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The World Conservation Union



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bio-era



The Bay and Paul Foundations

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Infectious Diseases and the Wildlife Trade: Missing Links



- Food
- Medicinals
- Pets



Photo: R.A. Cook 2005

40,000 Live Primates

Shigella/Salmonella

Mycobacteriosis

Trichophyton

Parasites- Giardia, Amoeba,

Yellow Fever

Hepatitis

Herpes B

Retroviruses- STLV's

Filoviruses- Marburg, Ebola

Measles

Rabies

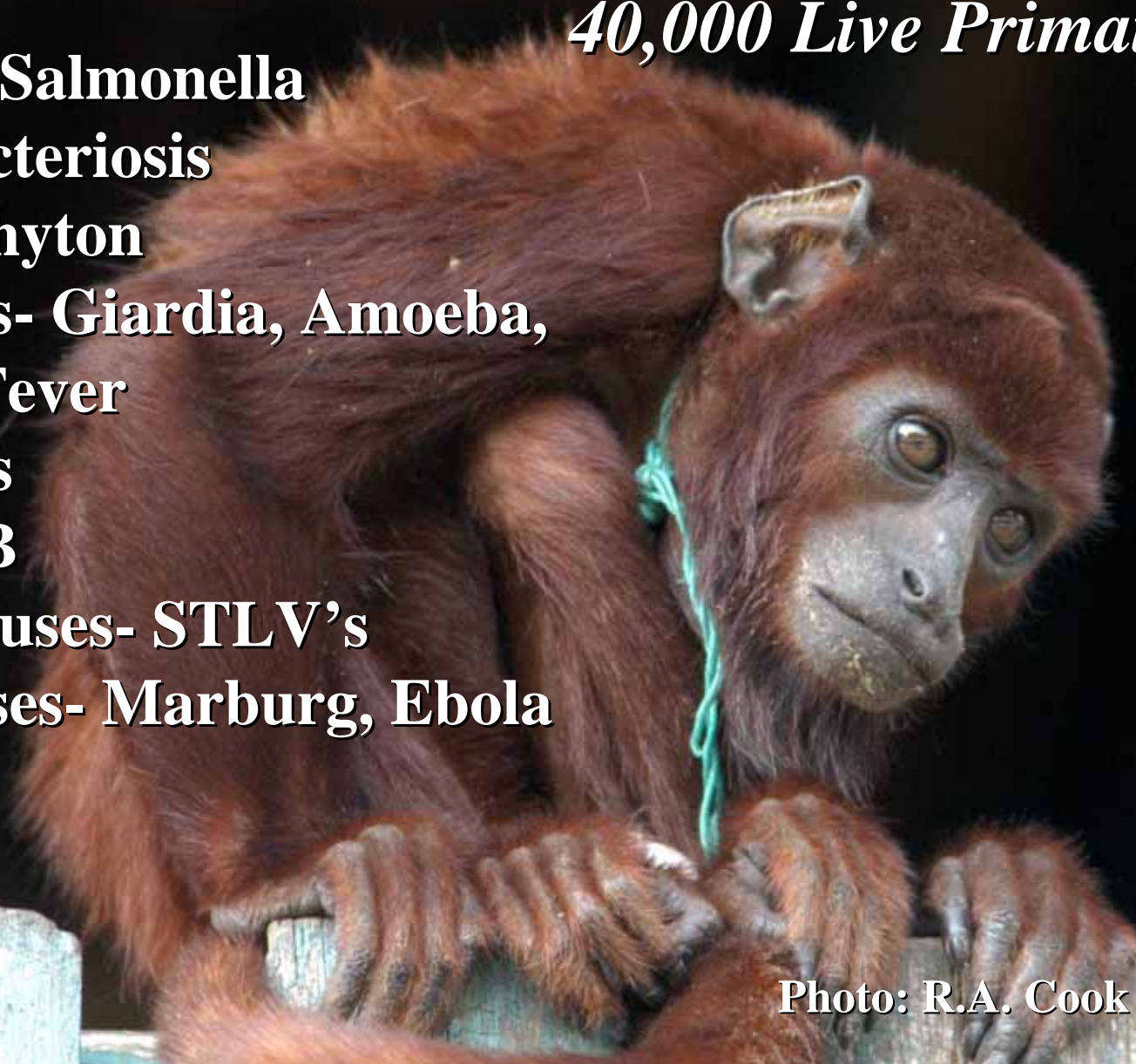


Photo: R.A. Cook 2005

4 Million Live Birds

- Psittacosis
- Influenza
- Giardiasis
- Mycobacteriosis
- Salmonellosis
- Colibacillosis
- Cryptosporidiosis



Photo Credit: K. Redford

640,000 Live Reptiles

- Salmonellosis
- Colibacillosis
- Campylobacter
- Pseudomonas
- Mycobacteriosis
- Tick borne diseases

Photo Credit: Y. Nicolas



350 Million Live Tropical Fish

- Streptococcus
- Staphylococcus
- Mycobacteria
- Salmonella
- Parasites- Protozoa

Photo: R.A. Cook 2004



*350 million live plants
& animals shipped
globally each year*



Photo: R.A. Cook, 2004

*70,000 birds, 276 species
sold in one Thai market
over 25 weeks*



Photo: R.A. Cook, 2005

Amphibian Trade

**Chytridiomycosis: extinction of 30% of amphibian species
Believed spread thru trade in African Clawed frogs.**

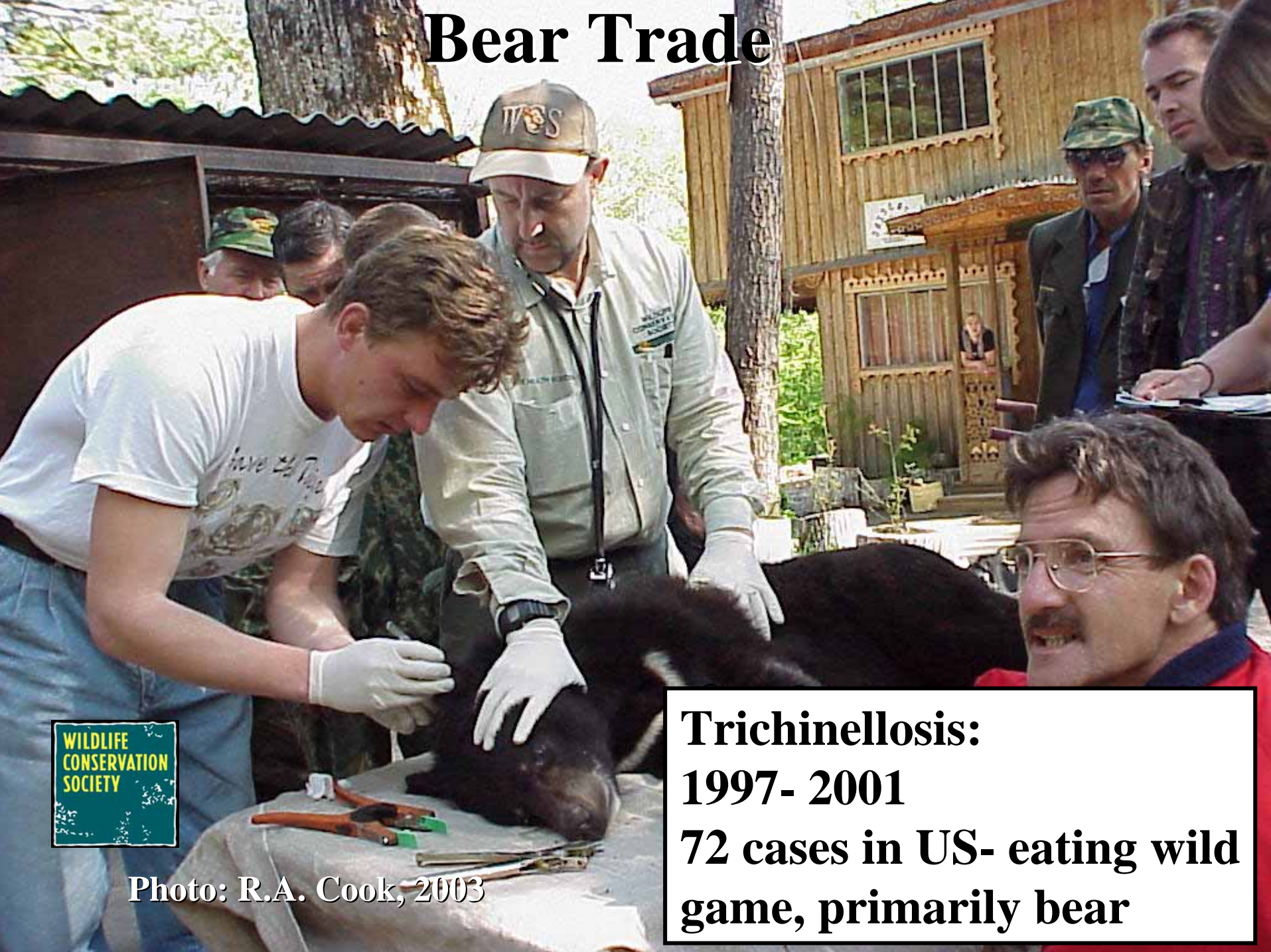
Reptile Trade

Photo Credit: Y. Nicolas



Nov 1994- Jan 1995: 117,690 reptiles imported into USA. 54,376 with ticks. Rickettsial Diseases.

Bear Trade



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Photo: R.A. Cook, 2003

**Trichinellosis:
1997- 2001
72 cases in US- eating wild
game, primarily bear**

Locally



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Photo: R.A. Cook, 2005

Regionally



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Photo: R.A. Cook, 2005

*Trade, local & regional consumption of wild meat
in Central Africa: 1,000,000,000 kg/year*

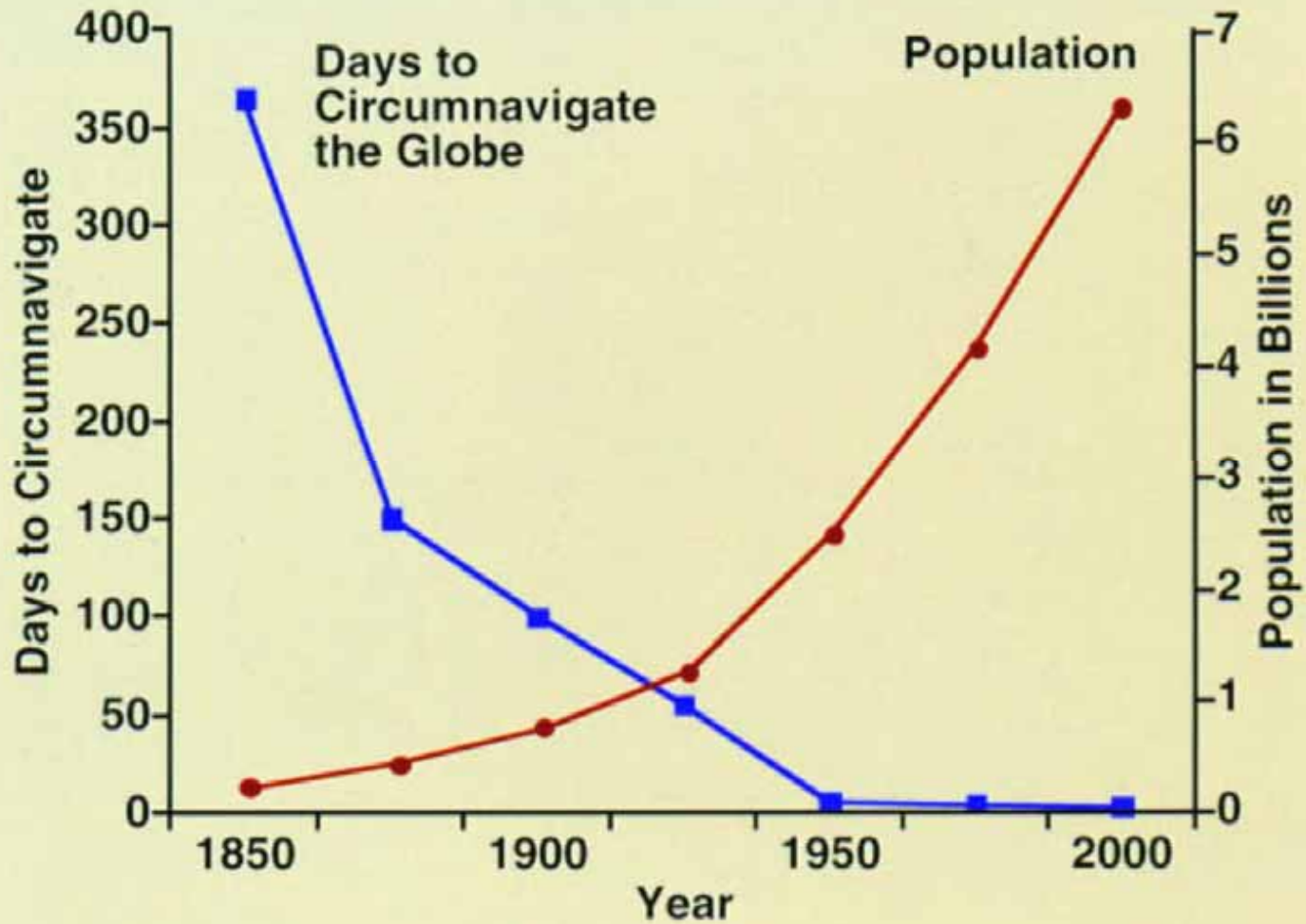
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Approximately 200 million animals

Globally



Photo Credit: R.A. Cook



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

*humanity is currently plagued
by 1415 known pathogens....
61% of those are zoonotic*

Taylor, Latham & Woolhouse

*Since 1980, over 35 new infectious
diseases have emerged in humans*

Institute of Medicine. Microbial Threats to health, 2003

Salmonella

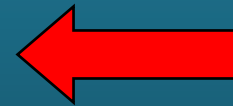
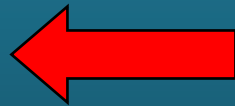
Viral Diarrhea

Polio

Humans

Colds

Animals

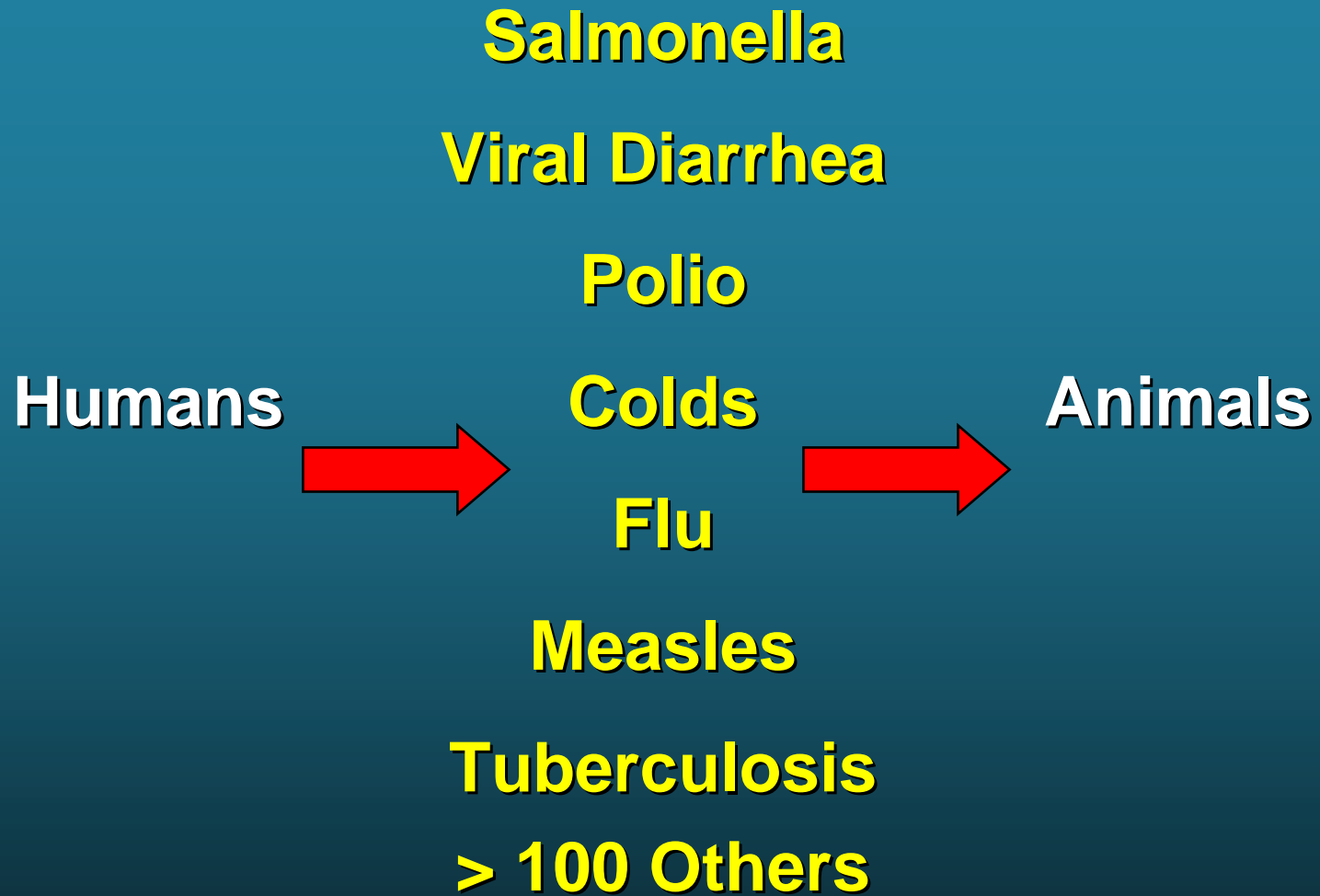


Flu

Measles

Tuberculosis

> 100 Others



Leveraging Human Health Concerns

Zoonotic Disease Threat



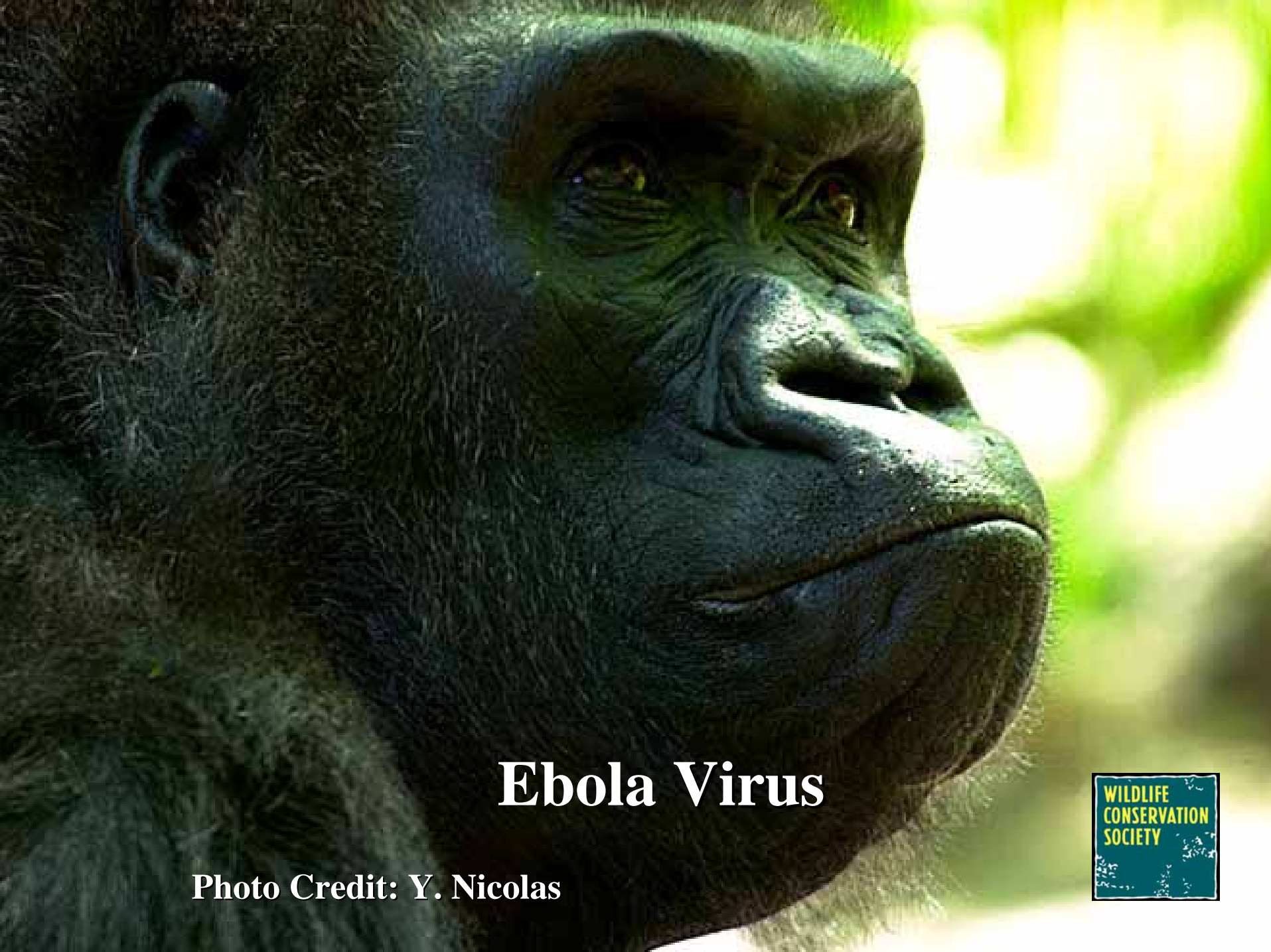
*People change wildlife
consumption attitudes*



*Slow the trade in bushmeat &
exotic pets*

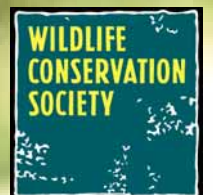
HIV

Simian Foamy Virus ?



Ebola Virus

Photo Credit: Y. Nicolas



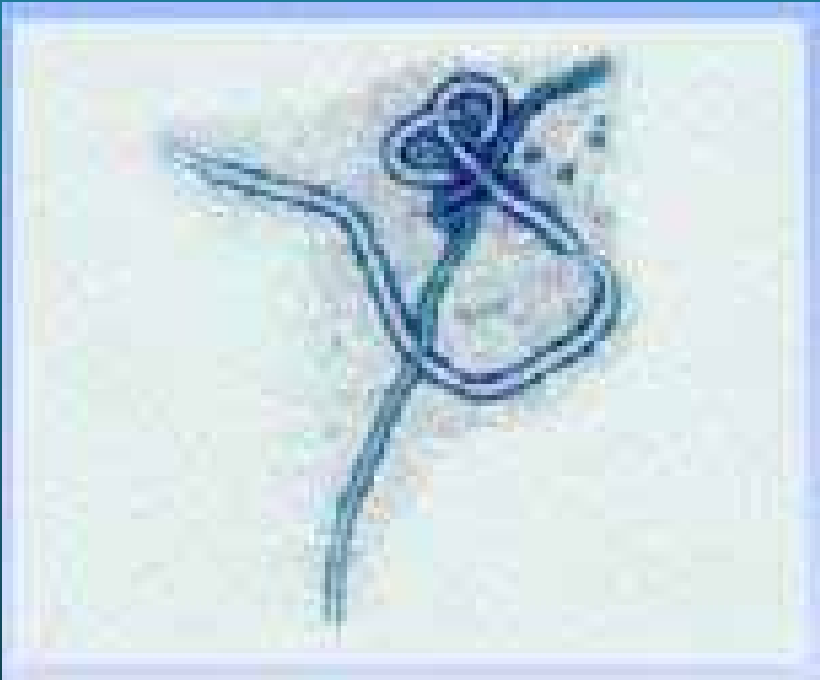


C.A.R.

CONGO

GABON

Ebola Hemorrhagic Fever



➤ **Mortality 90% in humans**

➤ **Route human transmission:**

- Animal- Human- linked to bush meat
- Human-Human: direct contact with blood, body fluid, tissue
- Reservoir

WILDLIFE → HUMAN



HUMAN

Pet Trade

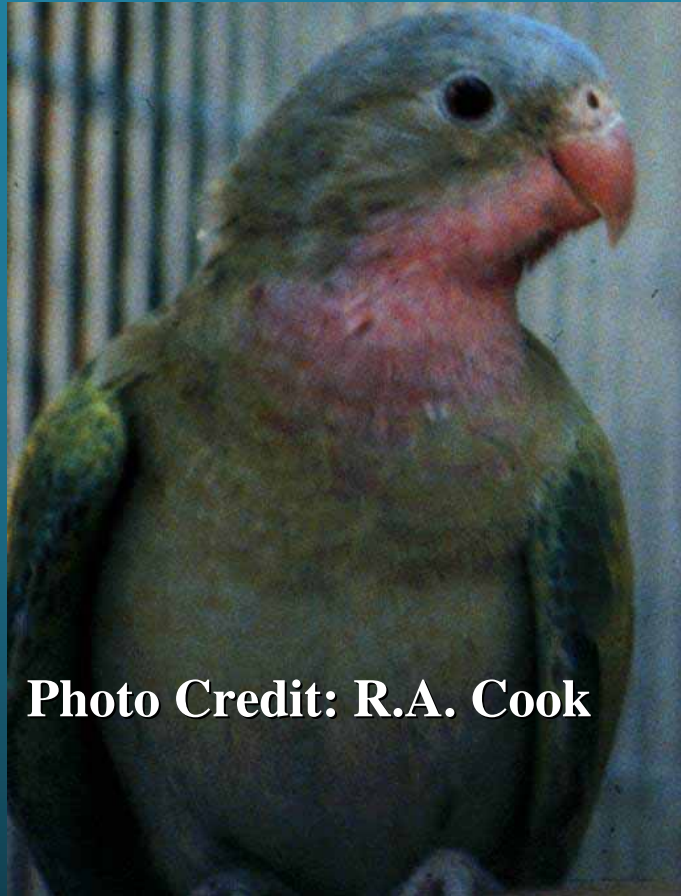


Photo Credit: R.A. Cook



Photo: R.A. Cook, 2005

Salmonellosis
Psittacosis



- Leptospirosis
- Yersinia (Plague)
- LCM



2003

Monkey Pox

SARS

- **Over 9,000 law enforcement cases**
- **930,000 non-domestic animals confiscated**

Trade & SARS

*Low to zero prevalence
in civets at farms
-80% prevalence in
wildlife markets*

C. Tu, Crameri G. et. al.

Avian Influenza

*H5N1 in Mountain Hawk Eagles illegally
imported to Belgium from Thailand*



Photo: R.A. Cook, 2004



Photo: R.A. Cook, 2004



Photo: R.A. Cook, 2004







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Photo Credit: E. Briggs







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