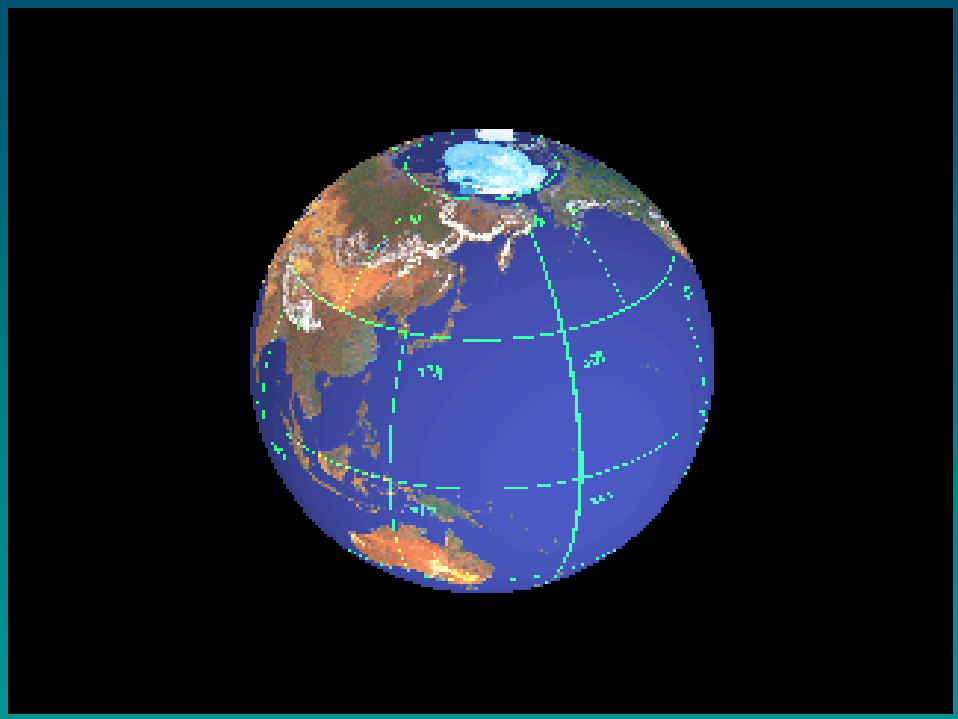
Global Wildlife Disease Monitoring Programs



Dr Martin Gilbert,
WCS - Field Veterinarian
Southeast Asia

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Why is it important to monitor wildlife disease?

- Since 1980, 35 new infectious diseases have emerged in humans (one every eight months)
- Of 1,415 known human pathogens 61% are zoonoses
- 75% of Emerging Infectious Diseases are zoonoses

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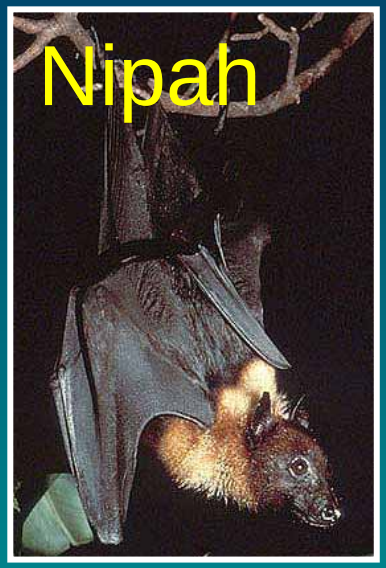
Wildlife and EIDs



www.oneworldonehealth.org

WILDLIFE CONSERVATION SOCIETY

International institutions

Human Health

Livestock Health

Wildlife Health

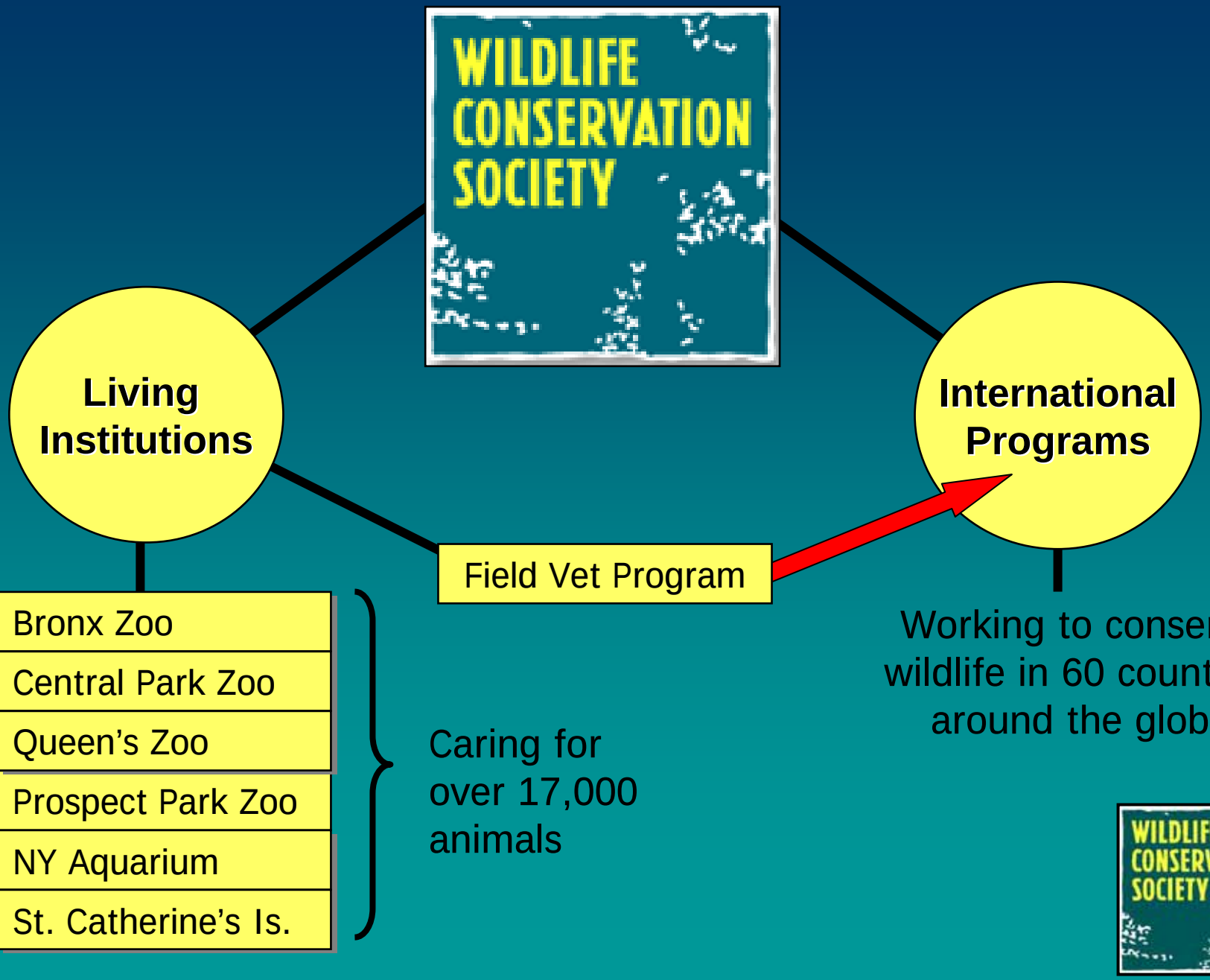
“…role of disease in wildlife conservation has probably been radically underestimated…”

Aldo Leopold 1933

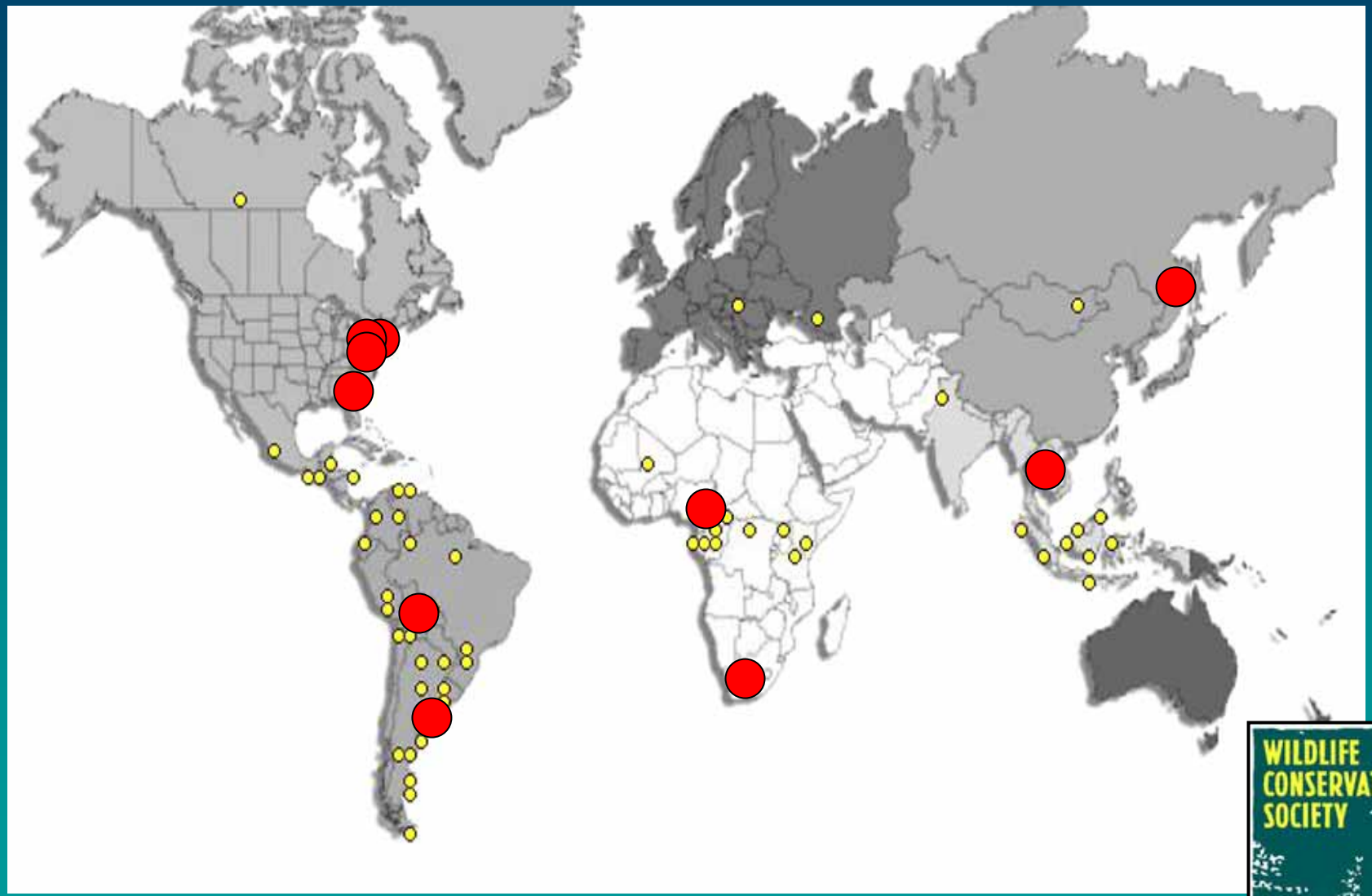
WILDLIFE CONSERVATION SOCIETY

Founded in 1895 as the

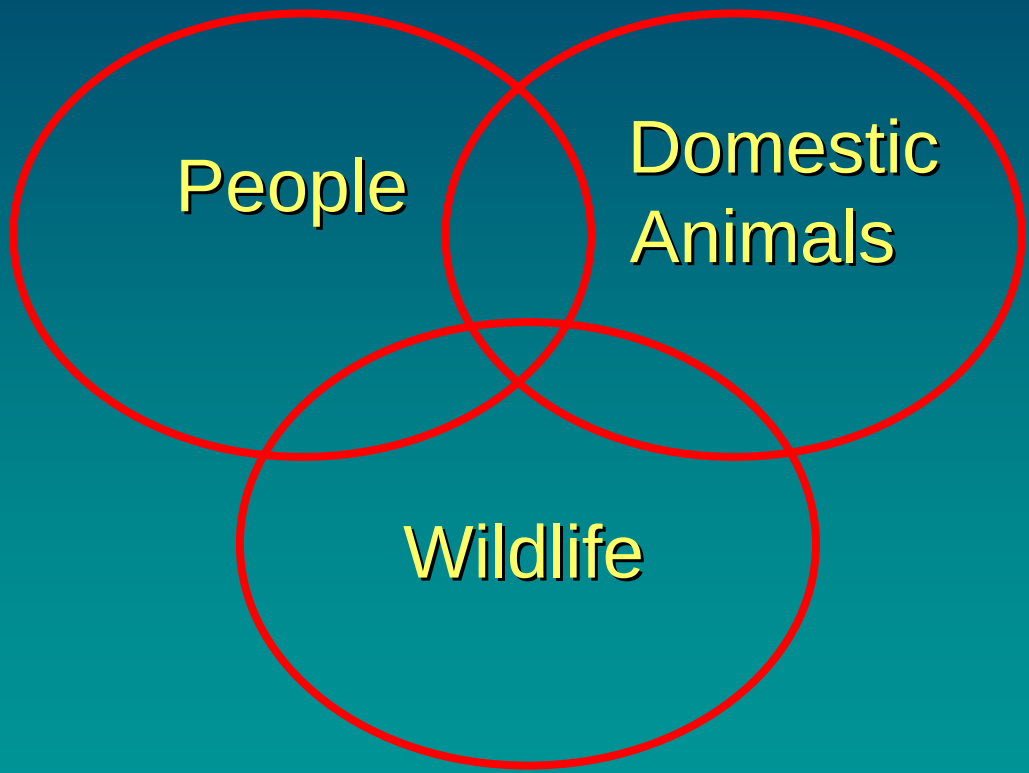
New York Zoological Society


WILDLIFE CONSERVATION SOCIETY
Living Institutions
International Programs
Field Vet Program
Bronx Zoo
Central Park Zoo
Queen's Zoo
Prospect Park Zoo
NY Aquarium
St. Catherine's Is.
Caring for over 17,000 animals
Working to conserve wildlife in 60 countries around the globe
WILDLIFE CONSERVATION SOCIETY

Field Veterinary Program



The Interface of Wildlife, People and their Animals



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Argentina

Argentina

Dr Marcela Uhart

Based in Argentina, Dr. Marcela Uhart works on a wide diversity of projects ranging from FVP's Latin America Outreach and Training Program to field projects all over South America. Dr. Uhart's collaborative work with local NGO's takes her from the seas of Península Valdés for health studies on marine mammals to the high Andes mountains to track the movements of the endangered huemul deer.

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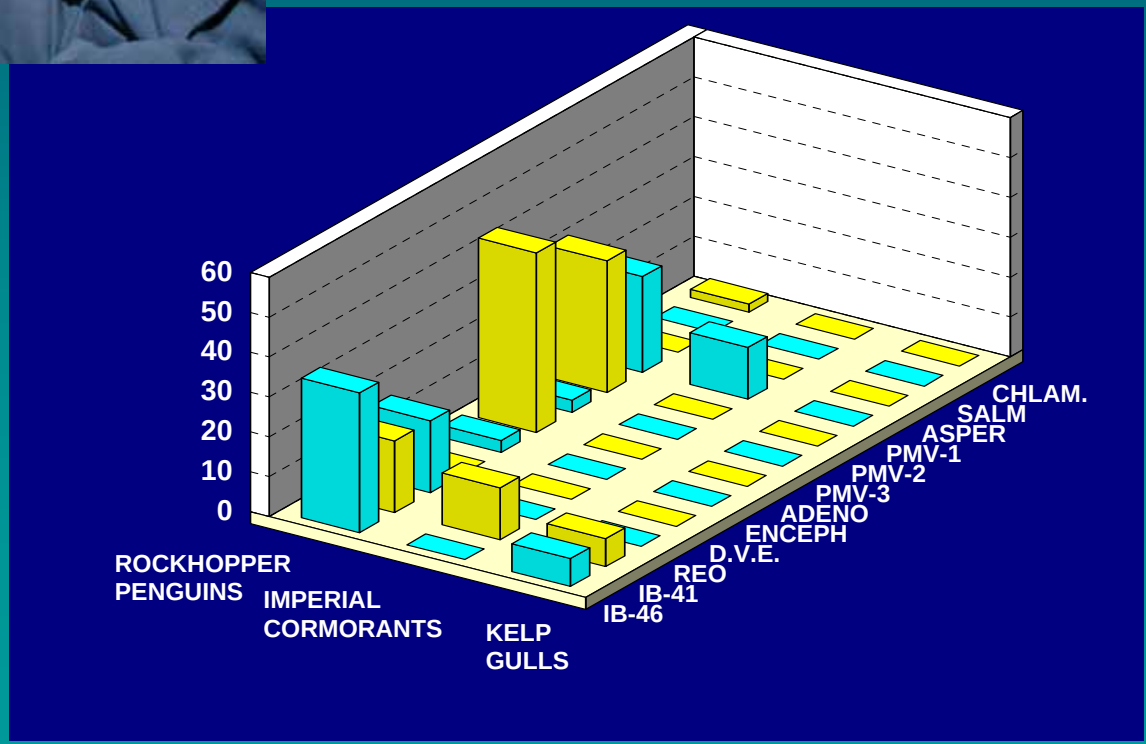
WCS


60
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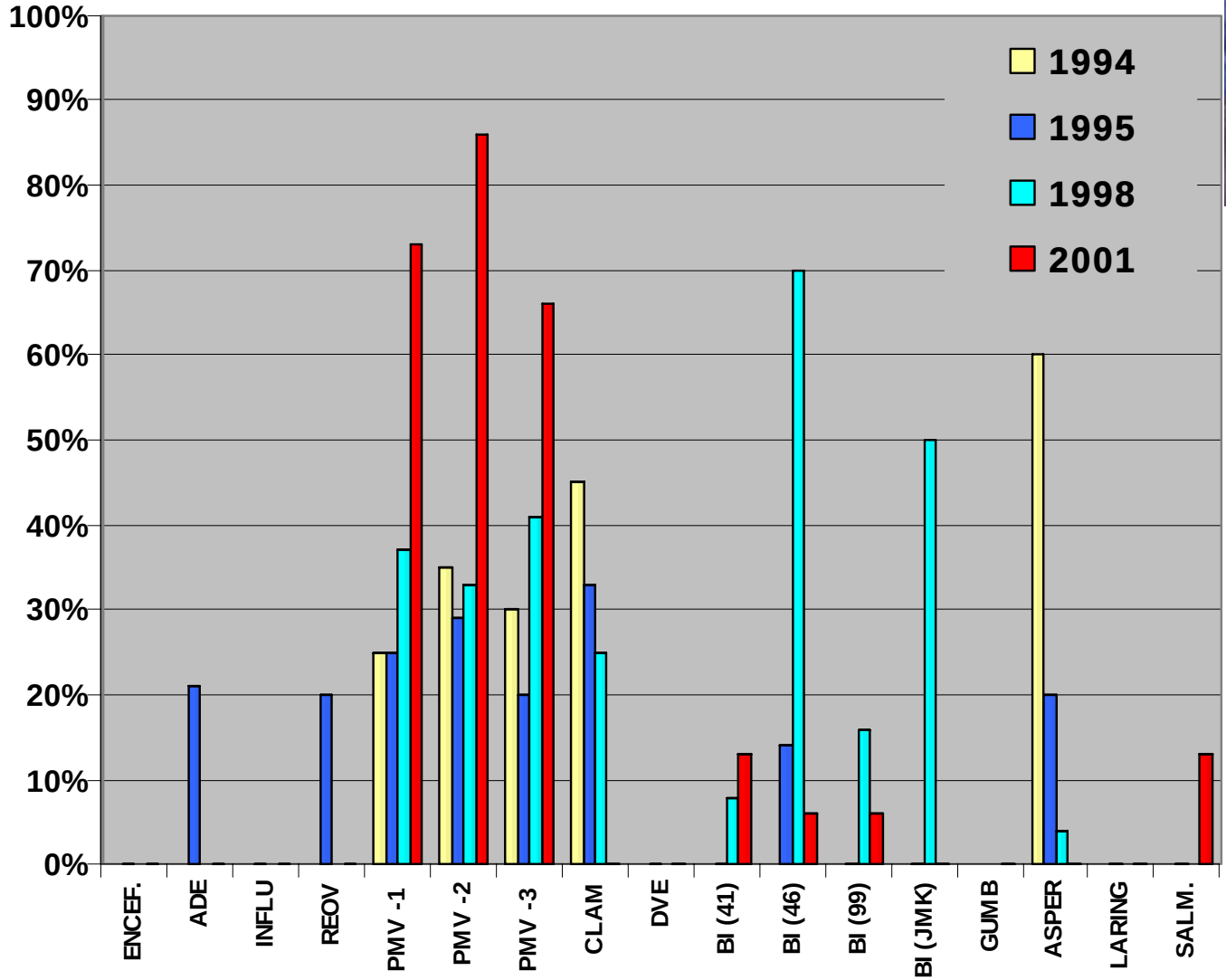
ROCKHOPPER PENGUINS
IMPERIAL CORMORANTS
KELP GULLS
IB-46
IB-41
REO
D.V.E.
ENCEPH
ADENO
PMV-3
PMV-2
PMV-1
ASPER
SALM
CHLAM.

Punta Tombo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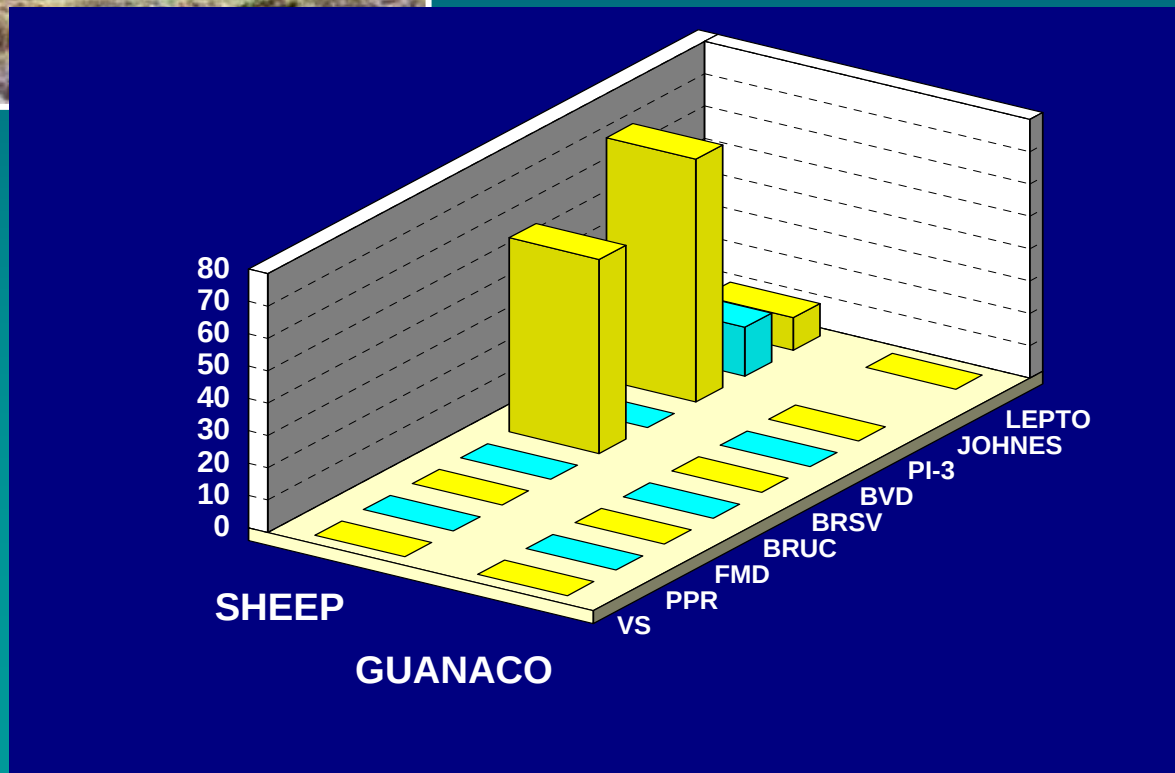
- Guanacos, wild camelids of southern Argentina and Chile
- Share grazing with domestic sheep
- Reservoirs of disease?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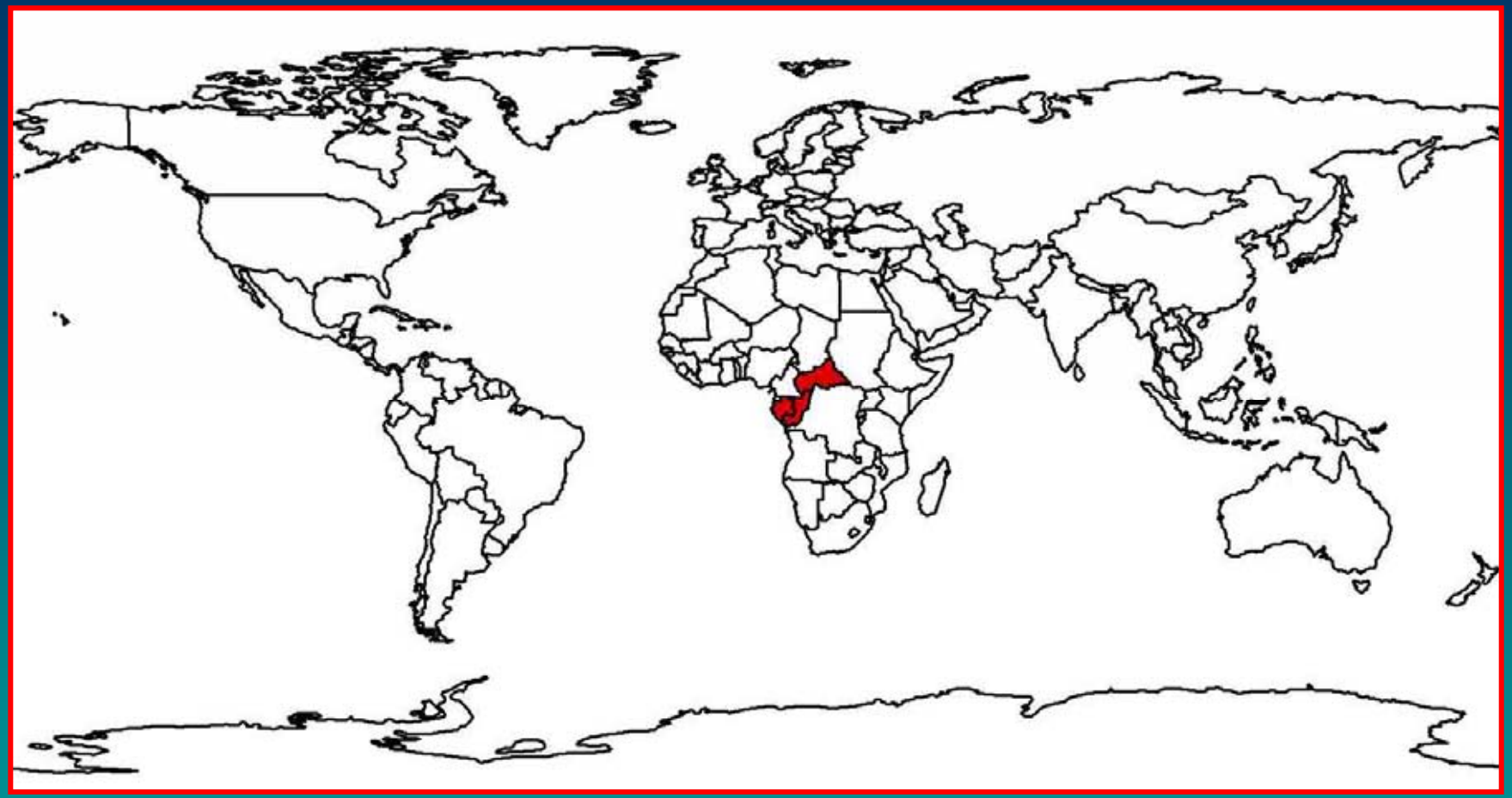
BVD
PI-3
JOHNES
LEPTO

Building Wildlife Veterinary Capacity:

- Training courses
- Small grant support
- Professional development

WILDLIFE CONSERVATION SOCIETY



Gabon, Congo and CAR

Gabon, Congo and CAR

Dr Patricia Reed

At key sites through out central Africa, Dr. Patricia Reed trains local scientists to monitor gorilla health. Using current health information gathered in collaboration with our local partners, Dr. Reed designs preventive protocols that she teaches to villagers through out the forest. Through community outreach programs such as this, we can help protect people and wildlife from zoonotic diseases such as the Ebola virus.

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C.A.R.
GABON
CONGO

Salmonella

Viral Diarrhea

Polio

Humans  Colds  Apes

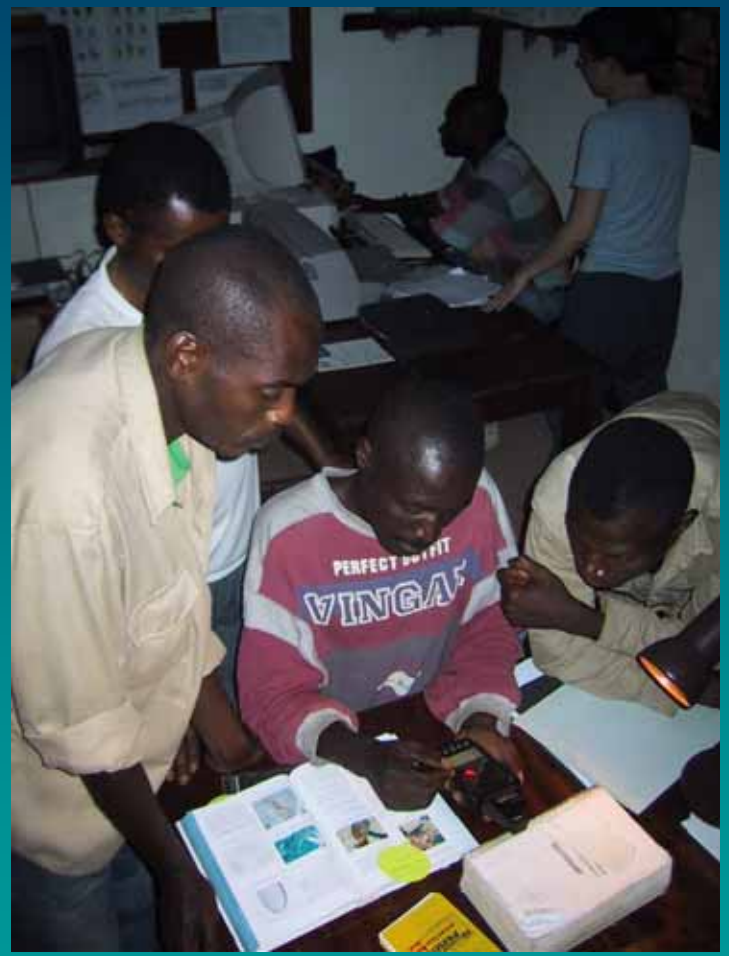
Flu

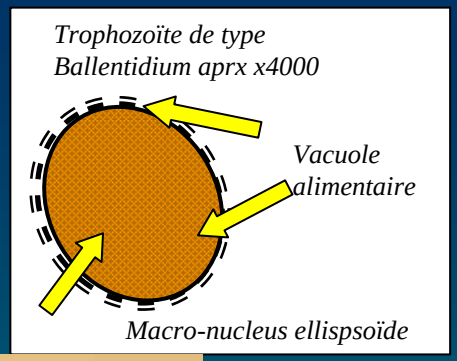
Measles

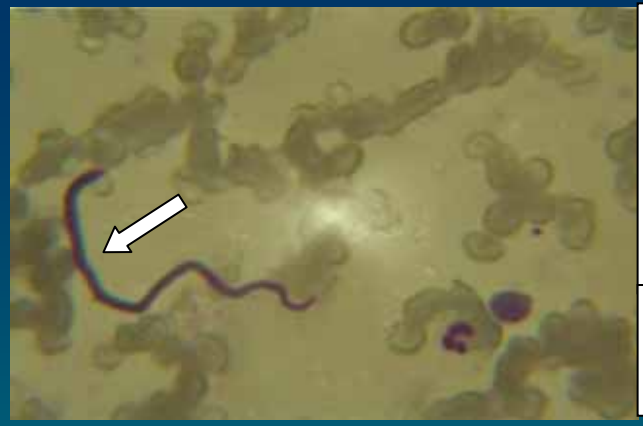
Tuberculosis

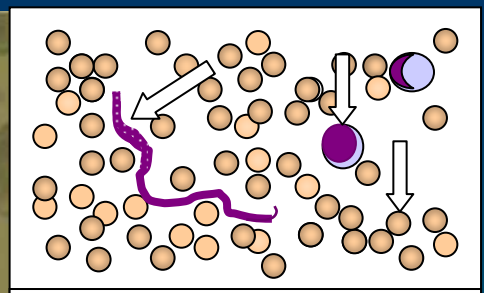
> 100 Others

Capacity building

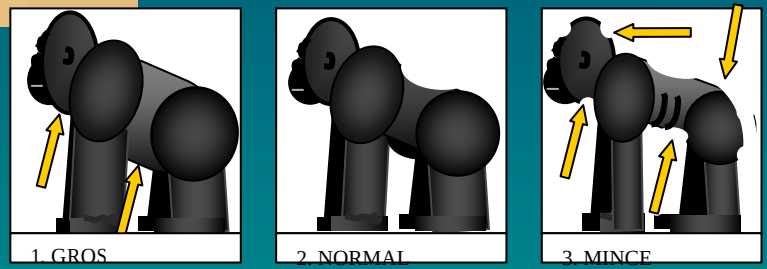




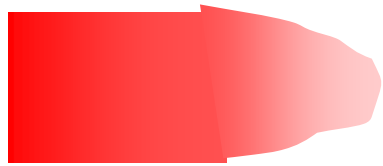




Microfilaire:
Frottis sanguin montrant de longs organismes en filaments et des globules rouges et blancs. Sur un frottis frais ou avec un tube CRT avec couche leucocytaire, on note fréquemment une mobilité.



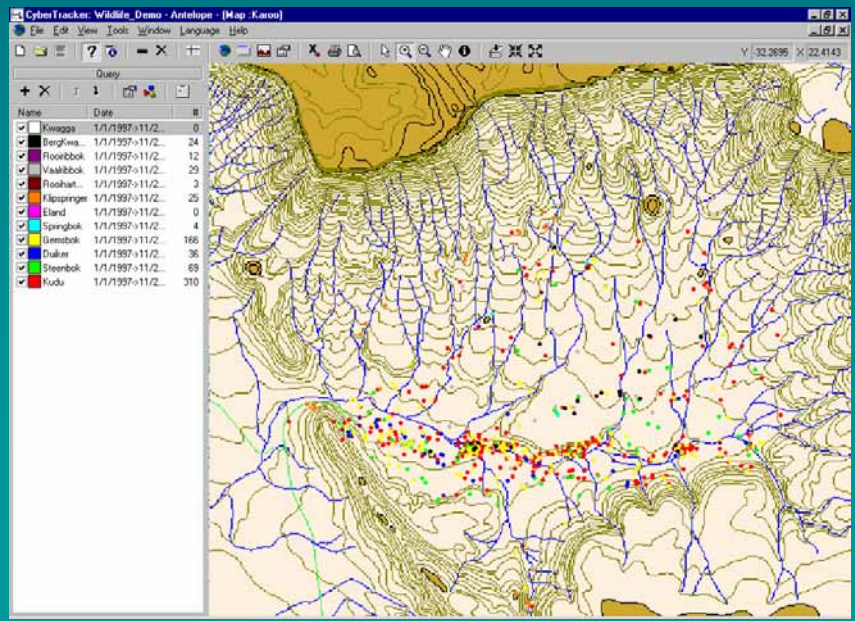
Animal name:
Species
ID. No.
Date



Observations sanitaires, Collecte, Préservation et Analyse des Échantillons Biologiques

Gorilla health data

Human health data



Critically Needed Information

Health examinations

Serology - Positives

- Herpes Simplex 1
- Epstein Barr
- Rubella
- Hepatitis A
- Hepatitis B (sAb)
- Treponema

Data suggest animals have **already** been exposed and have **some** immunity following exposure

Serology - Negatives

- Polio
- Measles
- Ebola
- Dengue Fever
- Monkey Pox
- Reovirus
- Parvovirus

Data suggest animals have **NOT** been exposed and have **NO** immunity

Southeast Asia

Southeast Asia

Dr Martin Gilbert

As one of the most densely populated regions of the world with a well developed agricultural sector, Southeast Asia is a frontline of the disease interface between wildlife, humans and domestic animals. Dr Gilbert is involved in avian influenza surveillance, monitoring the health of wild birds (including vultures), and freshwater dolphins and researching disease implications of the legal and illegal trade in wildlife.

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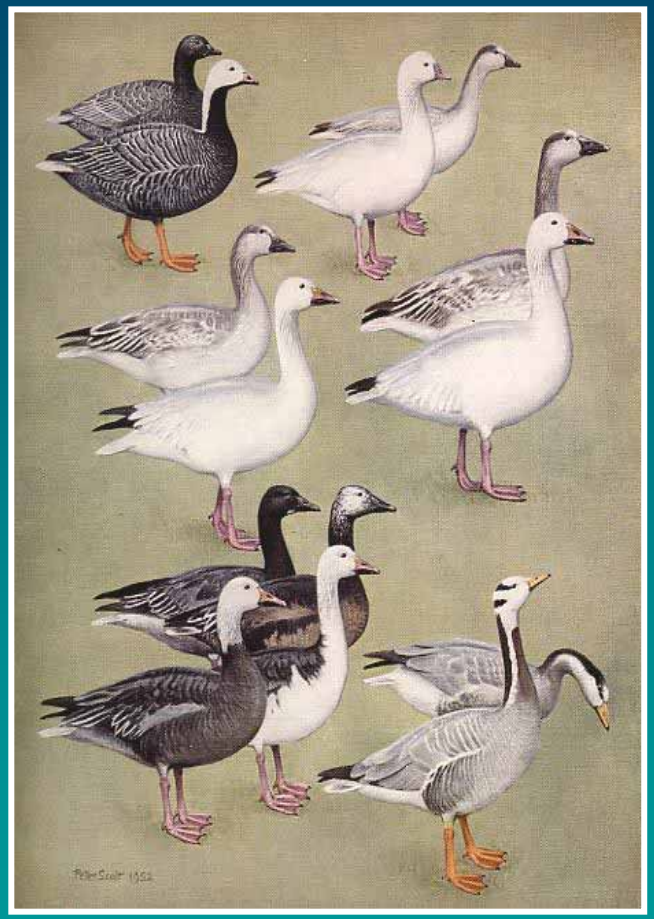
Avian influenza
Panzootic

WILDLIFE CONSERVATION SOCIETY

Wild birds and H5N1

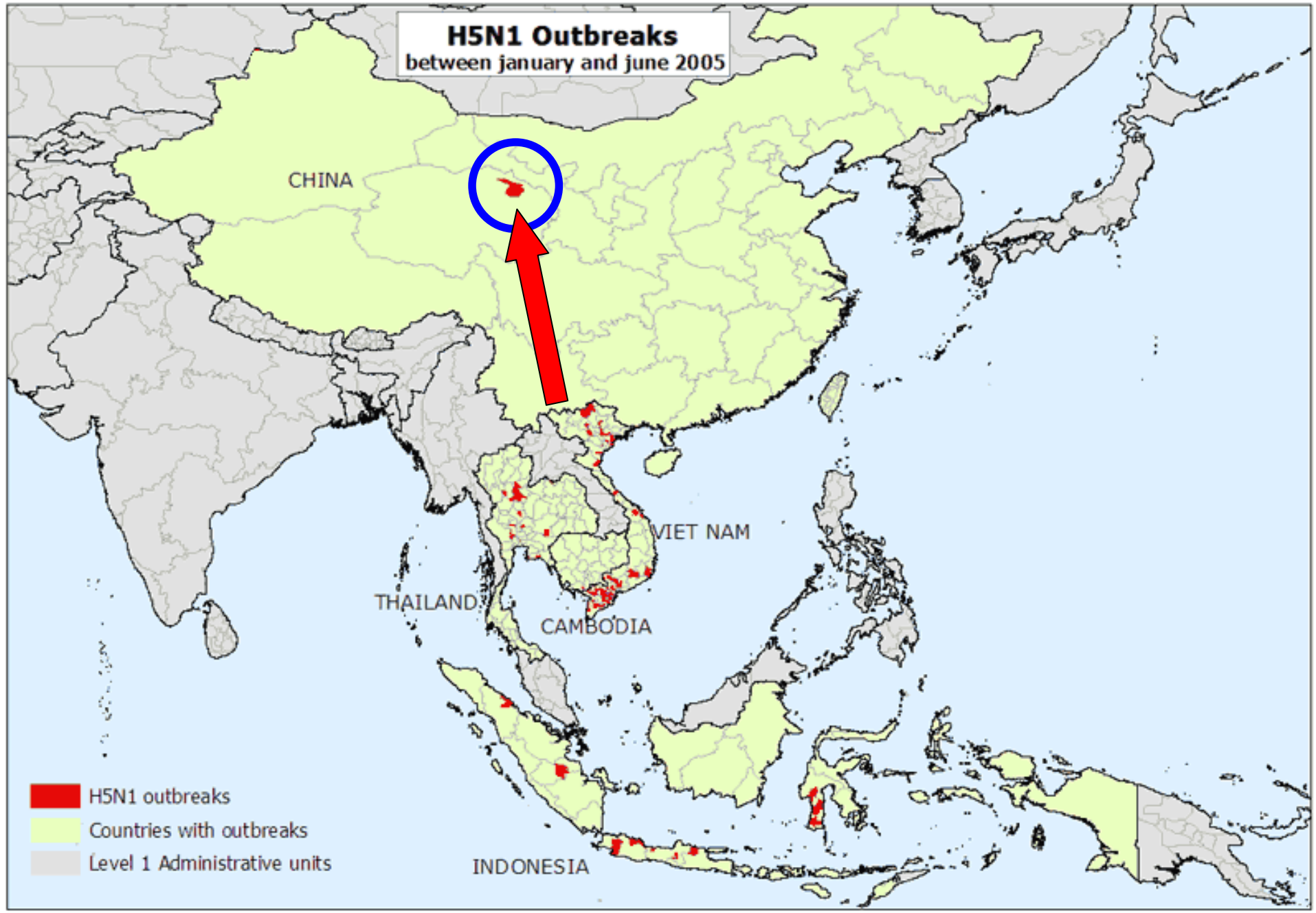


- Anseriformes are natural reservoirs of LPAI
- Until this year, H5N1 was only rarely isolated from wild birds
- Always in association with infected domestic birds

WILDLIFE CONSERVATION SOCIETY

Outbreak in Wild Birds, Qinghai Nature Preserve (May/Jun ’05)

- ~5,000 birds died
- Bar-headed geese
- Great black-headed gulls
- Brown-headed gulls
- Ruddy shelducks
- Great cormorants



This map represents the districts or provinces that experienced outbreaks of H5N1 type of Avian Influenza between January and June 2005. The original data have been collected and aggregated at the most detailed administrative level and for the units available for each country.

Data source: OIE, FAO and Government sources

Mongolia Summer 2005

- WCS Field Veterinary Program
- Mongolian National Academy of Sciences
- Institute of Veterinary Medicine
- State Central Veterinary Laboratory
- Ministry of Food and Agriculture Veterinary Department
- Ministry of Health
- USDA
- FAO

Faecal sampling from live birds

- Cross-sectoral collaborative approach
- 9 sites sampled
- 850 birds

Sample Sites in Mongolia – Aug 2005

Influenza outbreak – Erhel Lake

Erhel Lake

- 41 dead birds (9 species)
- A further 75 dead birds reported
- >6,500 live, apparently healthy birds observed
- 54 species observed in 2 days
- 433 faecal samples collected
- 6 dead birds necropsied
- 2 live birds sampled

Results

- No virus detected in faeces in any of 850 birds
- H5N1 in a whooper swan
- Virus the same strain as in SE Asia

Conclusions

- Some wild birds can become infected with H5N1
- Can carry the virus long distance
- The ‘carrier’ species could not be identified

What do wildlife professionals bring to the table?

- Expertise in the interpretation of wildlife health and ecology datasets

WILDLIFE CONSERVATION SOCIETY

…unraveling the ecology of avian influenza

Isikulsky District

14/08/2005	rook	1	ARRIAH	nd	positive	positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
14/08/2005	white headed plover	1	ARRIAH	nd	positive	positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
14/08/2005	laughing gull	1	ARRIAH	nd	positive	positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
14/08/2005	oyster-catcher	1	ARRIAH	nd	positive	positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
14/08/2005	starling	4	ARRIAH	nd	positive	positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
14/08/2005	coot	2	ARRIAH	nd	positive	positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
14/08/2005	little grebe	1	ARRIAH	nd	positive	positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
14/08/2005	Wild duck	1	ARRIAH	nd	positive	positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio

Nazyvayevsky District

14/08/2005	crow	1	ARRIAH	nd	positive	positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
14/08/2005	Pochard	2	ARRIAH	nd	positive	positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
14/08/2005	Harrier sp	1	ARRIAH	nd	negative	negative	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio

…unraveling the ecology of avian influenza

Isikulsky District

14/08/2005	rook	1	ARRIAH	nd	positive	positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
14/08/2005	white headed plover	1	ARRIAH	nd	positive	positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
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14/08/2005	oyster-catcher	1	ARRIAH	nd	positive	positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
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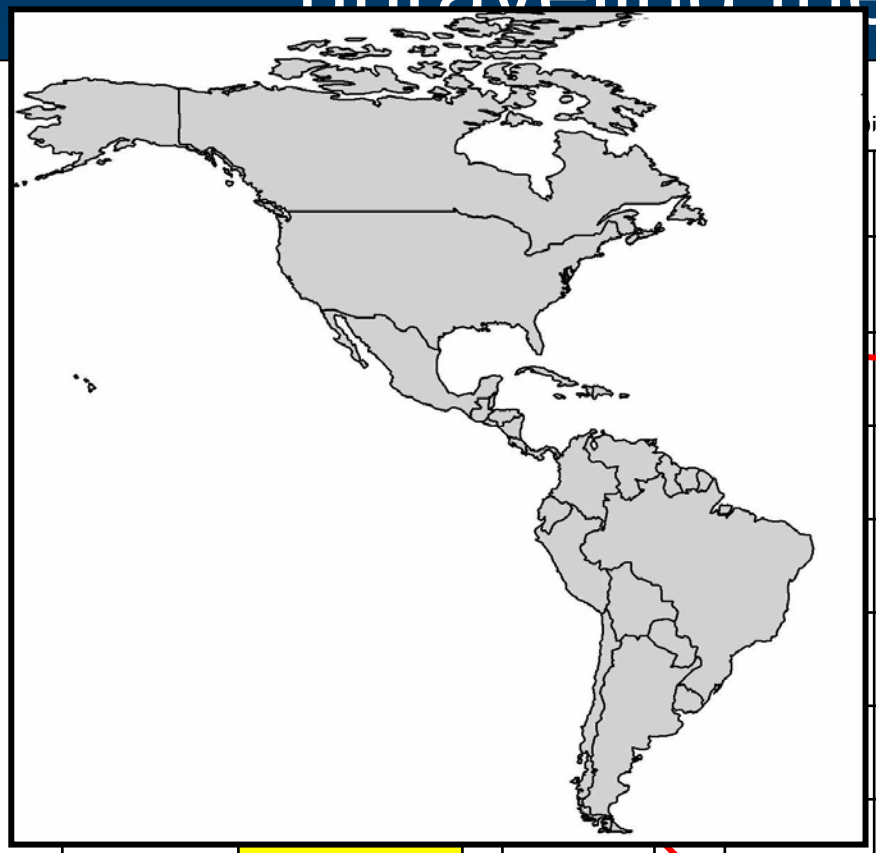
14/08/2005	coot	2	ARRIAH	nd	positive	positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
14/08/2005	little grebe	1	ARRIAH	nd	positive	positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
14/08/2005	Wild duck	1	ARRIAH	nd	positive	positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio

Nazyvayevsky District

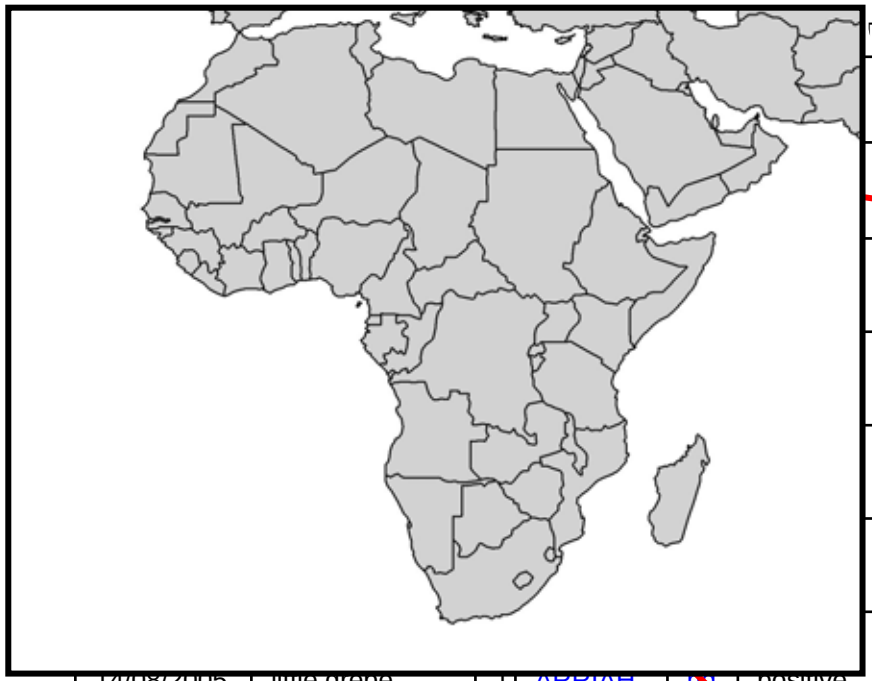
14/08/2005	crow	1	ARRIAH	nd	positive	positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
14/08/2005	Pochard	2	ARRIAH	nd	positive	positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
14/08/2005	Harrier sp	1	ARRIAH	nd	negative	negative	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio

Unraveling the ecology of avian



						positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
						positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
						positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
14/08/2005	Wild duck	1	ARRIAH	nd	positive										
14/08/2005	crow	1	ARRIAH	nd	positive										
14/08/2005	Pochard	2	ARRIAH	nd	positive	positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
14/08/2005	Harrier sp	1	ARRIAH	nd	negative	negative	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio

…unraveling the ecology of avian



14/08/2005	little grebe	1	ARRIAH	nd	positive	positive									
14/08/2005	Wild duck	1	ARRIAH	nd	positive	positive									

Nazyvayevsky District

14/08/2005	crow	1	ARRIAH	nd	positive	positive									
14/08/2005	Pochard	2	ARRIAH	nd	positive	positive	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio
14/08/2005	Harrier sp	1	ARRIAH	nd	negative	negative	nd	nd	nd	nd	nd	nd	nd	nd	hunting expeditio

What do wildlife professionals bring to the table?

- Expertise in the interpretation of wildlife health and ecology datasets
- An understanding of wild systems to inform rational policy decisions

WILDLIFE CONSERVATION SOCIETY

…to cull or not to cull?

- Promotes dispersal of potentially infected hosts
- Ineffective without knowledge of reservoir
- Places hunters at risk of infection

WILDLIFE CONSERVATION SOCIETY

The importance of partnerships

- Avian influenza is a true illustration of the One World One Health concept
- A threat to human, livestock and wildlife health
- Multi-sectoral problems require multi-sectoral solutions

WILDLIFE CONSERVATION SOCIETY

IUCN
The World Conservation Union

SPECIES SURVIVAL COMMISSION • VETERINARY SPECIALIST GROUP • IUCN

Wildlife Health Professionals in 55 countries

The increasing intimacy between humans, livestock and wildlife…