



Statement

Gary Tabor
President

Center for Large Landscape Conservation
Chair, IUCN WCPA Connectivity Conservation Specialist Group

Special Virtual Session for SBSTTA-24/SBI-3
on the theme of "Biodiversity, One Health and COVID-19"
15-16 December, 2020

**[Stopping “Land Use Induced Pathogen Spillover” by Conserving Intact and Well
Connected Landscapes]**

Thank you Co-Chairs,

Excellencies, Distinguished Delegates, Colleagues,

The Center for Large Landscape Conservation thanks the Convention on Biological Diversity for convening this **Special Virtual Session for SBSTTA-24/SBI-3 on the theme of "Biodiversity, One Health and COVID-19"** and for this opportunity to contribute to the discussion.

Ladies and Gentlemen,

- The linkage between healthy landscapes and healthy people cannot be overstated in this time of COVID 19.
- We are convinced that protecting nature reduces the risk of disease epidemics and pandemics.
- We present four peer-reviewed scientific pre-print papers in our written submission looking at the connection between ensuring ecosystem integrity and connectivity, and preventing disease spillover—the dynamic and yet poorly understood process that leads to epidemics and pandemics which we term “Land-Use Induced Spillover.”
- Land use change elevates spillover risk by increasing pathogen prevalence in wildlife by the introduction of stress to both individuals and their habitats and by increasing contact between wildlife reservoirs and humans and their associated domestic animals.
- Many high biodiversity regions of the planet have witnessed unprecedented levels of habitat fragmentation. Ecological Connectivity is a vital component of ecological

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integrity and is a specific countermeasure to fragmentation. We reference the first-ever IUCN “Guidelines for Conserving Connectivity through Ecological Networks and Corridors”¹ on this topic.

- Ecological connectivity, by and large, enhances ecosystem resilience, especially in the face of habitat fragmentation and climate change.
- A key fragmenting force of note is poorly planned linear infrastructure development (roads, rails, canals, pipelines and transmission lines) which can be considered the tip of the spear of human intrusion into high biodiverse areas.
- By 2050, it is estimated that 60 million kilometers (km) of roads will be interlaced across the globe.² Linear infrastructure projects can have many direct and indirect effects on wildlife and their habitat: road mortality, deforestation, mining and illegal settlements.^{3,4 5,6}
- In the wake of Covid-19 we can no longer focus global efforts on post-emergence outbreak control but must preemptively protect areas and stop habitat fragmentation where novel pathogen sources may exist.⁷

¹ Hilty, J., Worboys, G.L., Keeley, A., Woodley, S., Lausche, B., Locke, H., Carr, M., Pulsford I., Pitttock, J., White, J.W., Theobald, D.M., Levine, J., Reuling, M., Watson, J.E.M., Ament, R., and Tabor, G.M. (2020). *Guidelines for conserving connectivity through ecological networks and corridors*. Best Practice Protected Area Guidelines Series No. 30. Gland, Switzerland: IUCN <https://doi.org/10.2305/IUCN.CH.2020.PAG.30.en>

² Dulac, J. (2013). ‘Global land transport infrastructure requirements: Estimating road and railway infrastructure capacity and costs to 2050’. Paris: International Energy Agency.

³ Wilkie, D., Shaw E., Rotberg, F., Morelli, G., and Auzel P., Roads, Development, and Conservation in the Congo Basin: Conservation Biology [Conserv. Biol.], vol. 14, no. 6, pp. 1614-1622, Dec 2000.

⁴ Laurance, W. F., & Balmford, A. (2013). Land use: A global map for road building. In *Nature*. <https://doi.org/10.1038/495308a>

⁵ Geist, H. J., & Lambin, E. F. (2002). Proximate Causes and Underlying Driving Forces of Tropical Deforestation. *BioScience*, 52(2), 143. [https://doi.org/10.1641/0006-3568\(2002\)052\[0143:PCAUDF\]2.0.CO;2](https://doi.org/10.1641/0006-3568(2002)052[0143:PCAUDF]2.0.CO;2)

⁶ Laurance, W. F., Peletier-Jellema, A., Geenen, B., Koster, H., Verweij, P., Van Dijck, P., Lovejoy, T. E., Schleicher, J., & Van Kuijk, M. (2015). Reducing the global environmental impacts of rapid infrastructure expansion. *Current Biology*, 25(7), R259–R262. <https://doi.org/10.1016/j.cub.2015.02.050>

⁷ Allen, T., Murray, K. A., Zambrana-Torrel, C., Morse, S. S., Rondinini, C., Di Marco, M., Breit, N., Olival, K. J., & Daszak, P. (2017). Global hotspots and correlates of emerging zoonotic diseases. *Nature Communications*, 8(1), 1124. <https://doi.org/10.1038/s41467-017-00923-8>

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Referenced Preprints:

Plowright, R., Reaser, J., Locke, H., Woodley, S.J., Patz, J.A., Becker, D., Oppler, G., Hudson, P. and Tabor, G.M., 2020. A call to action: Understanding land use-induced zoonotic spillover to protect environmental, animal, and human health. DOI 10.32942/osf.io/cru9w

Reaser, J., Tabor, G.M., Becker, D.J., Muruthi, P., Witt, A., Woodley, S.J., Ruiz-Aravena, M., Patz, J.A., Hickey, V., Hudson, P.J. and Locke, H., 2020. Land use-induced spillover: priority actions for protected and conserved area managers. DOI 10.32942/osf.io/bmfhw

Reaser, J., Hunt, B.E., Ruiz-Aravena, M., Tabor, G.M., Patz, J.A., Becker, D., Locke, H., Hudson, P. and Plowright, R., 2020. Reducing land use-induced spillover risk by fostering landscape immunity: policy priorities for conservation practitioners. DOI 10.32942/osf.io/7gd6a

Reaser, J., Witt, A., Tabor, G.M., Hudson, P.J. and Plowright, R.K., 2020. Ecological Countermeasures for Pandemic Prevention: When Ecological Restoration is a Human Health Imperative. 10.32942/osf.io/bthsm

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