



Conservation Authorities are ideally placed to build resiliency in nature to prevent future pandemic viruses



Healthy Watershed, Healthy People, Healthy Wildlife

• **By Lisa Boonstoppel-Pot**

Dr. Justina Ray is the president and senior scientist with Wildlife Conservation Canada and is working with the Maitland Valley Conservation Authority to develop Healthy Watershed, Healthy People, Healthy Wildlife, a take on her 'One Health' program, to build resiliency and prevent future pandemic viruses

Humans rediscovered nature during the pandemic and are making the link between the health of our natural system and humans which is why One Health, locally known as “Healthy Watershed, Healthy People, Healthy Wildlife” is gaining traction amongst both rural and urban dwellers.

Taking the lead on this connection is the Maitland Valley Conservation Authority (MCVA) which is working closely with Dr. Justina Ray, President and Senior Scientist with Wildlife Conservation Society Canada to make bridges between the health of the environment and health of people. Part of the goal is to reduce our vulnerability to pandemic viruses.

With 72 per cent of new viral disease outbreaks originating in wildlife, it's the perfect time to assess the environmental determinants affecting human health. In a presentation made last December, Dr. Ray explained what One Health is and why this integrated approach is critical to making people and the environment more resilient to pandemics in the future.

To understand how wildlife and pandemics are connected it's important to know the definition of zoonosis. Zoonoses are diseases that move between animals and humans. Some of those are viruses and scientists only understand a fraction of them, says Dr. Ray. “We only understand about 250 of the viruses that affect humans. The rest out there haven't made the leap and normally, they won't make that leap -- until they have the right constellation of factors to make that leap.”

In the particular constellation that led to SARS in 2003 and COVID-19 were wildlife markets in China, something Canada doesn't have. In these markets, wild animals live in cages stacked one on top of each other in a way that would never occur in the wild. Occurring indoors, with a large human population in attendance, these conditions have led to at least two serious disease outbreaks.

Ultimately, it's really the “ongoing destruction of nature that will result in these diseases jumping from animal to animal and then to humans,” explains Dr. Ray. Disruptions to ecosystems literally shakes viruses loose from their natural hosts so they have to search for a new host which, in a world growing in population, is often humans.

Plus, the increase and expansion of human activity is breaking down the natural buffer that once protected us, says Dr. Ray. In tropical countries where the virus jump is happening, country roads are penetrating into areas that had previously not seen human contact and forcing animals out of their environments.

Humans are, in effect, creating the situations leading to virus jumps. The Global Assessment Report on Biodiversity and Ecosystem Services by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) says nature is critical for human existence. Yet humans “devastate wildlife, we eliminate entire species and then at the same time we squeeze the rest into perverse and dangerous configurations and then we jeopardize our own health.”

Most of this is happening in tropical forest regions but

Europe and North America are not off the hook, says Dr. Ray. Canada has intensive agriculture, combined with high populations and land degradation. In Southern Ontario, the landscape has been hugely modified. “Wetlands and forests are a shadow of what they used to be. Overall biodiversity of the region has been vastly simplified and homogenized,” says Dr. Ray.

North America’s poster child of emerging diseases is Lyme disease which is connected to deforestation. Lyme disease comes from bacteria on ticks that rely on deer to survive as well as such species as the white-footed mouse which thrives in forests fragmented by agriculture. Lyme disease isn’t a pandemic but is a “slow-moving problem that can collectively lead to bigger problems over time,” says Dr. Ray.

It’s almost impossible to stop what’s happening to the planet so the goal is to “improve resilience” globally and locally. Ironically, the pandemic has underscored the importance of the environment for human well-being. As people explored nature, they experienced the physical, psychological and mental benefits of being outdoors.

Dr. Ray says the global response needs to be in preventing the next pandemic via stopping the wildlife trade, wildlife consumption and destroying nature. Locally, building resilience includes safeguarding nature in a stable ecosystem with sustainable resources.

The MCVA has long been a protector of waterways and moving forward, water quality will remain a prime concern. Encouraging farmers and landowners to think of nature as an asset, promoting best management practices, mapping, conservation, protection of biodiversity, watershed monitoring and creating functional ecosystems will all be part of the process.

Phil Beard, General Manager of the MVCA, explained that many people in southern Ontario aren’t familiar with the One Health concept,

which is why the MVCA has coined it Healthy Watershed, Healthy People, Healthy Wildlife. One of the first goals of this action plan is assessing forest health, a vital tenet of this vision.

As mentioned, forest fragmentation contributes to the spread of lyme disease so at a very real level, protecting forests can protect the health of all the pandemic-driven nature seekers who have been walking in the woods.

Dan Kraus, who works with Dr. Ray says people are really starting to

grasp how the health of the forest affects microbial health of the soil, which in turn affects the microbes in our gut. “It isn’t just hippie stuff anymore. We know that kids that play in nature are healthier because of that connection.”

As One Health and Healthy Watershed, Healthy People, Healthy Wildlife move forward, it will require a team effort including public health units, the agricultural community, government and individuals to really make a difference. ◇



Above, top. In October, MVCA hosted a tour of the watershed to discuss the One Health approach with (left to right) Clint Jacobs, Natural Heritage Coordinator with Walpole Island First Nations; Dan Kraus and Dr. Justina Ray of the Wildlife Conservation Society of Canada; Erin Gouthro, a Watershed Ecologist with MVCA and Ted Briggs, the Great Lakes Advisor for Lake Huron, Ministry of Environment, Conservation and Parks. Above: In her presentation to the Maitland Conservation Authority about the One Health program, Dr. Justina Ray incorporated the top slide which gives a visual of the comprehensive approach of One Health and reveals how environmental health, human health and animal health overlap. Group photo by Phil Beard.

