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
- Collibacilosis
- 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
Amphibian Trade

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

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

Photo: R.A. Cook, 2005
Regionally
Trade, local & regional consumption of wild meat in Central Africa: 1,000,000,000 kg/year

Approximately 200 million animals
Globally

Photo Credit: R.A. Cook
Days to Circumnavigate the Globe

Population

Days to Circumnavigate

Population in Billions

Year

1850  1900  1950  2000

0  50  100  150  200  250  300  350

4  3  2  1  0

6  5  4  3  2  1  0

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
Colds
Flu
Measles
Tuberculosis
> 100 Others
Humans
Animals
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
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

Salmonellosis
Psittacosis

Photo Credit: R.A. Cook

Photo: R.A. Cook, 2005
- Leptospirosis
- Yersinia (Plague)
- LCM
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
GIVE FREEDOM TO THE BIRDS
GOOD LUCK AND HAPPINESS
WILL BE WITH YOU ALWAYS
90 B.
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