Protecting New Zealand wildlife: vaccination for avian influenza as a tool in the toolbox

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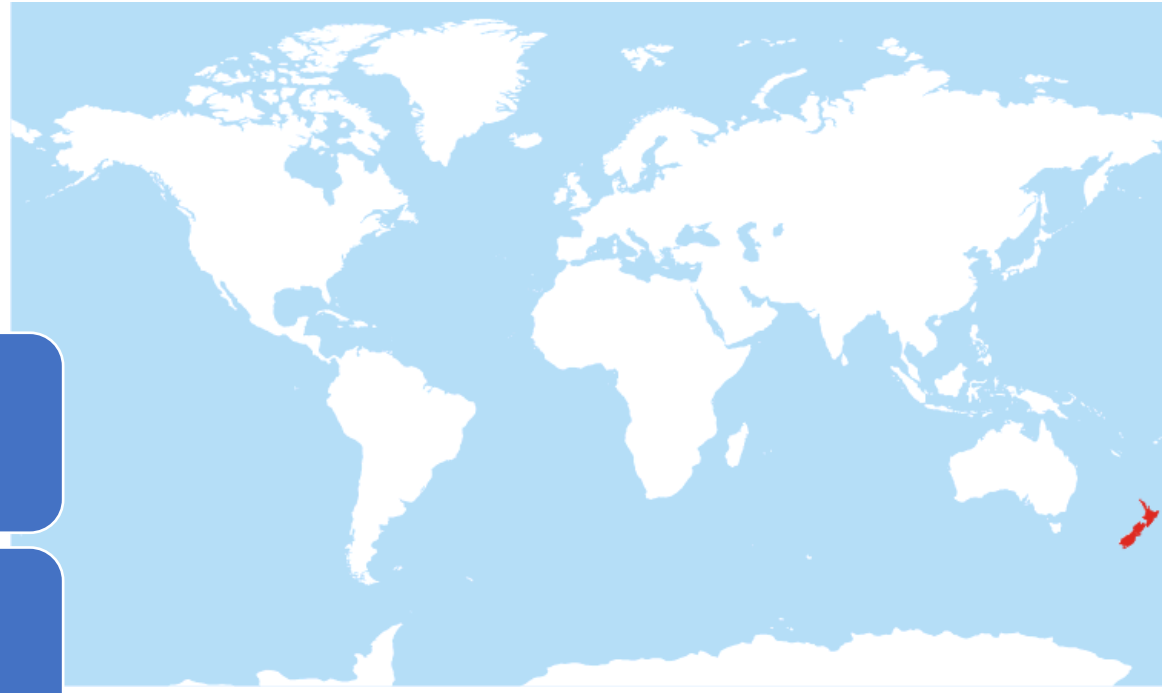
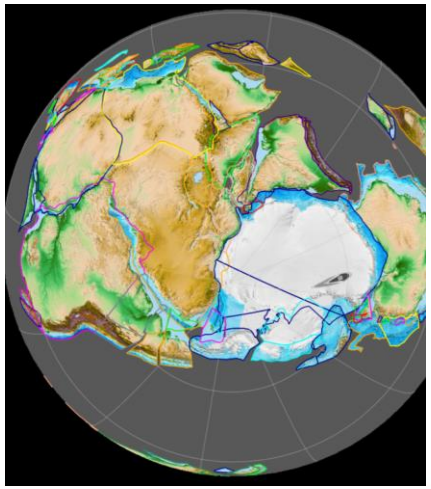
New Zealand



- Southwest Pacific Ocean
- Once part of the mega continent Gondwana
- Geographically isolated many millions of years
- Evolution of wide range of unique fauna and flora

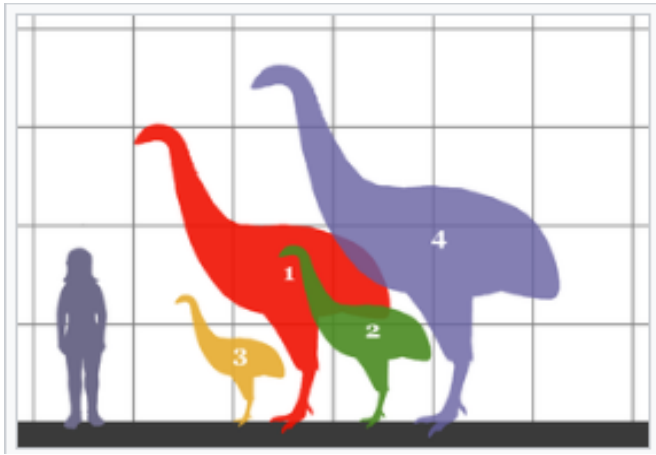


Unique avian fauna

Only 2 native land mammals — short tailed and long tailed bat

Many flightless bird species evolved due to lack of mammalian predation

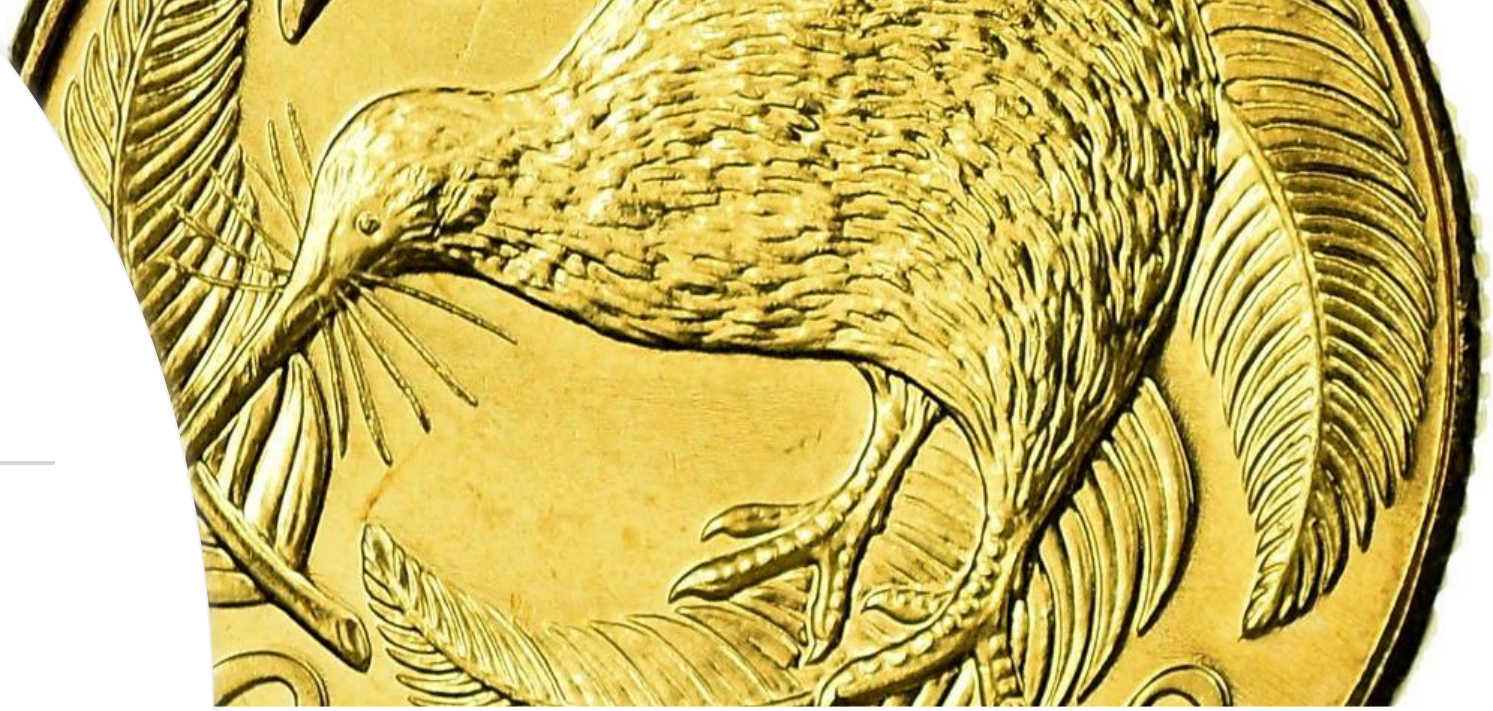
Bird species have gone extinct since human arrival and introduction of stoats, rats and cats



National identity

Taonga species – culturally significant for indigenous Māori people

Colloquial reference to all New Zealanders as “Kiwis”



Conservation efforts

Focused efforts for a number of years to prevent populations becoming extinct

Predator free offshore islands

Translocation birds to offshore islands and mainland predator free sanctuaries

Captive breeding programmes

Intensive management programmes

World situation

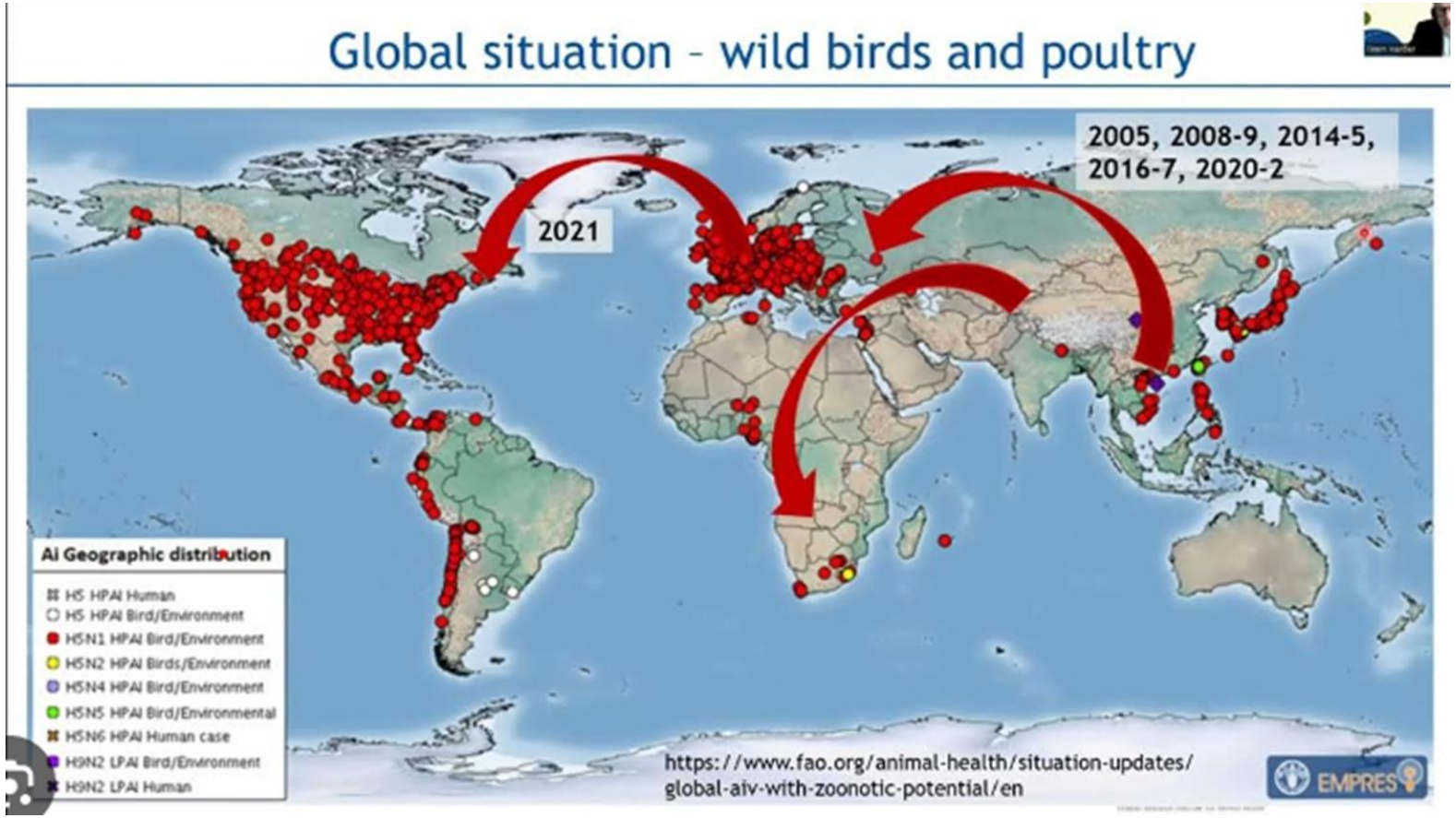
Currently Australia, the South Pacific and New Zealand are free from HPAI

Recent detections in Antarctic peninsula in February 2024

New Zealand has a vaccine registered for emergency use: “Will it be effective for those species where vaccination can be considered?”

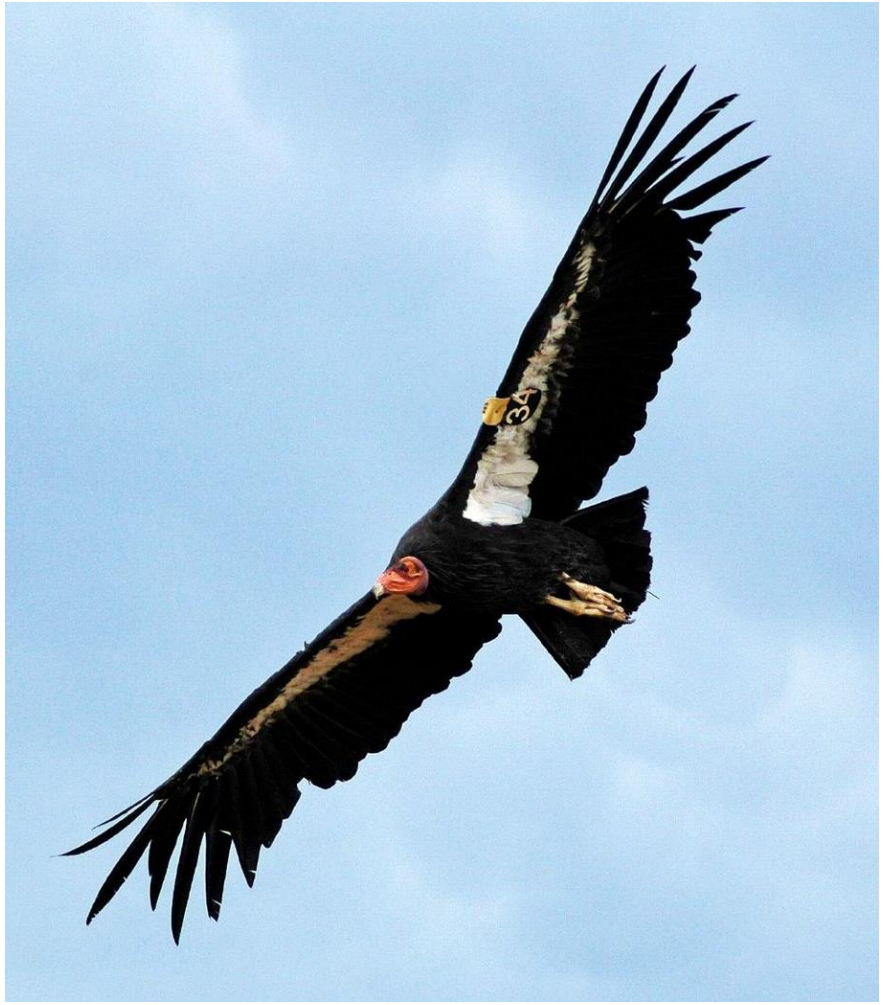
No knowledge of how native species will react to HPAI infection

Follow the US vaccine trial experience with the Californian condor



US Californian condor AI trial

- Previously extinct in the wild, total population 561 – 347 in the wild
- 21 died from HPAI 2023
- Black vultures used as proxy for AI vaccination trial before moving to 16 Californian condors for trial
- Positive response to vaccination, will vaccinate more widely captive and free flying birds



New Zealand AI vaccine trial – January 2024

Opportunity to conduct safety and efficacy AI vaccine trial before HPAI arrives in New Zealand

No proxy species available (or closely related species overseas that have already been exposed to HPAI) except kākāriki

Species selection for vaccination:

- individual bird identification
- contained so able to be captured repeatably and reliably
- highly endangered – reliant on captive breeding programmes or intensive management programme
- accessible

Species involved – captive breeding

Takahē <500 individuals

Shore plover (tūturuatu) <250

Black stilt (kakī) <200

Orange crowned kākāriki <500

(Using red crowned kākāriki as substitute >2000)

Species involved – intensive management

- Kākāpō 247 individuals

Protocol

- 10 birds from each species, two cohorts, staggered start for each species cohort
- Physical examination, baseline blood test and initial swab to confirm AI free
- Two vaccinations each, a month apart
- Bled after both vaccinations
- Then bloods at 6 months and 12 months
- Looking for antibody response and duration

Results so far

All species and cohorts have received both vaccinations

(Last kākāpō cohort due for last vaccination 10/5/24 weather depending)

No adverse effects from the vaccinations or the handling

Initial blood samples from the takahē show an antibody response

Shore plover are showing an antibody response similar to takahē

Conclusion

There are encouraging signs that vaccination is a potential tool in New Zealand's response toolbox to HPAI for some of our critically endangered species

Need a full year's results

Acknowledgments

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Staff involved with the husbandry of the vaccinated species

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www.Nzbirdsonline.org.nz

Thank you