisciplinary approach to emerging infectious diseases
- Encouraging open data sharing
- Encouraging capacity building to respond to disease
- Encouraging awareness regarding health threats associated with the wildlife trade.



Wildlife Trade

- Annual wildlife trade
 - 40,000 live primates
 - 4 million live birds
 - 640,000 live reptiles
 - 350 million live tropical fish
 - USD 4.2 billion a year (USFWS)



Wildlife Trade

2,000,000,000 Lbs meat / year (Central Africa alone)



KILBOURN © WCS



HIV / AIDS *STLV/STLV*
Ebola *Leptovirus*
Anthrax *Lentiviruses*
SARS *Rabies*
Monkeypox *Brucellosis*
Hepatitis *FMD*
Herpes *EBV*
Parasites *etc., etc., ...*



Wildlife Trade

- The United States is one of the largest consumers of wildlife products
- North America has been introduced to diseases such as SARS, monkeypox, heartwater and Newcastle disease via the wildlife trade
- Wildlife products are reaching US markets

NY Bushmeat Trade Health Committee

- Wildlife Conservation Society
 - Global Health Program, Hunting and Wildlife Trade Program
 - USDA APHIS SITC
 - US Centers for Disease Control
 - US Fish and Wildlife Service
 - Bushmeat Crisis Task Force
 - NYS Agriculture and Markets
 - NYC Department of Health
 - NYC Parks and Recreation
 - US Customs and Border Protection
-
- USDA-SITC leading multi-agency cooperative effort to improve illegal trade interception

Current WCS Market Testing

- *Afghanistan*
- *Cambodia*
- *Indonesia*
- *Laos PDR*
- *Vietnam*
- *Peru*





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