



Healthy Watersheds Healthy People and Wildlife

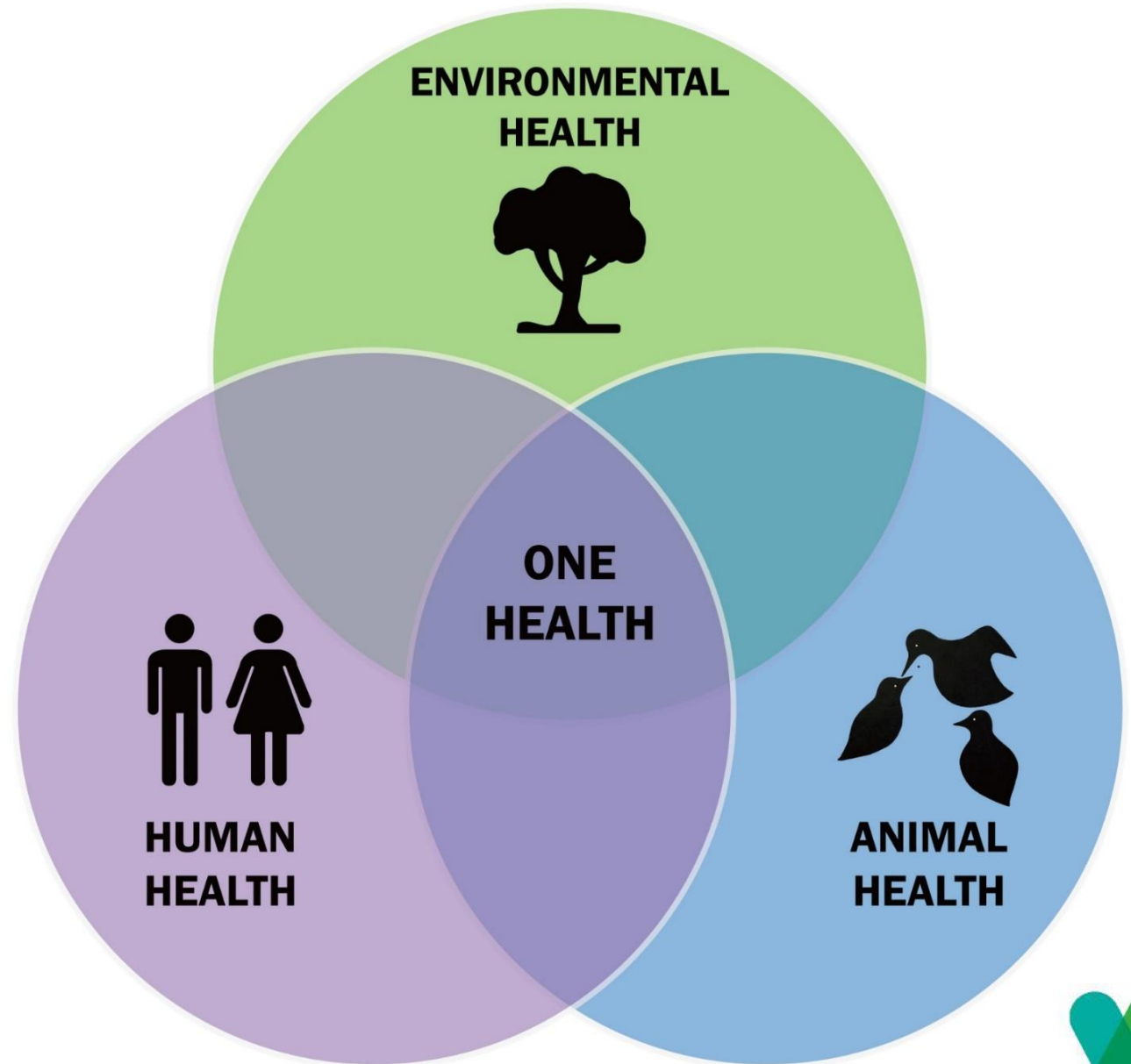
Justina Ray, President and Senior Scientist

Wildlife Conservation Society Canada

Latornell Conservation Symposium, October 18, 2022



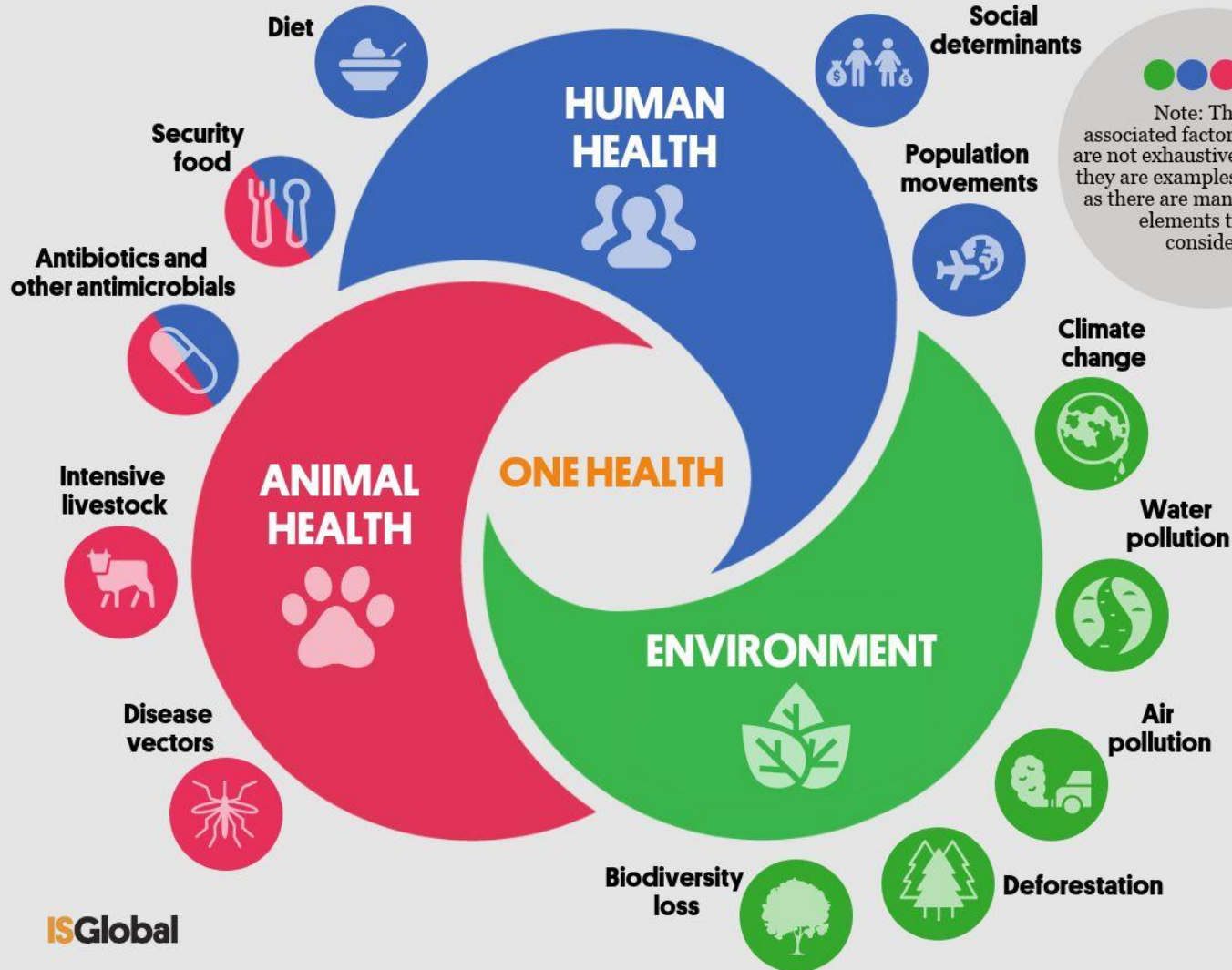
“One Health” -
A comprehensive
and integrated
approach to human,
animal and
ecosystem health





ONE HEALTH

Human health and animal health are interdependent.
At the same time, both depend on the environment.



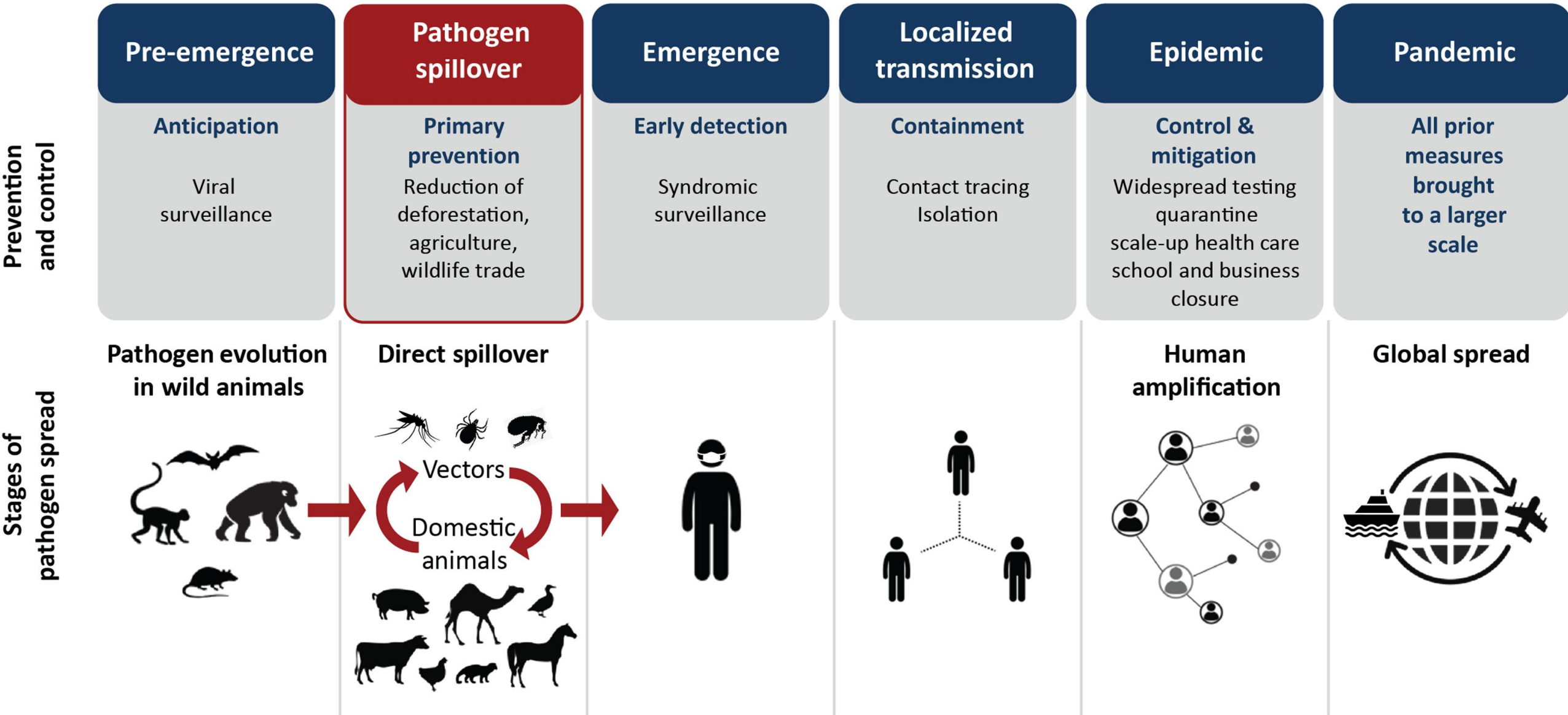
One Health and Indigenous Worldviews

“Scientists and policy-makers often overlook evidence that the One Health paradigm is already embedded in Indigenous values, worldviews, and laws

...a process by which resilience to past environmental change and previous disease outbreaks was achieved”

Jack Copper, Ta'an Kwäch'än Council,
Yukon





Bernstein et al. 2022. The costs and benefits of primary prevention of zoonotic pandemics. Science Advances.



WHO Manifesto for a healthy recovery from COVID-19

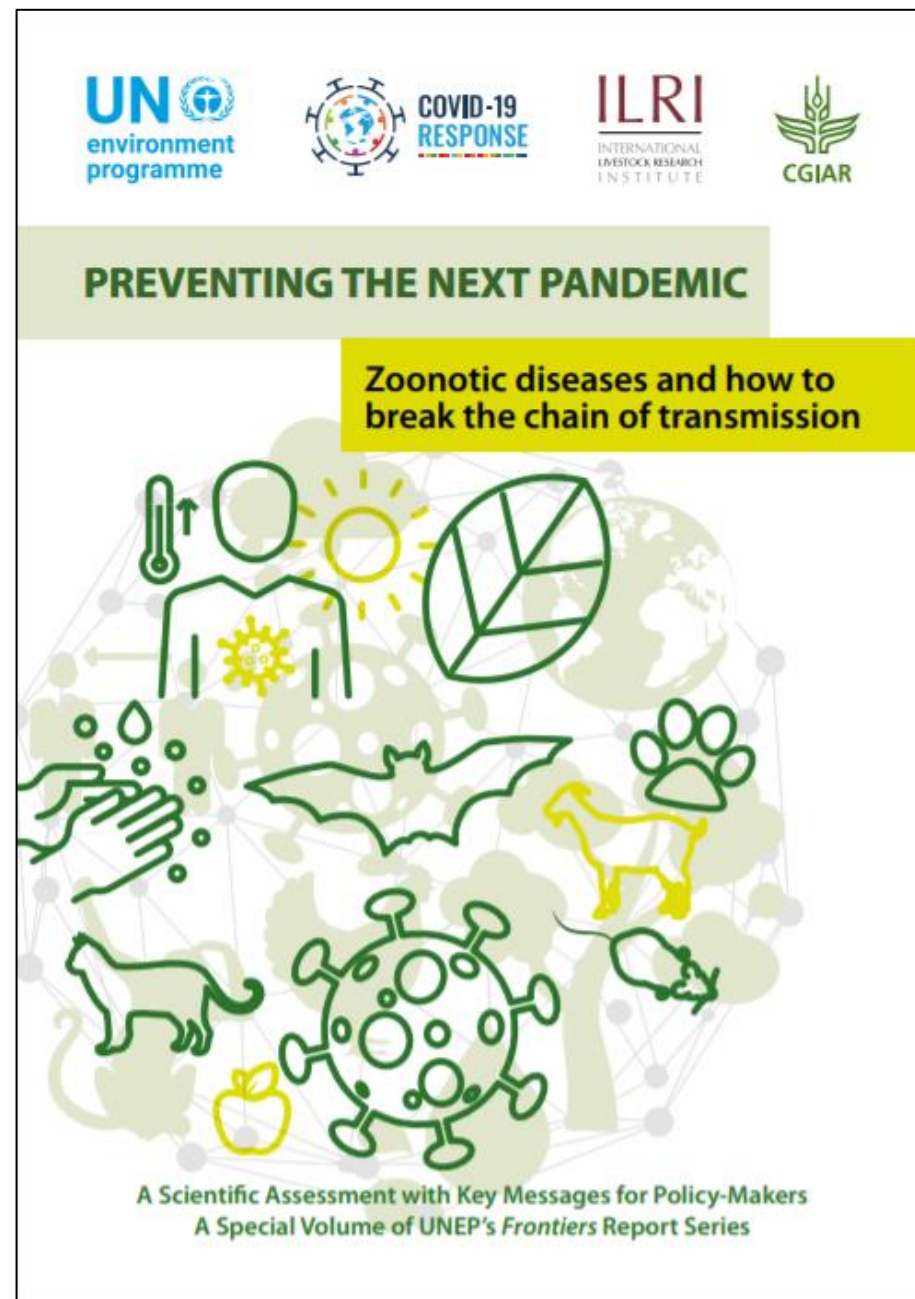
Prescriptions for a healthy and green recovery from COVID-19

MAY 2020



World Health Organization

1. Safeguard Nature
2. Ensure Access to Clean Water
3. Ensure a quick healthy energy transition
4. Promote healthy, sustainable food systems
5. Build healthy, liveable cities
6. Stop funding pollution



JULY 2020

Strengthening A One Health Approach to Emerging Zoonoses

June 2022

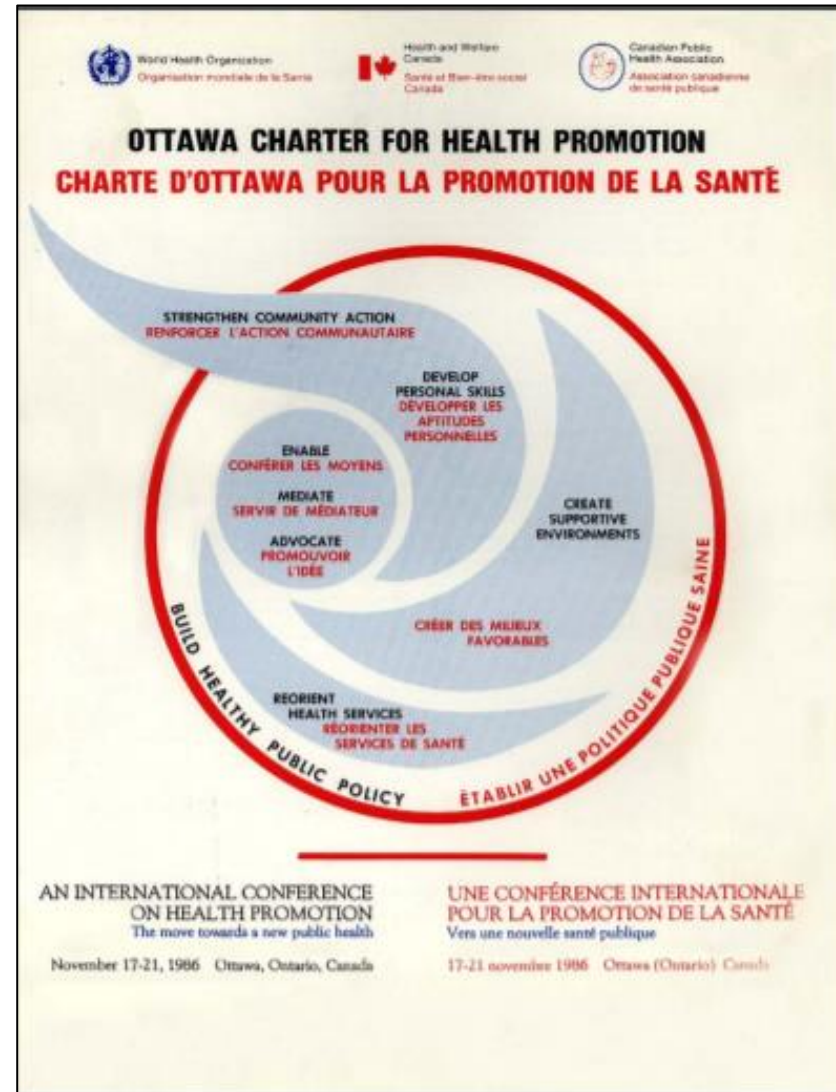


An RSC Policy Briefing

“Despite lessons learned from every new pathogen emergence, we continue to be surprised each time a new threat appears”

We wouldn't be so surprised, with a more preventative mindset

First International
Conference on
Health Promotion,
Ottawa, 21
November 1986

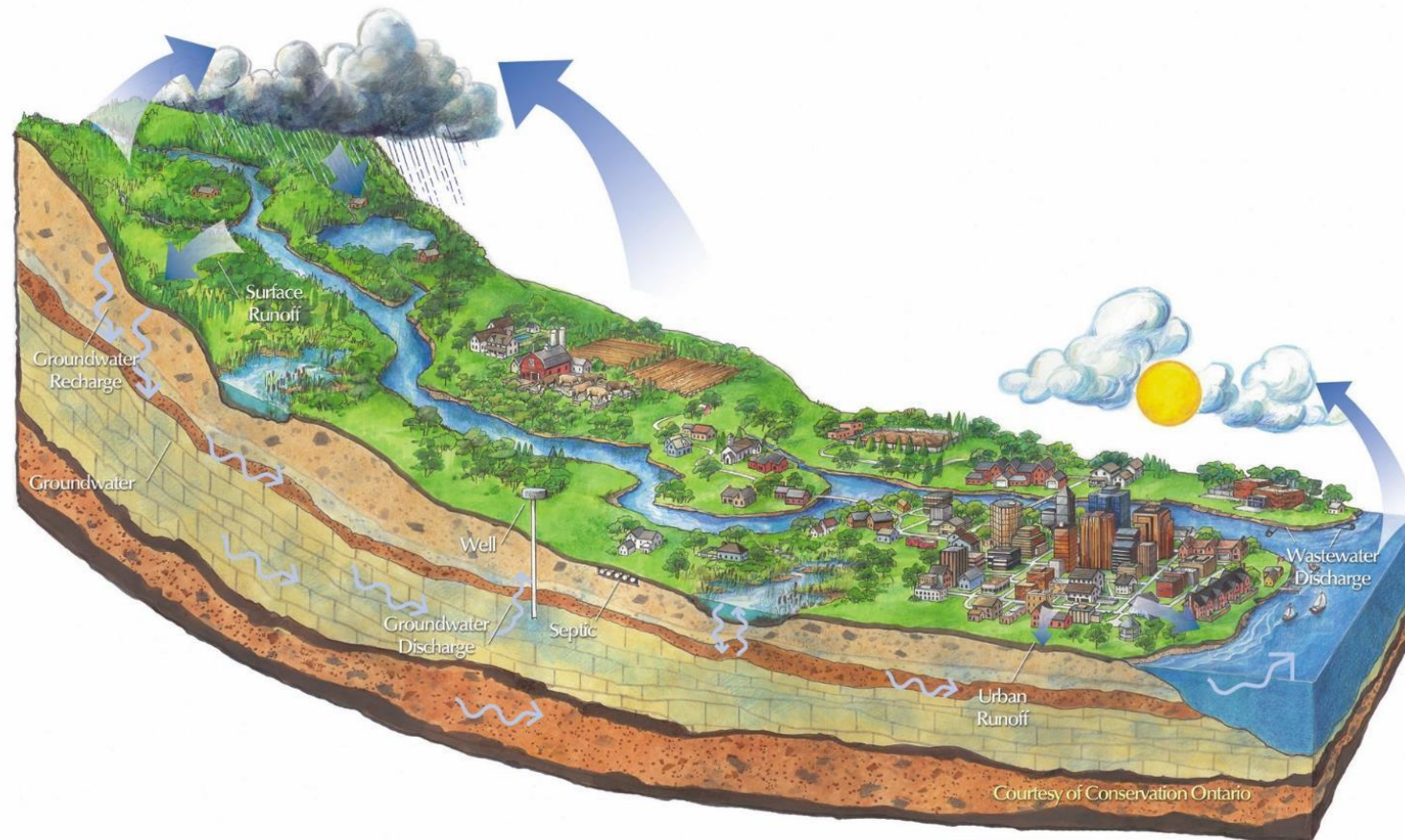


Prerequisites for Health

The fundamental conditions and resources for health are:

- peace
- shelter
- education
- food
- income
- **a stable ecosystem**
- **sustainable resources**
- social justice, and equity

Health is created and lived by people within the settings of their everyday life; where they learn, work, play and love”
(Ottawa Charter for Health Promotion [WHO 1986])





Conservation Authorities of Ontario

www.conservationontario.ca



LEGEND

- City
- Town/Village
- ~ River
- Conservation Authority
- Boundary

This map is illustrative only. Do not rely on it as being a precise indicator of routes, locations of features, nor as a guide to navigation. Published May 2015.

© 2015, Queen's Printer for Ontario. Sources of Information: Boundary, Lake and Waterbody data from Land Information Ontario and Corresponding Conservation Authorities, covered under OGDE data sharing agreement. Map Datum & Projection: NAD 83 Lambert Conformal Conic. Map Produced in Co-Operation with the Province of Ontario and Conservation Ontario.





Conservation
ONTARIO
Natural Champions

EcoHealth

Nature supports our health & well-being



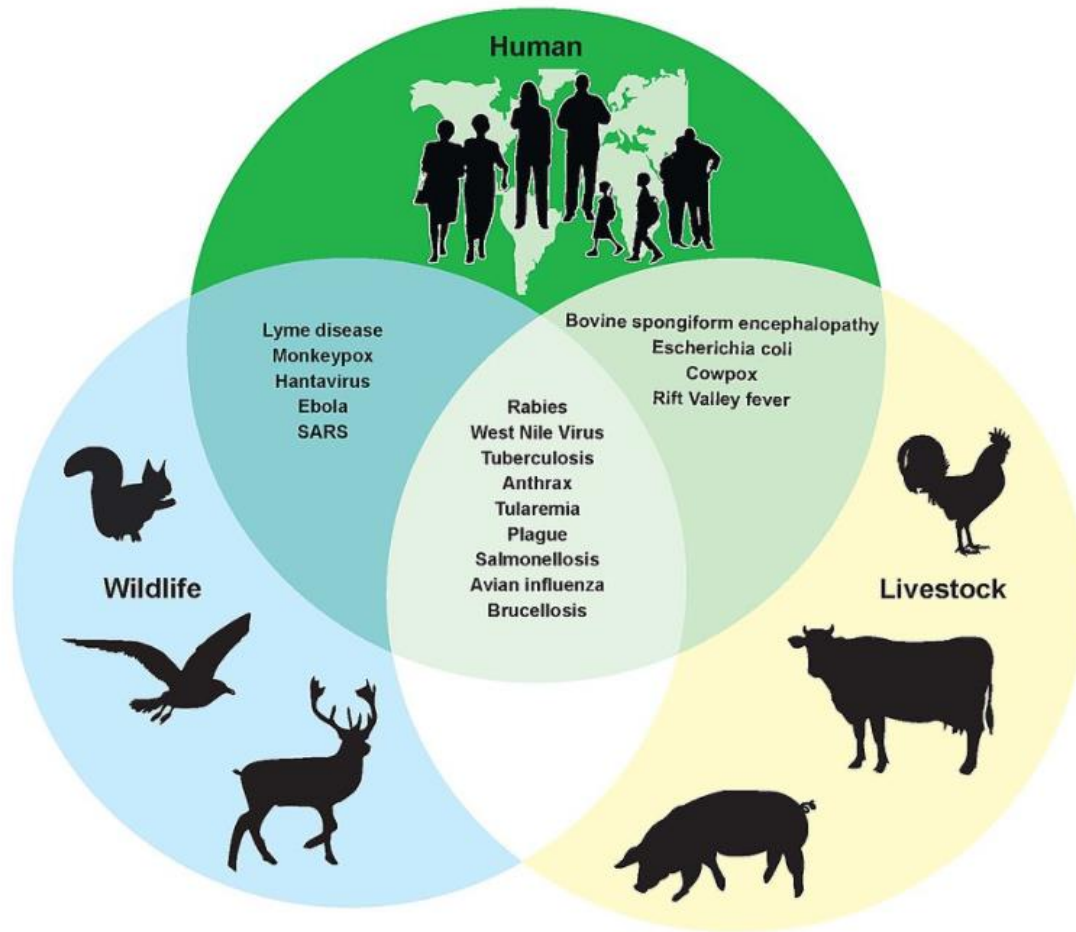
Climate change, degradation of natural areas, and agricultural intensification pose increasing threats and compromise resilience



One Health Applications in a Watershed Context:

- 1) Emerging diseases
- 2) Water quality
- 3) Flooding
- 4) Forest health

1) Emerging Diseases



Source: GAO analysis of USGS data (data); Art Explosion (images).

Government of Canada / Gouvernement du Canada

Search Inspection.canada.ca

Franglais

MENU

Canada.ca > Canadian Food Inspection Agency > Animal health > Terrestrial animals > Diseases > Reportable > Avian influenza

Protect your flock from bird flu

Response to detections of avian influenza (H5N1) in Canada 2021-2022

The Canadian Food Inspection Agency (CFIA) is currently responding to cases of highly pathogenic avian influenza (H5N1) in poultry flocks and small flocks across Canada.

- [Status of ongoing avian influenza \(H5N1\) response](#)

Government of Canada / Gouvernement du Canada

Search ECCC

Franglais

MENU

Canada.ca > Environment and natural resources > Wildlife, plants and species > Migratory birds > Migratory game bird hunting

Avian influenza in wild birds

Last updates: [Response to detections of highly pathogenic avian influenza \(H5N1\) in Canada 2021 to 2022](#)

On this page

- [Highly pathogenic avian influenza](#)
- [Signs of a sick bird](#)
- [Reporting sick or dead birds](#)
- [Feeding wild birds in your backyard](#)
- [Protecting domestic and captive birds](#)
- [Information for migratory bird permit holders](#)
- [Decontamination protocols following contact with wild birds or wild bird droppings](#)
- [Information for hunters and egg harvesters](#)
- [Information for pet owners](#)
- [Additional information](#)

Highly pathogenic avian influenza

2) Water quality

DETROIT

O'Brien & Xagorarakis 2019

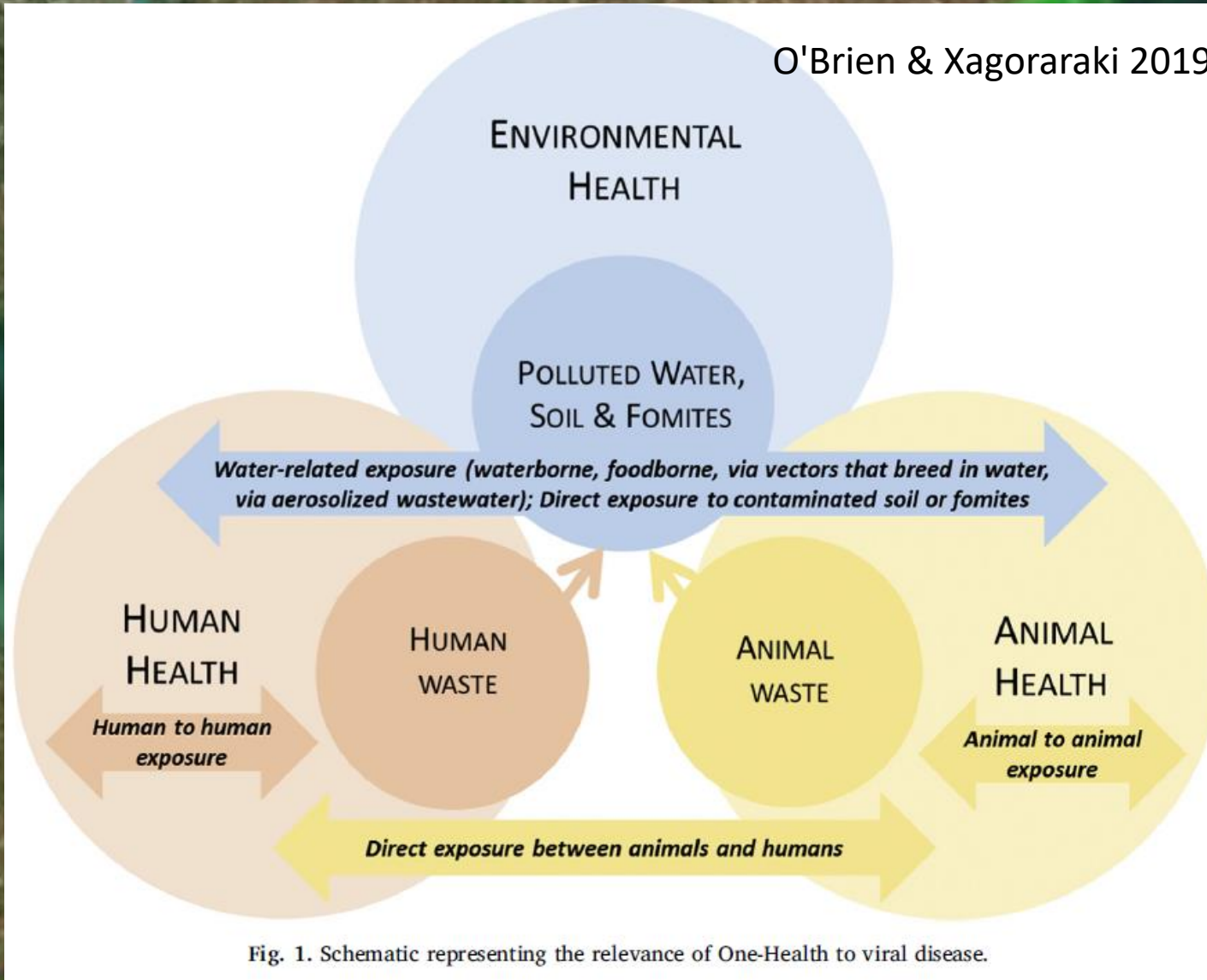


Fig. 1. Schematic representing the relevance of One-Health to viral disease.

CLEVELAND

3) Flooding



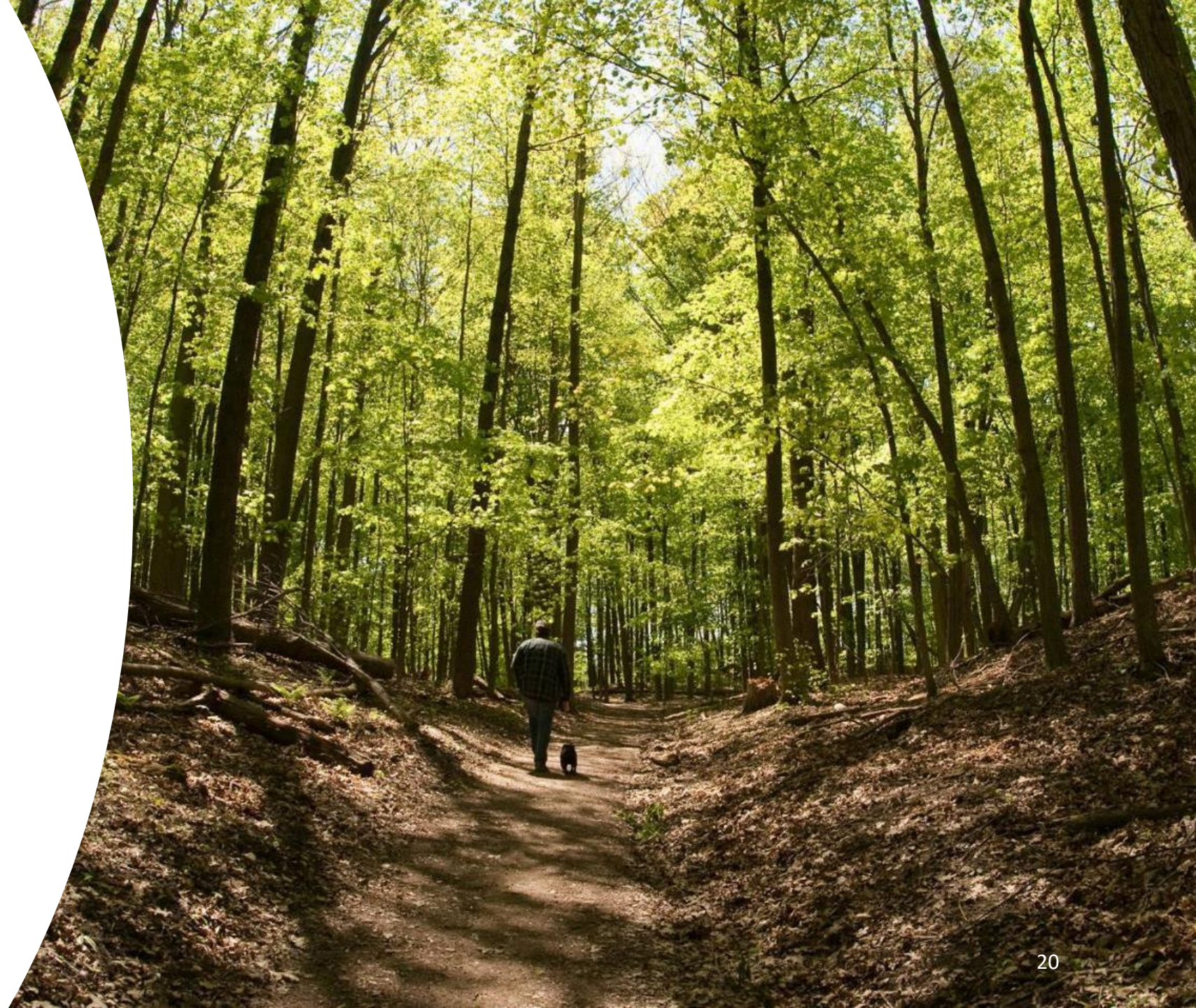


4) Forest health



@ Erin Gouthro, Maitland Conservation Authority

The pandemic has underscored the importance of our forests for human well-being



Forest Health Study

- 2000 Study
- 2021 to 2022 intensive
- 128 plots across our watershed at
53 locations

Imperative of
building a truly
integrated
watershed health
and resilience
approach



Health Watersheds, Healthy People, and Wildlife

- An integrated One Health approach demands true **cross-disciplinary collaboration and action**
- Diligent **watershed monitoring**
- Attention to wildlife and livestock disease and **health surveillance**
- **Forests and wetlands must be treated as assets**, with attention to restoring and maintaining ecological integrity
- **BUILDING RESILIENCE** to prevent exacerbation of impacts from emerging infectious diseases

One Health + Watersheds

Next Steps

- Completed scan of current directions on One Health, related initiatives in Canada, and watershed applications (in partnership with University of Guelph).
- Engage experts and practitioners to write a One Health + Watersheds 'play-book' that will identify the principles and practical approaches to integrate watershed management and One Health.
- Work with partners to develop and pilot a One Health + Watershed Plan.



**Wildlife
Conservation
Society**
Canada

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