"Next Generation Serology"
Integrating cross-sectional and capture-recapture data to infer disease dynamics from serological data

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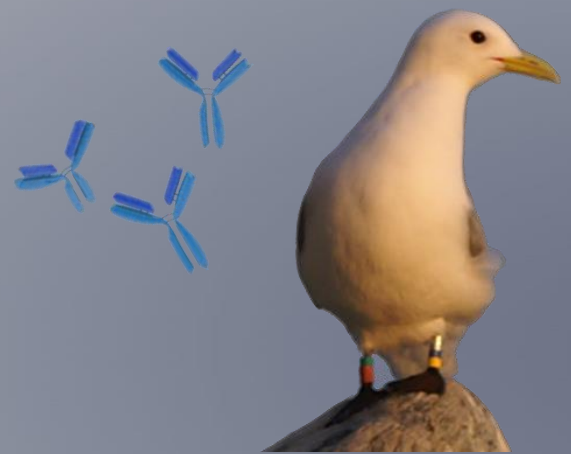


Monitoring infectious agents in wild populations

- Wild species threaten by infectious diseases

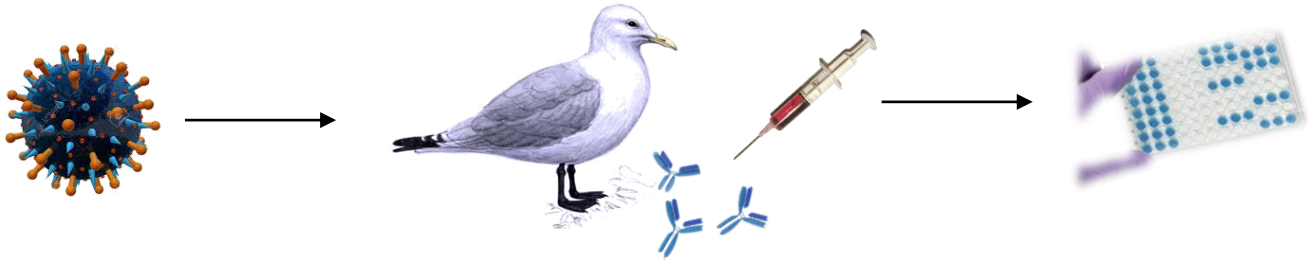
An Indian yellow-nosed albatross (*Thalassarche carteri*) and its dead chick on a island recurrently hit by avian cholera outbreaks

A Hawaiian monk seal (*Neomonachus schauinslandi*) being vaccinated against the phocine distemper virus
Malakoff, 2016, *Science*

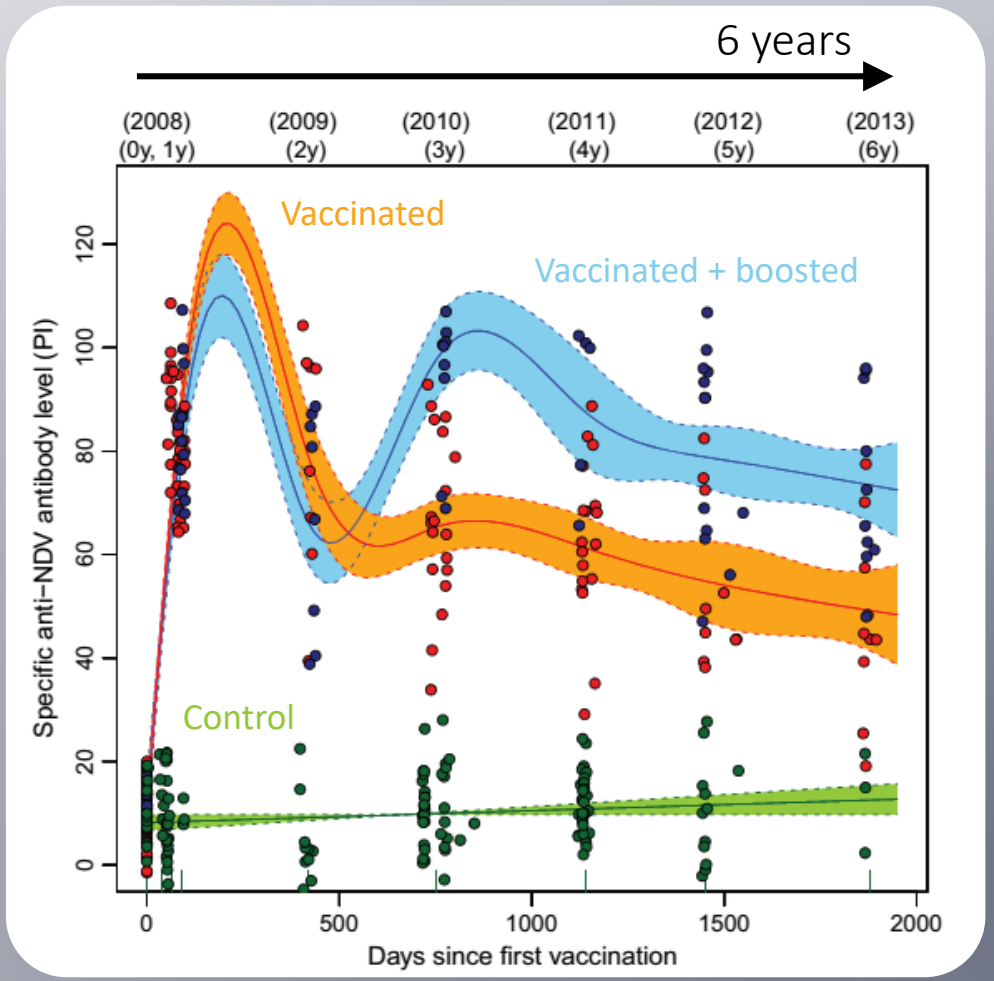
- Emerging infectious diseases at the human-wildlife interface
- Basic ecological and evolutionary research

Smith et al., 2009, *Animal Conservation* – Daszak et al., 2000, *Science*

Monitoring infectious agents by detection of antibodies



- Production of specific antibodies after exposure
- Maintenance of high antibody levels from a few weeks to several years
- Detection by immunoassay



In Cory's shearwaters (*Calonectris diomedea*) vaccinated against the Newcastle disease virus

Ramos et al., 2014, *The American Naturalist*

Colonial species as a biological model

- Colonies = discrete unities of high density
  - Well define sampling frame
  - Different spatial scales: intra- and inter-colony
- Long-lived and faithful to their breeding site
  - Repeated exposure to local parasites
  - Implementation of longitudinal monitoring on a long-term basis

Results soon to be communicated

Gamble, Garnier et al., *in prep.* – Gamble, Ramos et al., *in prep.*