Veterinærinstituttet
Norwegian Veterinary Institute

Rotary | Rotary Opens Opportunities

KORLEIS UNNGÅ NYE OG KANSKJE MEIR ALVORLEGE PANDEMIAR?

ROTARY - DISTRIKT - 2250 - STORD 24.04.2021

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NORGA
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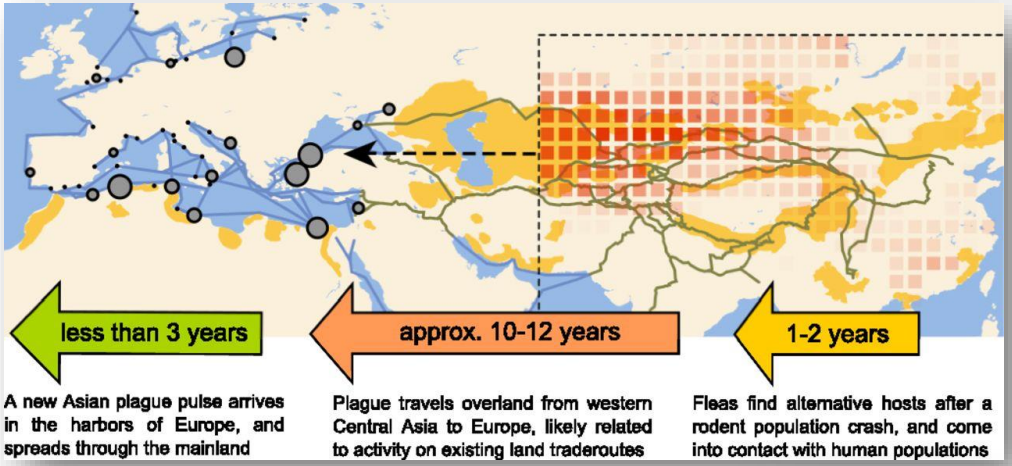
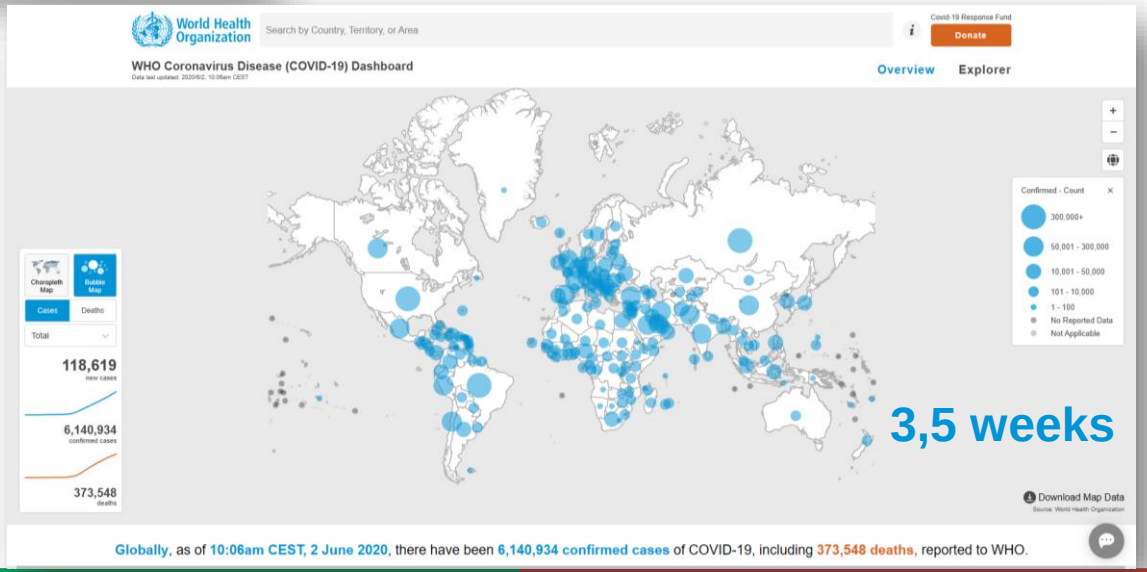
NOREG
STATSMINISTERENS KONTOR
NORGE
STATSMINISTERENS KONTOR
NORWAY
OFFICE OF THE PRIME MINISTER
VIS BILDETEKST
Foto: Lise Åserud / NTB
Mener Norge må stenge igjen
Regjeringen varsler nye tiltak neste uke. De gjelder hele Norge. Eksperter sier vi bør
nge Norge som i mars i fjor.
12.03.20

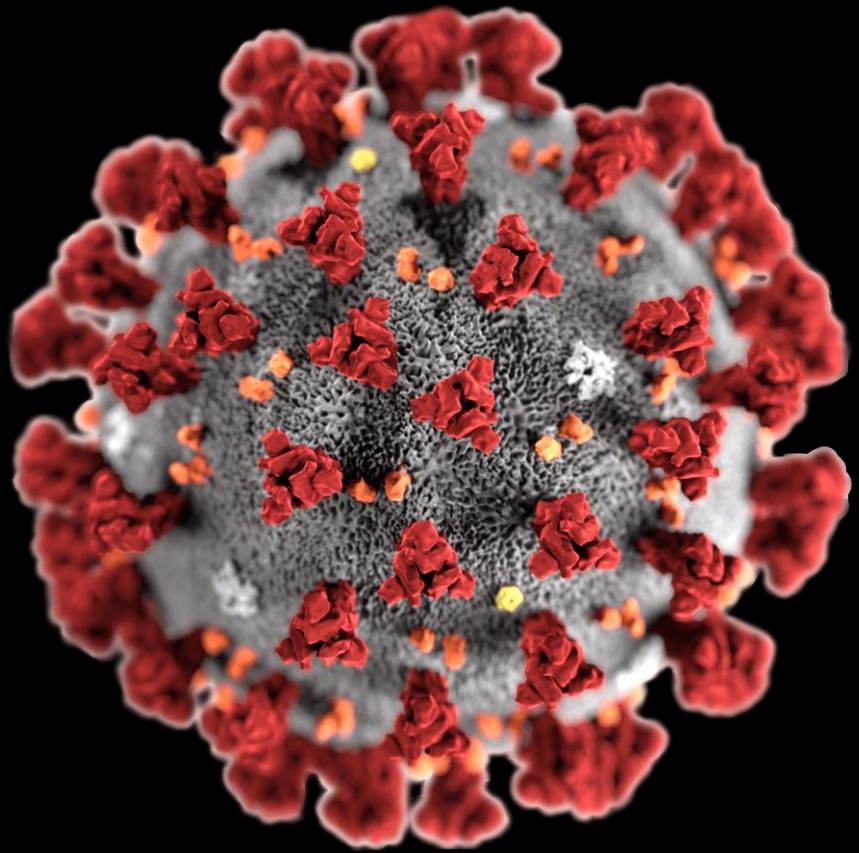
"Future pandemics will emerge more often, spread more rapidly, do more damage to the world economy and kill more people than COVID-19 unless there is a transformative change in the global approach to dealing with infectious diseases" – IPBES report on pandemics and Biodiversity



Boris V. Schmid et al. PNAS 2015;112:10:3020-3025

CHANGE





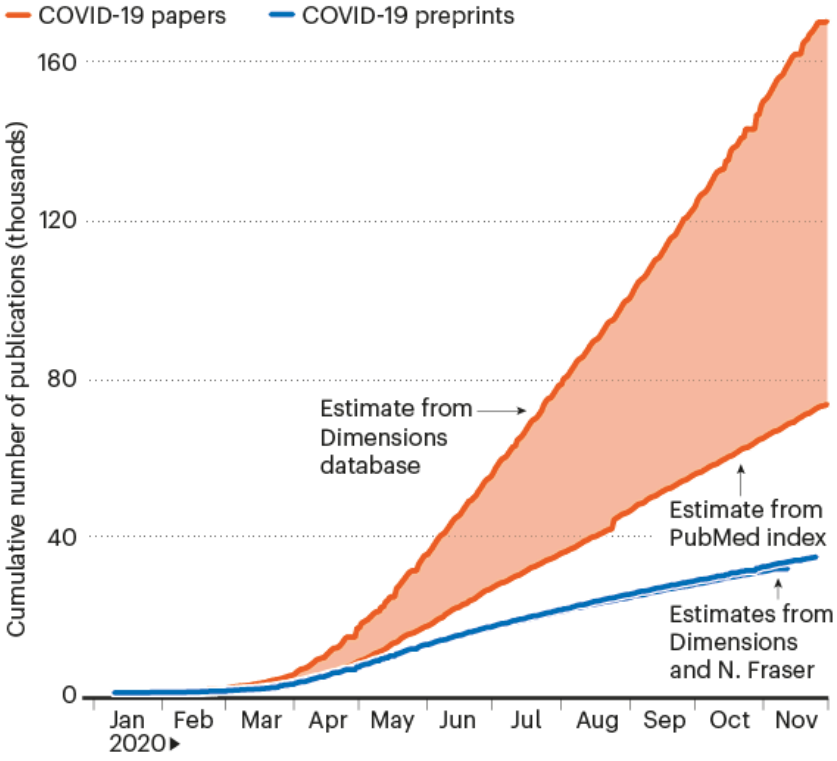
What about... SARS-CoV 2 ?

Surprise?


FROM SHONDALAND
WHO BROUGHT YOU
GREY'S ANATOMY AND SCANDAL
A NETFLIX ORIGINAL SERIES
BRIDGERTON
NETFLIX

CORONAVIRUS CASCADE

One estimate suggests that more than 200,000 coronavirus-related journal articles and preprints had been published by early December.



*Estimates differ depending on search terms, database coverage, and definitions of what counts as a scientific article; some preprints were posted on multiple sites online.

©nature

BRIEF REPORT

A Novel Coronavirus from Patients with Pneumonia in China, 2019

Na Zhu, Ph.D., Dingyu Zhang, M.D., Wenling Wang, Ph.D., Xingwang Li, M.D., Bo Yang, M.S., Jingdong Song, Ph.D., Xiang Zhao, Ph.D., Baoying Huang, Ph.D., Weifeng Shi, Ph.D., Roujian Lu, M.D., Peihua Niu, Ph.D., Faxian Zhan, Ph.D., Xuejun Ma, Ph.D., Dayan Wang, Ph.D., Wenbo Xu, M.D., Guizhen Wu, M.D., George F. Gao, D.Phil., and Wenjie Tan, M.D., Ph.D., for the China Novel Coronavirus Investigating and Research Team

SUMMARY

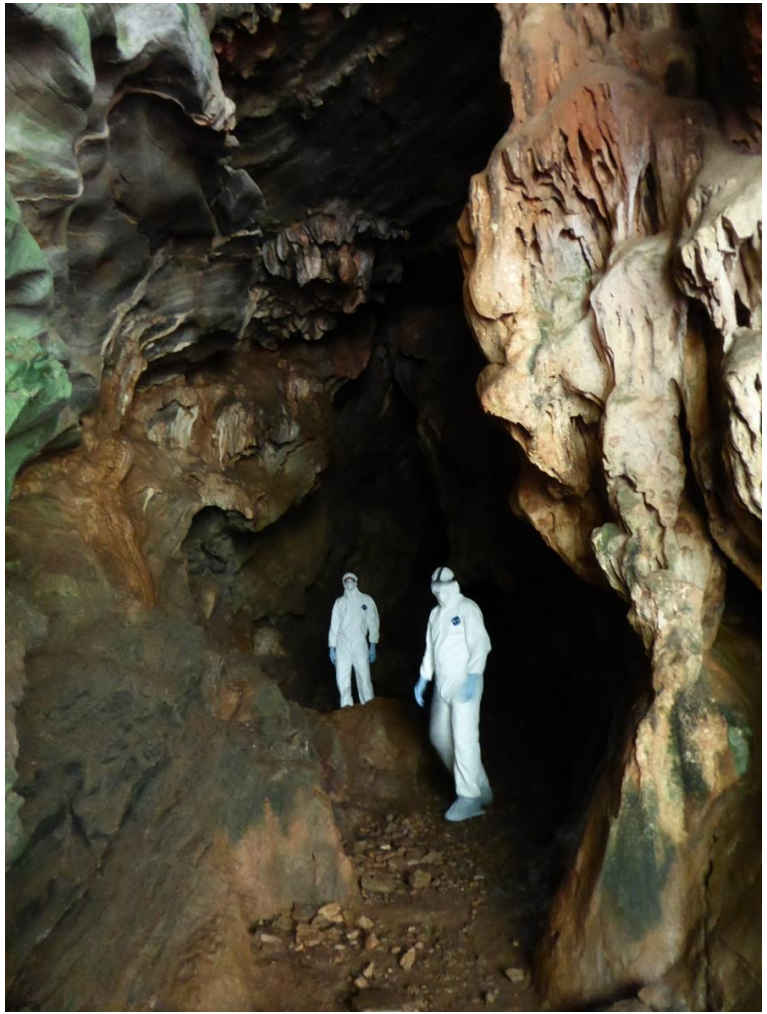
In December 2019, a cluster of patients with pneumonia of unknown cause was linked to a seafood wholesale market in Wuhan, China. A previously unknown betacoronavirus was discovered through the use of unbiased sequencing in samples from patients with pneumonia. Human airway epithelial cells were used to isolate a novel coronavirus, named 2019-nCoV, which formed a clade within the subgenus sarbecovirus, Orthocoronavirinae subfamily. Different from both MERS-CoV and SARS-CoV, 2019-nCoV is the seventh member of the family of coronaviruses that infect humans. Enhanced surveillance and further investigation are ongoing. (Funded by the National Key Research and Development Program of China and the National Major Project for Control and Prevention of Infectious Disease in China.)

From the NHC Key Laboratory of Biosafety, National Institute for Viral Disease Control and Prevention, Chinese Center for Disease Control and Prevention (N.Z., W.W., J.S., X.Z., B.H., R.L., P.N., X.M., D.W., W.X., G.W., G.F.G., W.T.), and the Department of Infectious Diseases, Beijing Ditan Hospital, Capital Medical University (X.L.) — both in Beijing; Wuhan Jinyintan Hospital (D.Z.), the Division for Viral Disease Detection, Hubei Provincial Center for Disease Control and Prevention (B.Y., F.Z.), and the Center for Biosafety Mega-Science, Chinese Academy of Sciences (W.T.) — all in Wuhan; and the Shandong First Medical University and Shandong Academy of Medical Sciences, Jinan, China (W.S.). Address reprint requests to Dr. Tan at the NHC Key Laboratory of Biosafety, National Institute for Viral Disease Control and Prevention, China CDC, 155 Changbai Road, Changping District, Beijing 102206, China; or at tanwj@ivdc.chinacdc.cn, Dr. Gao at the National Institute for Viral Disease Control and Prevention, China CDC, Beijing 102206, China, or at gaof@im.ac.cn, or Dr. Wu at the NHC Key Laboratory of Biosafety, National Institute for Viral Disease Control and Prevention, China CDC, Beijing 102206, China, or at wugz@ivdc.chinacdc.cn.

Drs. Zhu, Zhang, W. Wang, Li, and Yang contributed equally to this article.

This article was published on January 24, 2020, and updated on January 29, 2020, at NEJM.org.

N Engl J Med 2020;382:727-33.
DOI: 10.1056/NEJMoa2001017



Hu *et al.* (2017) *PLoS Pathogens*

PLOS | PATHOGENS

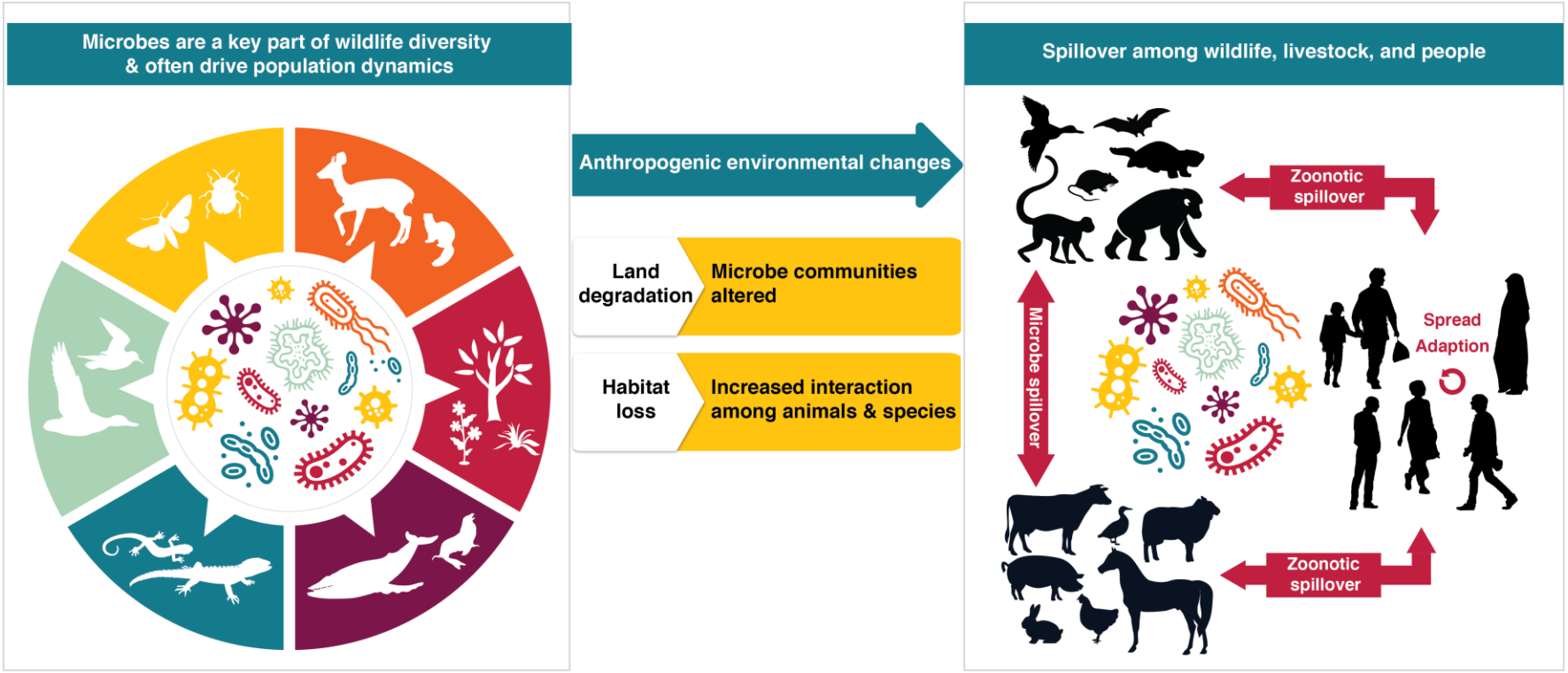
RESEARCH ARTICLE

Discovery of a rich gene pool of bat SARS-related coronaviruses provides new insights into the origin of SARS coronavirus

Ben Hu[1☯], Lei-Ping Zeng[1☯], Xing-Lou Yang[1☯], Xing-Yi Ge[1], Wei Zhang[1], Bei Li[1], Jia-Zheng Xie[1], Xu-Rui Shen[1], Yun-Zhi Zhang[2,3], Ning Wang[1], Dong-Sheng Luo[1], Xiao-Shuang Zheng[1], Mei-Niang Wang[1], Peter Daszak[4], Lin-Fa Wang[5], Jie Cui[1]*, Zheng-Li Shi[1]*

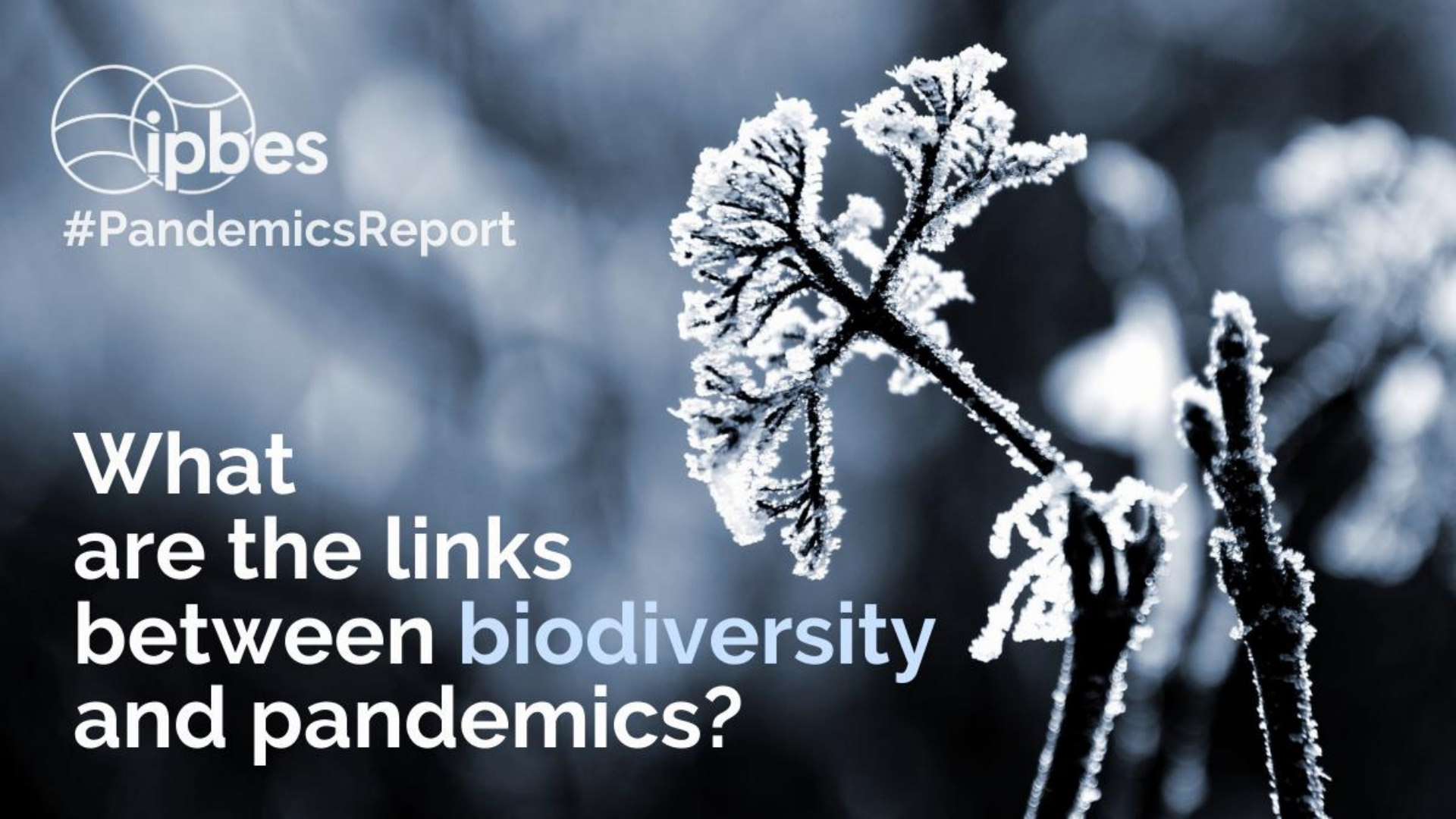
EcoHealth Alliance

So…who is changing what?



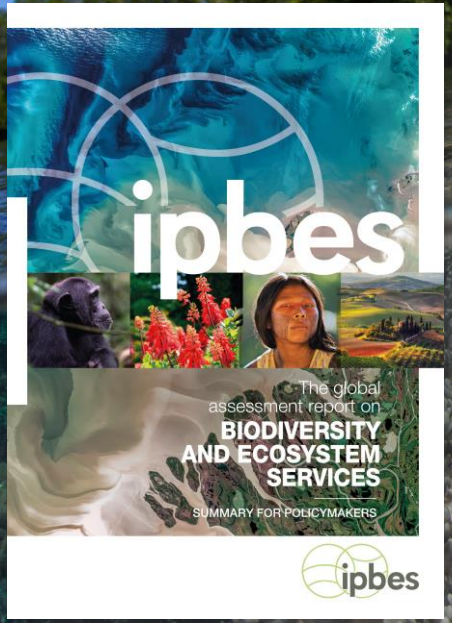
ipbes

#PandemicsReport



What are the links between biodiversity and pandemics?

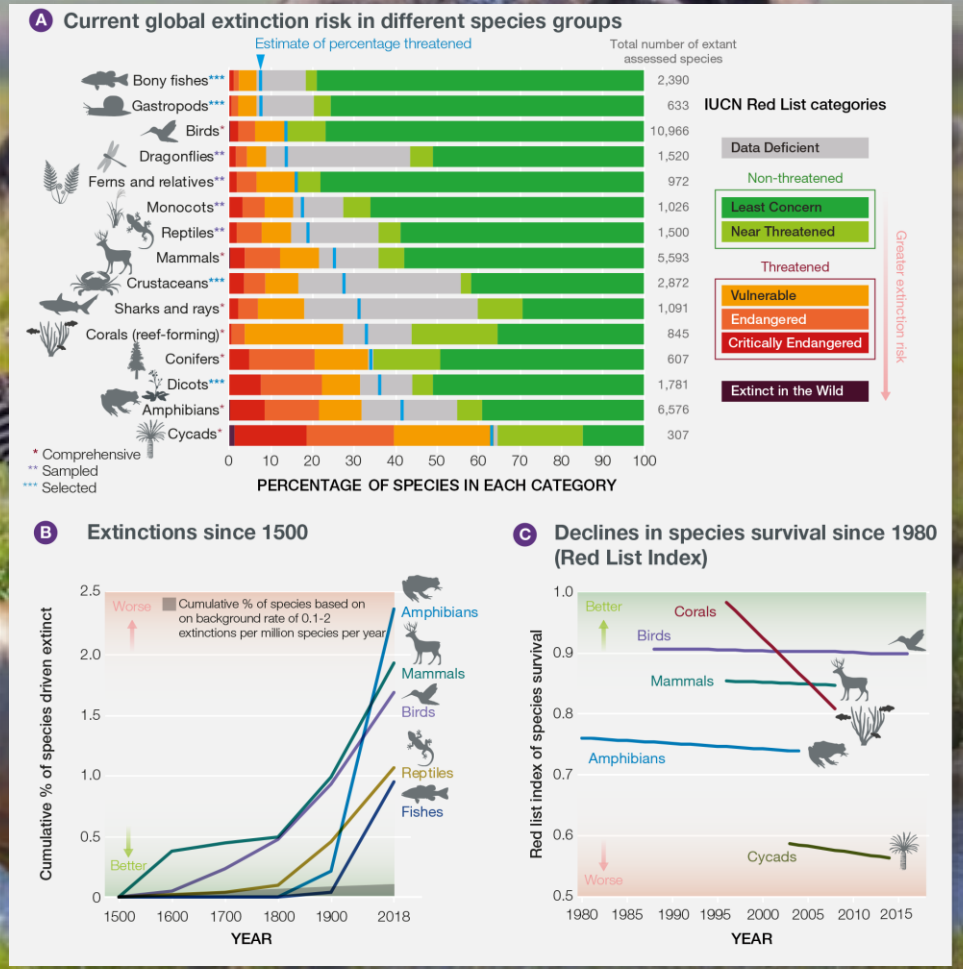
BIODIVERSITY IS FUNDAMENTAL TO HUMAN LIFE ON EARTH, AND IT IS BEING DESTROYED BY US AT A RATE UNPRECEDENTED IN HISTORY.

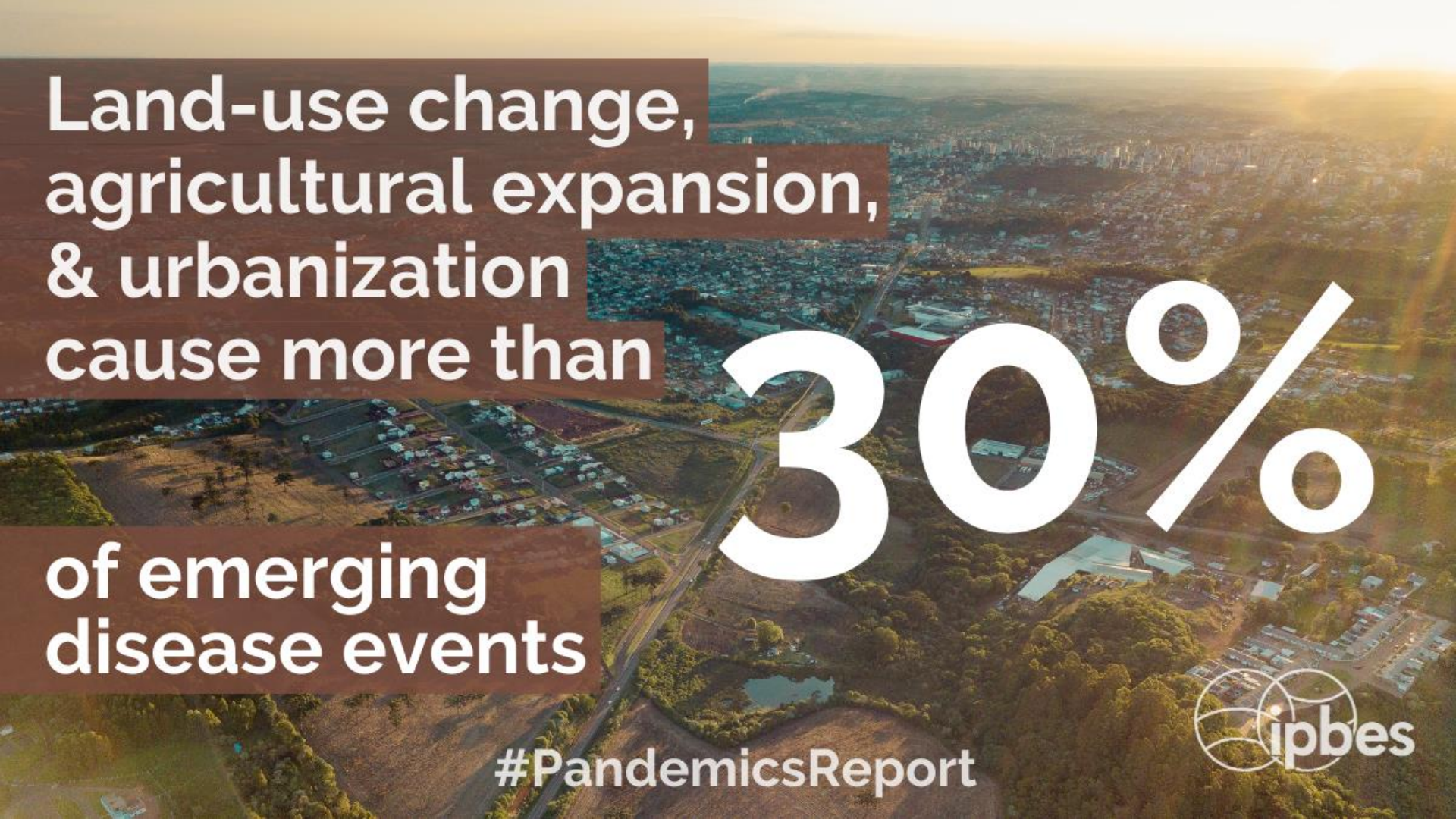


"Many of nature's contributions to people are essential for human health and their decline thus threatens a good quality of life"

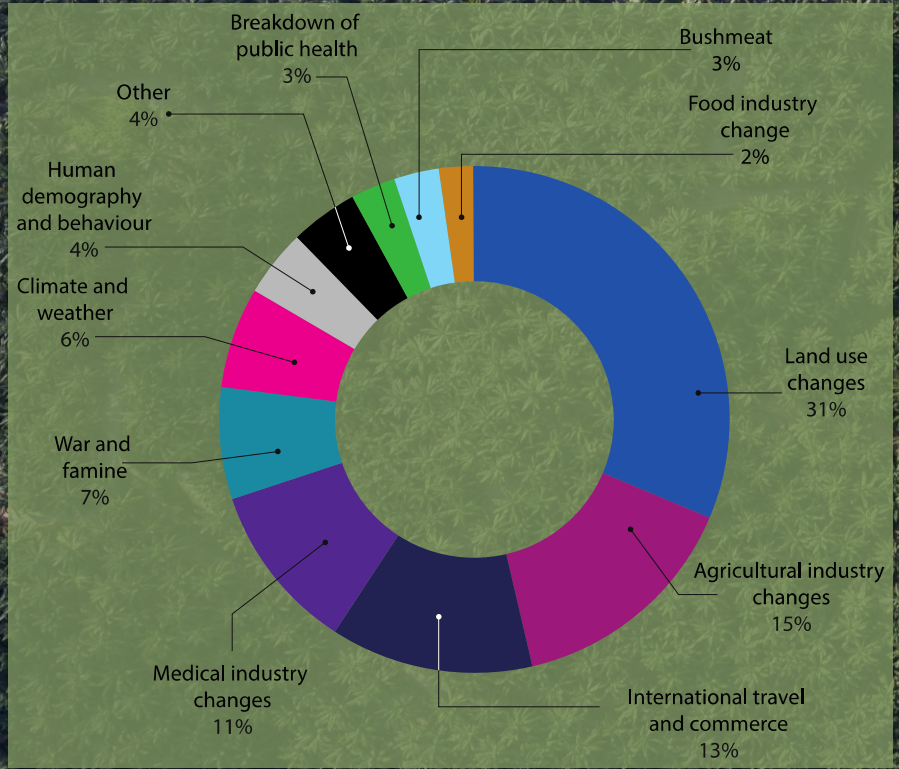
“THE NUMBER OF LOCAL VARIETIES AND BREEDS OF DOMESTICATED PLANTS AND ANIMALS AND THEIR WILD RELATIVES HAS BEEN REDUCED SHARPLY AS A RESULT OF LAND USE CHANGE, KNOWLEDGE LOSS, MARKET PREFERENCES AND LARGE-SCALE TRADE”

IPBES GLOBAL ASSESSMENT




Land-use change,
agricultural expansion,
& urbanization
cause more than
30%
of emerging
disease events
#PandemicsReport
ipbes

Land Use Change Drives Disease Emergence

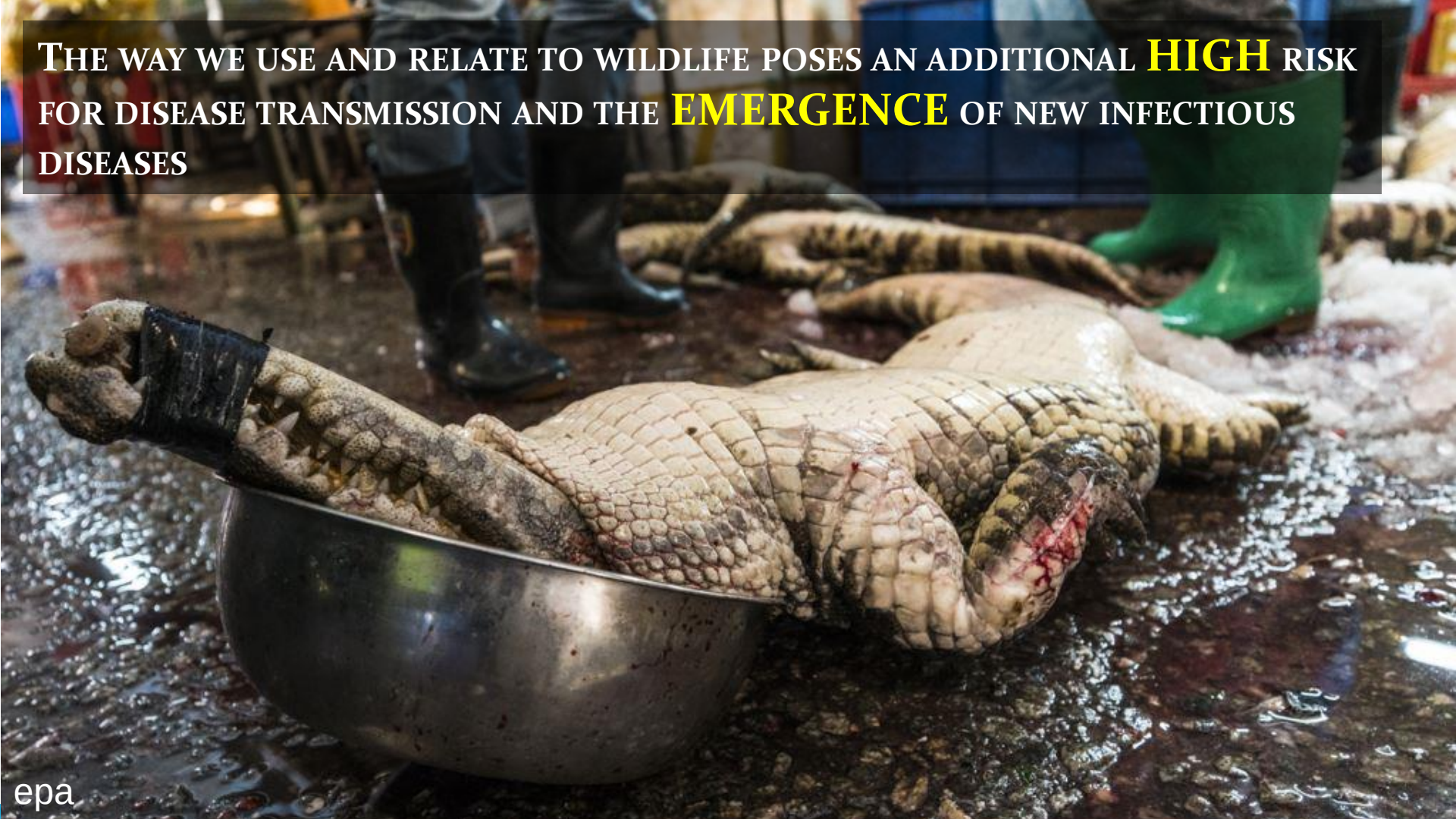


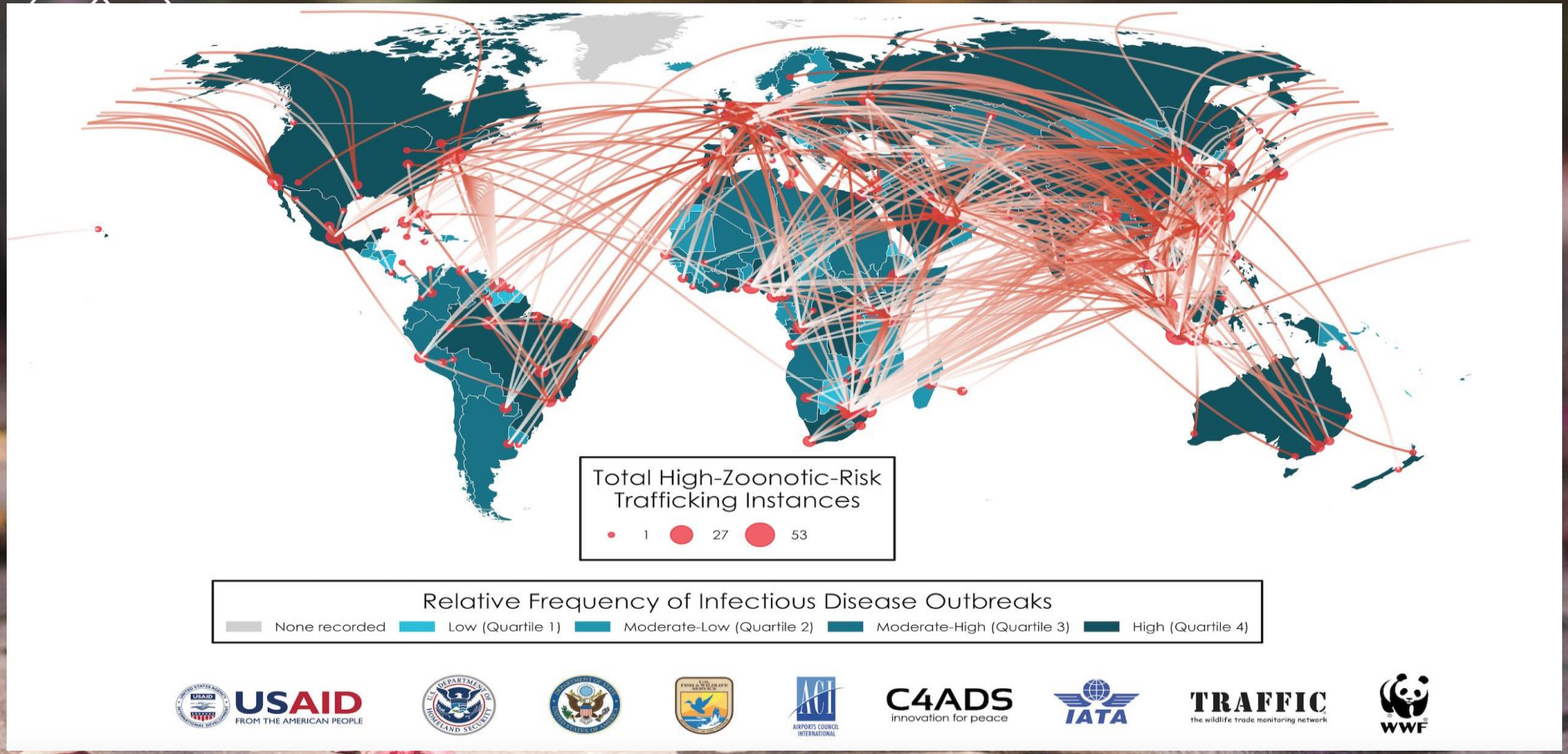
Loh & Zambrana-Torrelio 2015. Vector Bourne Zoonotic Dis

Land use change could lead to disease emergence by:

1) Increasing opportunities for wildlife-human-domestic animal contacts → pathogen spillover from wildlife (to humans or domestic animals) (**pathogen pool hypothesis**)

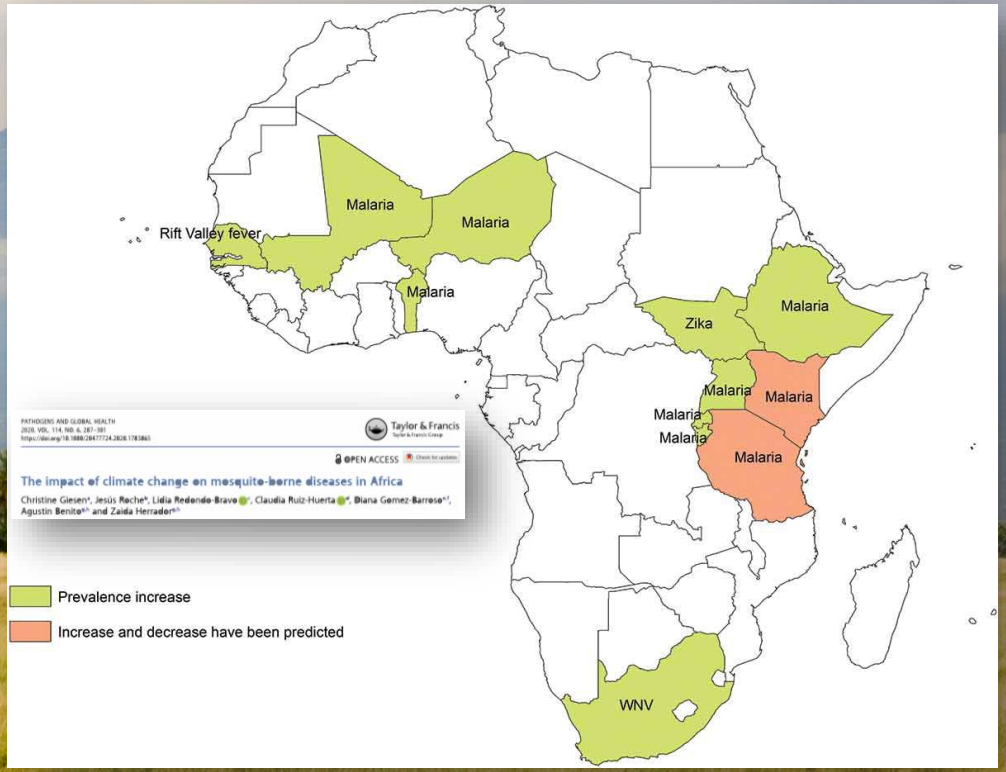
2) Altering host-pathogen ecological dynamics → cross-species transmission (**perturbation hypothesis**)


THE WAY WE USE AND RELATE TO WILDLIFE POSES AN ADDITIONAL HIGH RISK FOR DISEASE TRANSMISSION AND THE EMERGENCE OF NEW INFECTIOUS DISEASES
epa


Total High-Zoonotic-Risk Trafficking Instances
1
27
53
Relative Frequency of Infectious Disease Outbreaks
None recorded
Low (Quartile 1)
Moderate-Low (Quartile 2)
Moderate-High (Quartile 3)
High (Quartile 4)
USAID
FROM THE AMERICAN PEOPLE
C4ADS
innovation for peace
IATA
TRAFFIC
the wildlife trade monitoring network
WWF

Climate change could drive more than 50% of African bird & mammal species to extinction by 2100. Furthermore it enables the spread of diseases to new species and increases risk for humans

- Yellow fever
- Malaria
- Zika
- Dengue
- RVF
- Chikungunya
- WNV
- Anthrax



PATHOGENS AND GLOBAL HEALTH
2020, VOL. 114, NO. 6, 287–301
https://doi.org/10.1080/20477724.2020.1783865

Taylor & Francis

OPEN ACCESS

The impact of climate change on mosquito-borne diseases in Africa

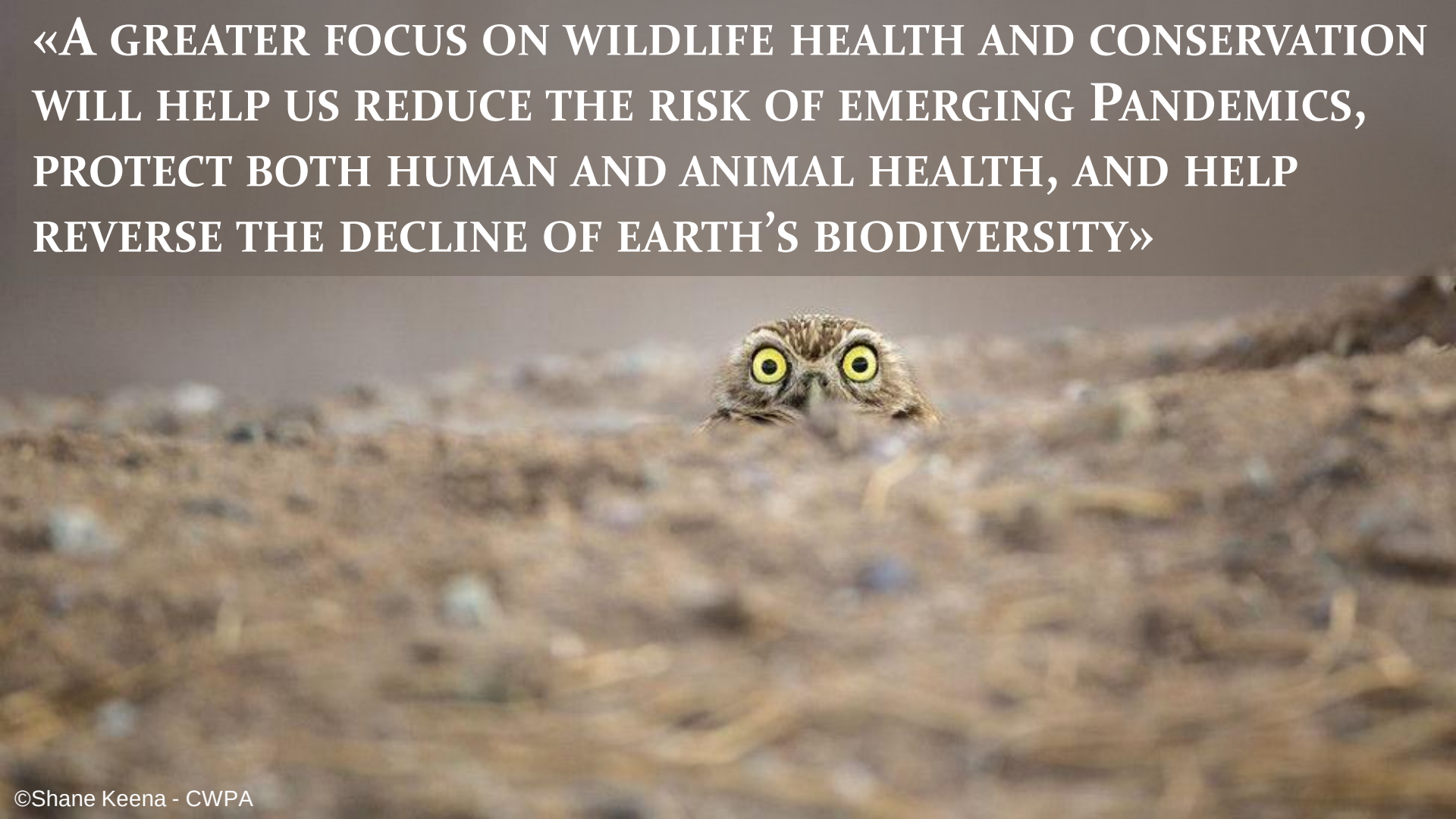
Christine Giesen[a], Jesús Roche[a], Lidia Redondo-Bravo[a], Claudia Ruiz-Huerta[a], Diana Gomez-Barroso[a,f], Agustin Benito[a,b] and Zaida Herrador[a,b]

Factors Influencing the Growth of HARMFUL ALGAL BLOOMS

Most Harmful Algal Blooms (HABs) flourish under high light conditions as well as when elevated levels of phosphorus are present. Urban and agricultural run-off as well as leaking septic systems and other sources of wastewater into shallow, stagnant water can create an environment for algae to flourish. Zebra mussels selectively feed and filter out other algae, which enables HABs to flourish.

Sea Grant Michigan
Produced by Michigan Sea Grant College Program
www.miseagrant.umich.edu MICHU-10-742

«A GREATER FOCUS ON WILDLIFE HEALTH AND CONSERVATION WILL HELP US REDUCE THE RISK OF EMERGING PANDEMICS, PROTECT BOTH HUMAN AND ANIMAL HEALTH, AND HELP REVERSE THE DECLINE OF EARTH'S BIODIVERSITY»

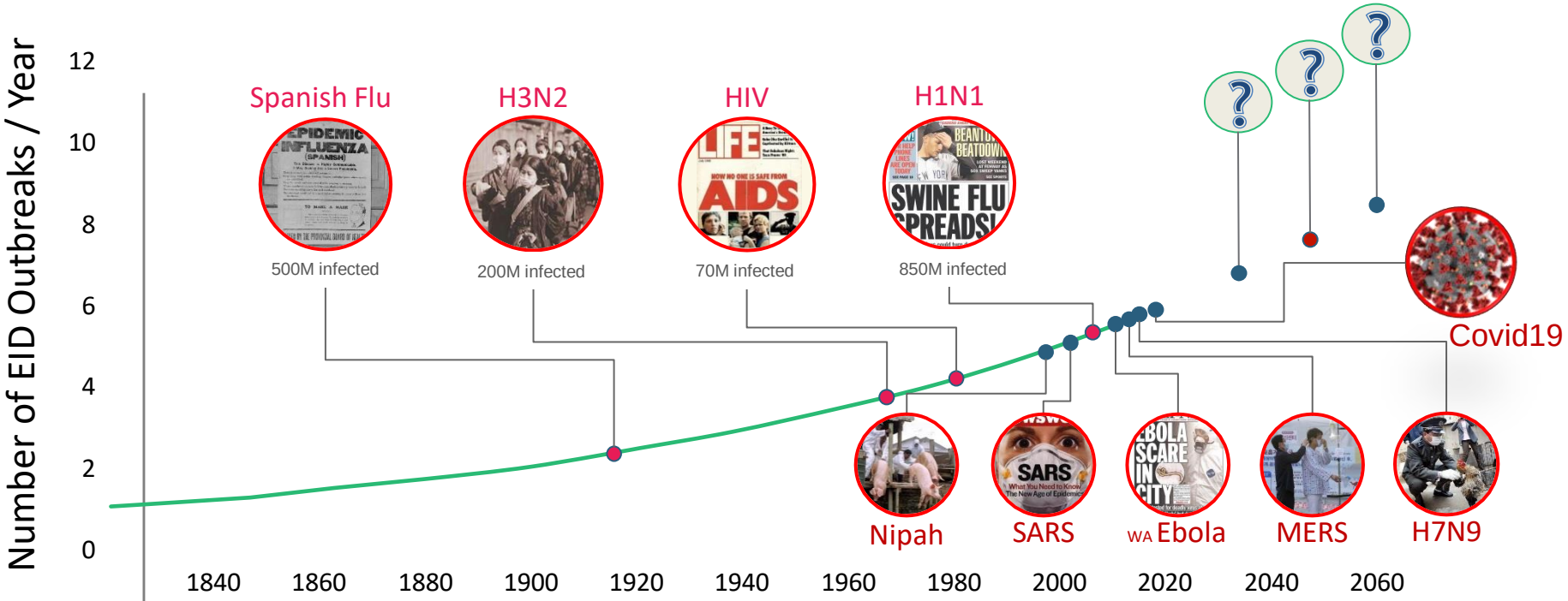


SURVEILLANCE FOR ZOONOTIC PATHOGENS

- rabies
- revens dvergbendelmark
- *Toxoplasma gondii*
- *Trichinella* spp
- *Brucella* spp.
- Aviær influensa
- Antimikrobiell resistens


BREAKING
NEWS
PATHOGEN X
Pandemic emerging diseases are a growing threat
Pandemic emerging diseases are a growing threat

Pandemic emerging diseases are a growing threat



Allen et al. (2017) Nature Communications

EBOLA

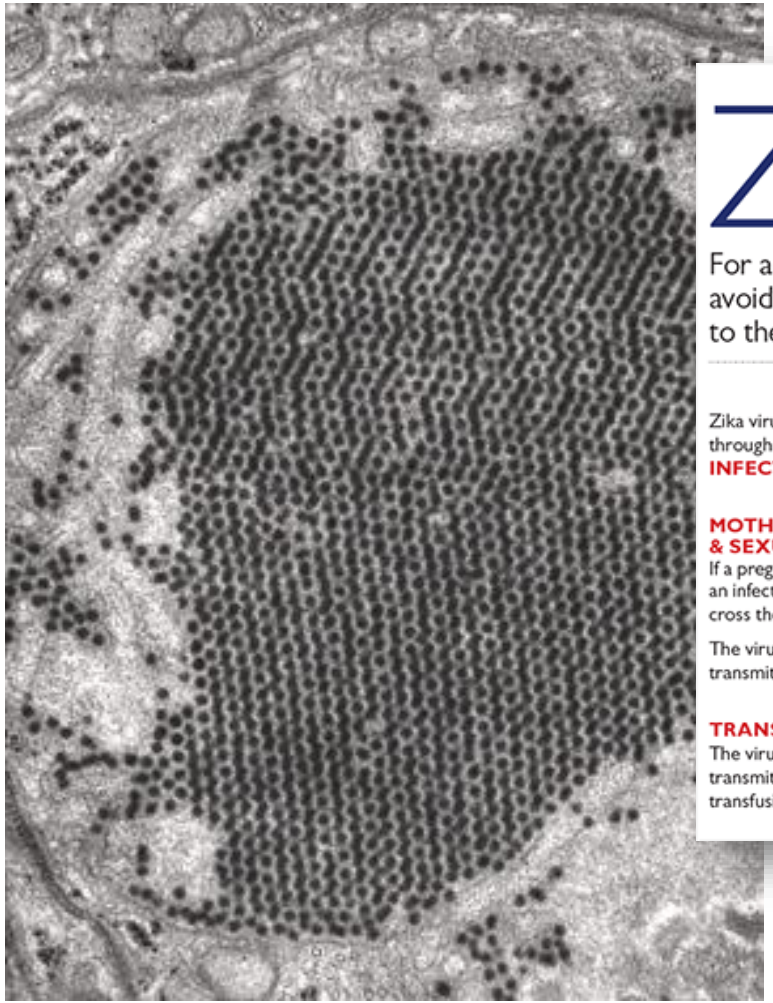

In Africa human Ebola infections have been associated with hunting, butchering, and processing meat from infected animals.


UVI M
1400 HYL


OSLO - AKERSHUS
AMBULANSE
11
A
Infeksjonspost A

Kuisma E et al. 2019 Longterm wildlife mortality surveillance in northern Congo: a model for the detection of Ebola virus disease epizootics. Phil. Trans. R. Soc. B 374: 20180339.

- **Establishment and maintenance of a wide coverage wildlife mortality reporting network**
- **Building capacity for rapid and safe carcass sampling across a wide geographical area**
- **Rapid response to wildlife mortality events and fast diagnostics for the detection of Ebolavirus**



ZIKA VIRUS

For anyone who plans to travel to **Zika-affected areas**, avoiding mosquito bites is the best way to avoid exposure to the virus.

Zika virus is primarily spread through the **BITE OF INFECTED MOSQUITOS.**

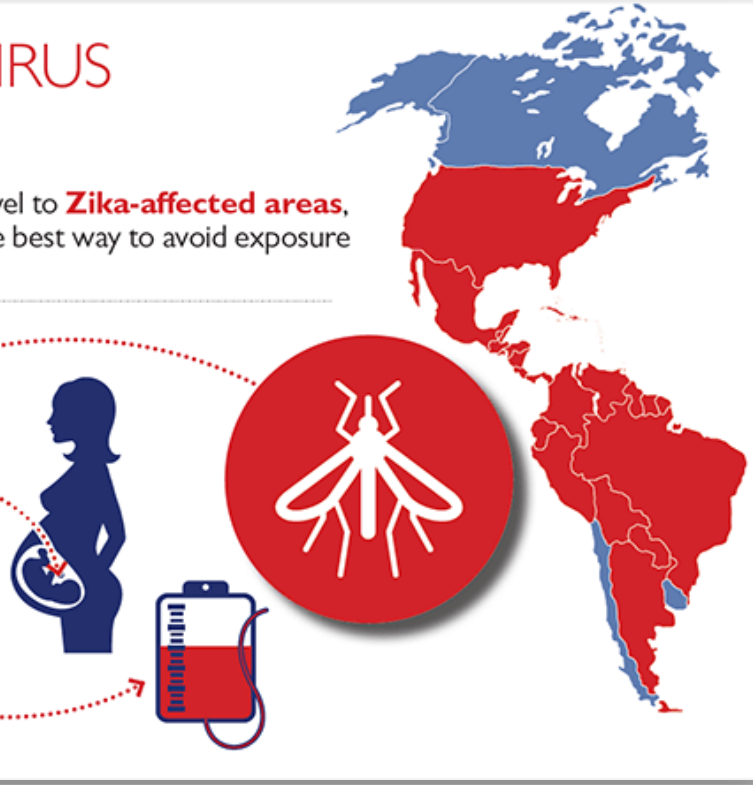
MOTHER-TO-BABY & SEXUAL ACTIVITY

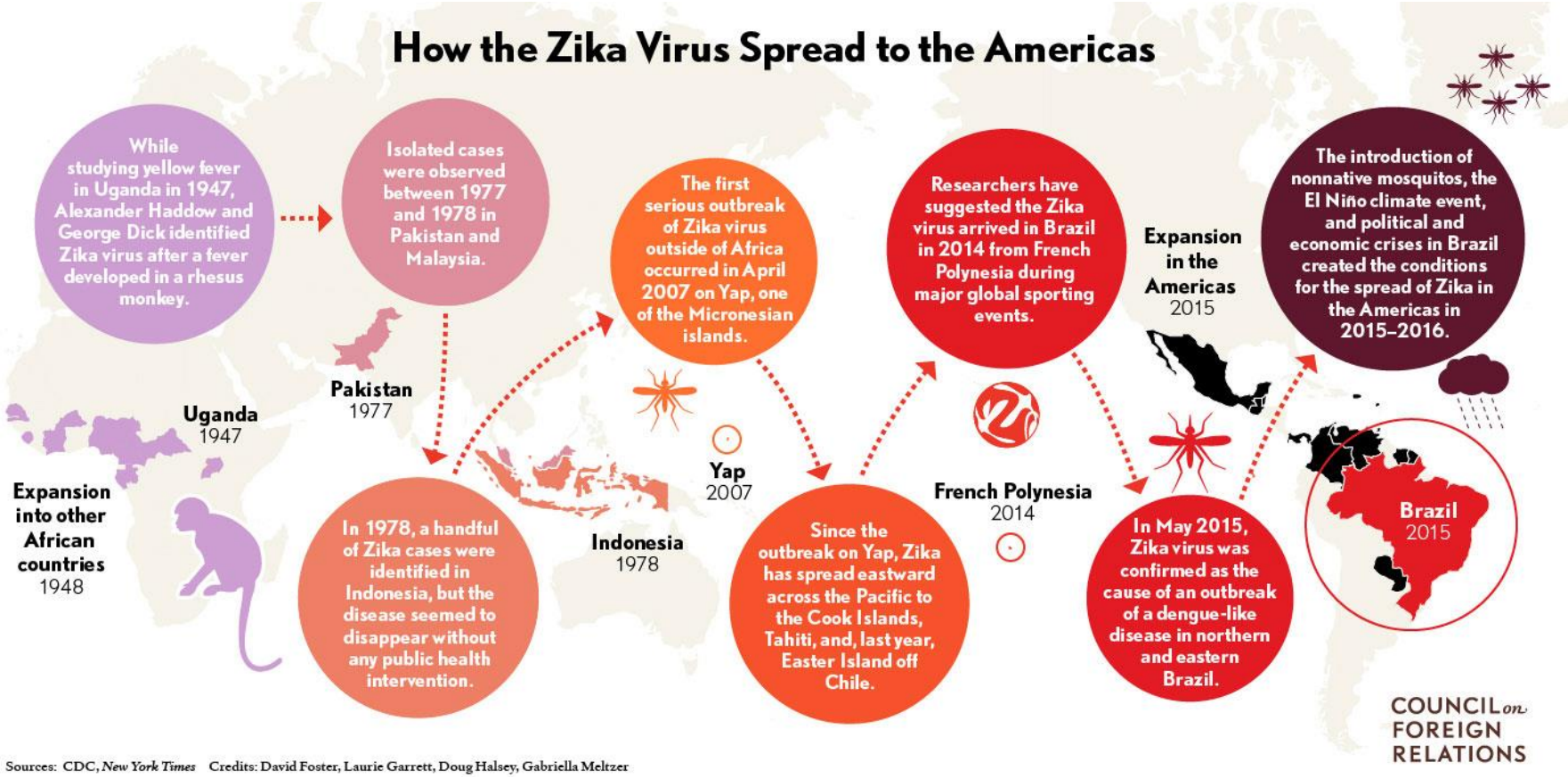
If a pregnant woman is bitten by an infected mosquito, the infection can cross the placenta, infecting the fetus.

The virus can also be transmitted sexually.

TRANSFUSION

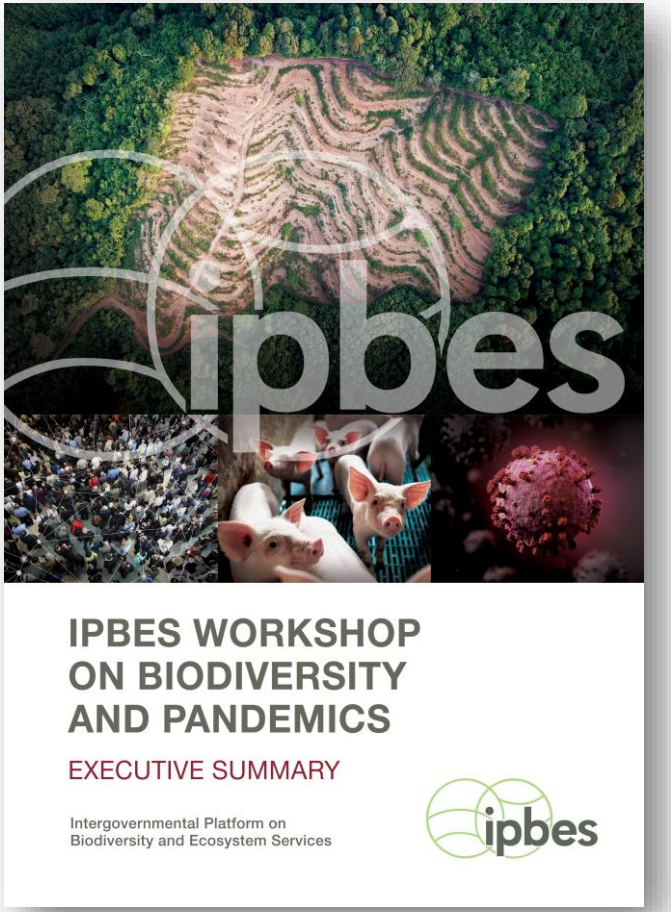
The virus can also be transmitted through blood transfusion or laboratory exposure.




How the Zika Virus Spread to the Americas
While studying yellow fever in Uganda in 1947, Alexander Haddow and George Dick identified Zika virus after a fever developed in a rhesus monkey.
Isolated cases were observed between 1977 and 1978 in Pakistan and Malaysia.
The first serious outbreak of Zika virus outside of Africa occurred in April 2007 on Yap, one of the Micronesian islands.
Researchers have suggested the Zika virus arrived in Brazil in 2014 from French Polynesia during major global sporting events.
The introduction of nonnative mosquitos, the El Niño climate event, and political and economic crises in Brazil created the conditions for the spread of Zika in the Americas in 2015–2016.
Uganda
1947
Pakistan
1977
Yap
2007
French Polynesia
2014
Expansion in the Americas
2015
Expansion into other African countries
1948
In 1978, a handful of Zika cases were identified in Indonesia, but the disease seemed to disappear without any public health intervention.
Indonesia
1978
Since the outbreak on Yap, Zika has spread eastward across the Pacific to the Cook Islands, Tahiti, and, last year, Easter Island off Chile.
In May 2015, Zika virus was confirmed as the cause of an outbreak of a dengue-like disease in northern and eastern Brazil.
Brazil
2015
COUNCIL on FOREIGN RELATIONS
Sources: CDC, New York Times Credits: David Foster, Laurie Garrett, Doug Halsey, Gabriella Meltzer

1948 - 2015

2016 USA



Escaping the ‘Era of Pandemics’:

Experts Warn Worse Crises to Come

“"The same human activities that drive climate change & biodiversity loss also drive pandemic risk through impacts on our environment”

FORUTSI

GLOBAL VIROME PROJECT

FOREBYGGE

OPPDAGE

AstraZeneca

CEPI

Pfizer

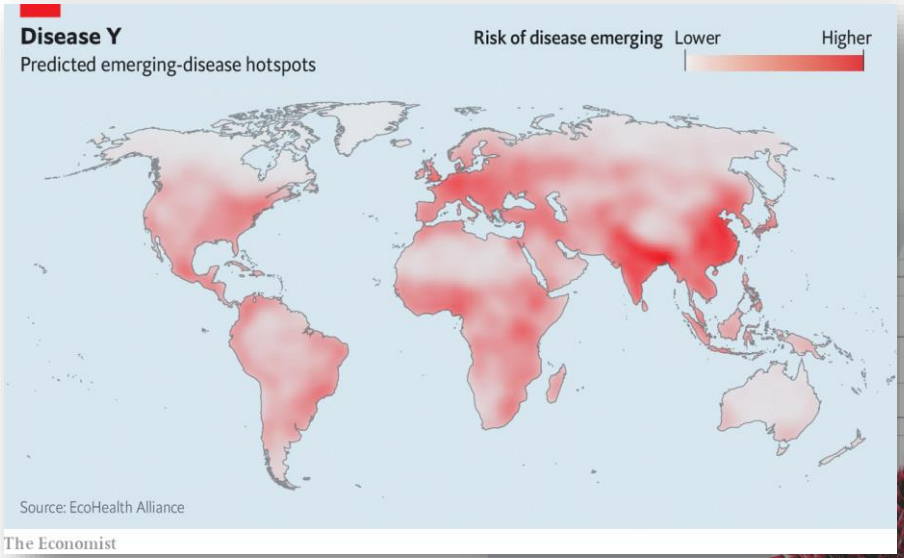
World Health Organization

BEKJEMPE

European Commission

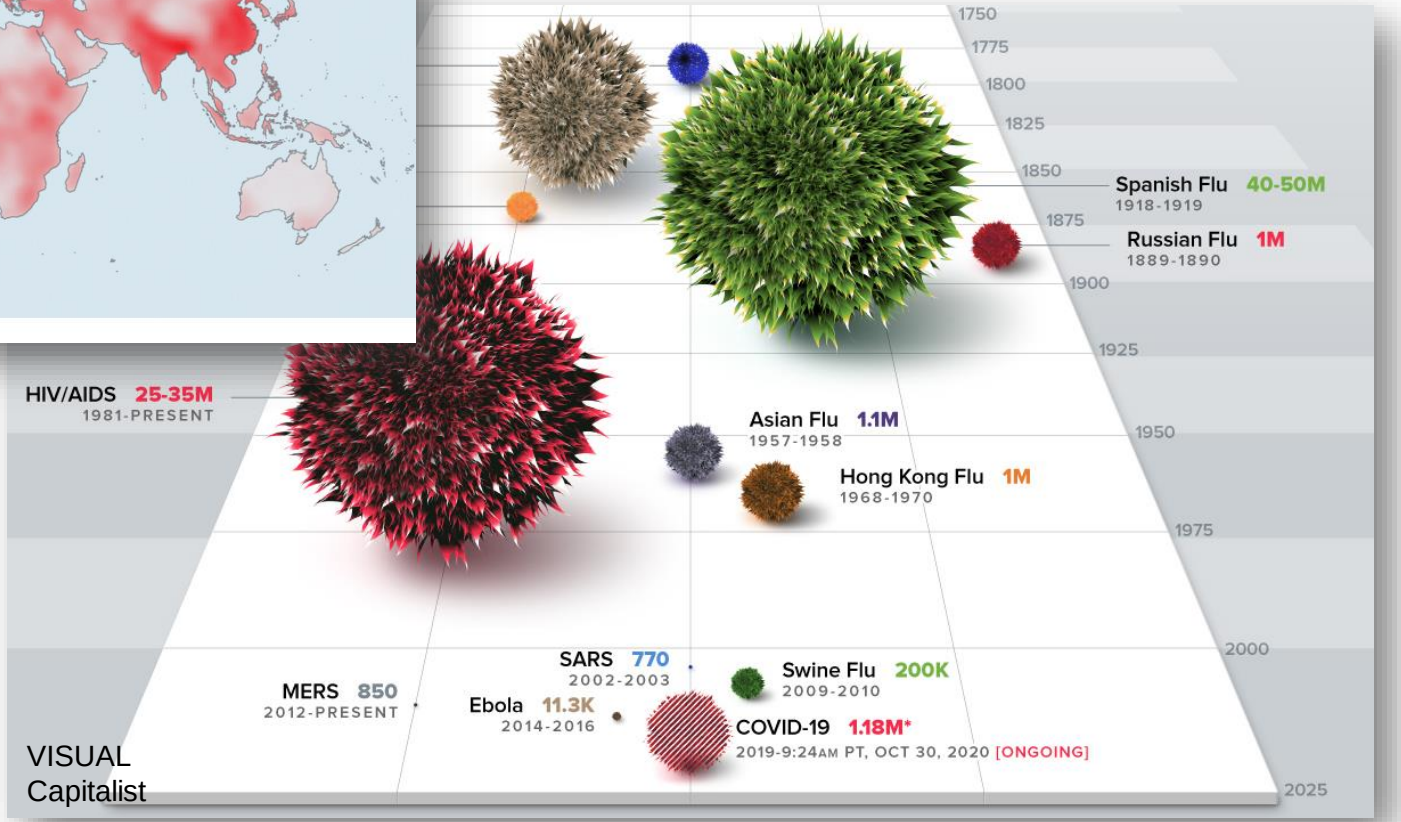
VANLIG TILNÆRMING…

BEDRE TILNÆRMING?

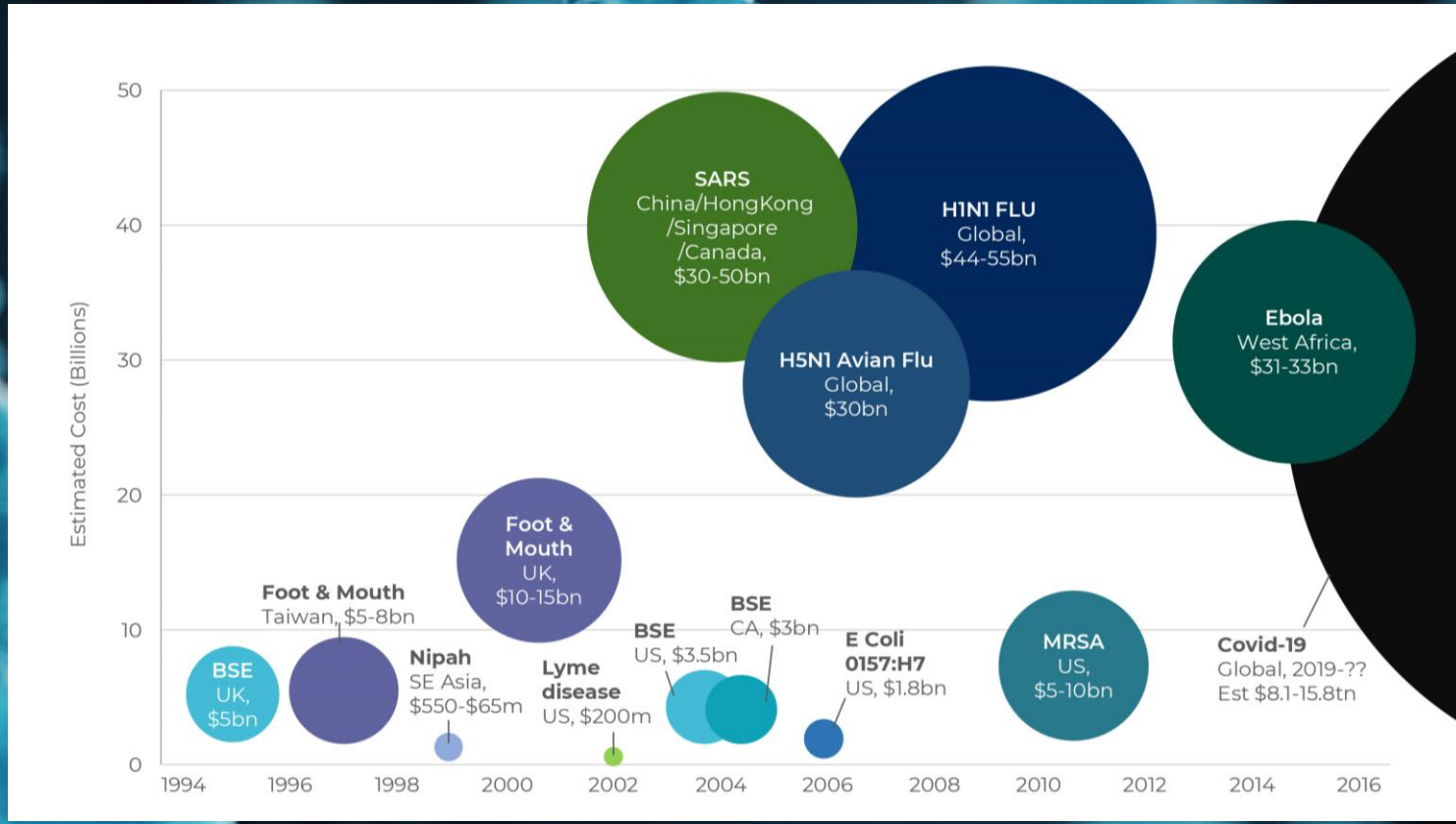


PREDICT ???

PREVENT???



Costs of Pandemics



Costs of Pandemics

POLICY FORUM

ECOLOGY AND ECONOMICS: COVID-19

Ecology and economics for pandemic prevention

Investments to prevent tropical deforestation and to limit wildlife trade will protect against future zoonosis outbreaks

By Andrew P. Dobson[1], Stuart L. Pimm[2], Lee Hannah[3], Les Kaufman[4], Jorge A. Ahumada[3], Amy W. Ando[5], Aaron Bernstein[6], Jonah Busch[7], Peter Daszak[8], Jens Engelmann[9], Margaret F. Kinnaird[10], Binbin V. Li[1], Ted Loch-Temzelides[11], Thomas Lovejoy[12], Katarzyna Nowak[13], Patrick R. Roehrdanz[2], Mariana M. Vale[14]

For a century, two new viruses per year have spilled from their natural hosts into humans (*1*). The MERS, SARS, and 2009 H1N1 epidemics, and the HIV and coronavirus disease 2019 (COVID-19) pandemics, testify to their damage. Zoonotic viruses infect people directly most often when they handle live primates, bats, and other wildlife (or their meat) or indirectly from farm animals such as chickens and pigs. The risks are higher than ever (*2*, *3*) as increasingly intimate associations between humans and wildlife disease reservoirs accelerate the potential for viruses to spread globally. Here, we assess the cost of monitoring and preventing disease spillover driven by the unprecedented loss and fragmentation of tropical forests and by the burgeoning wildlife trade. Currently, we invest relatively little toward preventing deforestation and regulating wildlife trade, despite well-researched plans that demonstrate a high return on their investment in limiting zoonoses and conferring many other benefits. As public funding in response to COVID-19 continues to rise, our analysis suggests that the associated costs of these preventive efforts would be substantially less than the economic and mortality costs of responding to these pathogens once they have emerged.

REDUCING DEFORESTATION

Tropical forest edges are a major launchpad for novel human viruses. Edges arise as humans build roads or clear forests for timber production and agriculture. Humans and their livestock are more likely to contact wildlife when more than 25% of the original forest cover is lost (*4*), and such contacts determine the risk of disease transmission. Pathogen transmission depends on the contact rate, the abundance of susceptible humans and livestock, and the abundance of infected wild hosts. Contact rates vary with the perimeter (the length of the forest edge) between forest and nonforest. Deforestation tends to create checkerboards, whereupon we see a maximum perimeter at a 50% level of forest conversion. Thereafter, the abundance of domestic animals and humans rapidly exceeds that of wild animals, so although we expect transmission to decline, the magnitude of any resultant outbreak is higher (*4*). Habitat fragmentation complicates this because it increases the length of the perimeter. Roadbuilding, mining and logging camps, expansion of urban centers and settlements, migration and war, and livestock and crop monocultures have led to increasing virus spillovers. Hunting, transport, farming, and trade of wildlife for food, pets, and traditional medicine compound these routes of transmission and closely track deforestation. For example, bats are the probable reservoirs of Ebola, Nipah, SARS, and the virus behind COVID-19. Fruit bats (Pteropodidae in the Old World, the genus *Artibeus* in the New World) are more likely to feed near human settlements when their forest habitats are disturbed; this has been a key factor in viral emergence in West Africa, Malaysia, Bangladesh, and Australia (*5*–*7*).

The clear link between deforestation and virus emergence suggests that a major effort to retain intact forest cover would have a large return on investment even if its only benefit was to reduce virus emergence events. The largest-scale example of directed deforestation reduction comes from Brazil between 2005 and 2012. Deforestation in the Amazon dropped by 70%, yet production of the region's dominant soy crop still increased (*8*). International contributions, complemented by an Amazon Fund, of about $1 billion supported land-use zoning, market and credit restrictions, and state-of-the-science satellite monitoring. Brazil's program reduced forest fragmentation and edge at a lower cost than could have been achieved by carbon-pricing approaches (*9*).

Several estimates of the effectiveness and cost of strategies to reduce tropical deforestation are available (*8*, *9*). At an annual cost of $9.6 billion, direct forest-protection payments to outcompete deforestation economically could achieve a 40% reduction in areas at highest risk for virus spillover [see supplementary materials (SM)]. Multiple payment-for-ecosystem-services programs demonstrate the effectiveness of this approach. At the low end, widespread adoption of the earlier Brazil policy model could achieve the same reduction for only $1.5 billion annually by removing subsidies that favor deforestation, restricting private land clearing, and supporting territorial rights of indigenous peoples. All require national motivation and political will. Strong public support for similar deforestation-prevention policies may emerge in other countries recovering from COVID-19's devastation.

WILDLIFE TRADE SPILLOVER

Global demand for wildlife causes people to enter forests to collect wildlife for sale in markets in urban and rural areas. In cities, where people have diverse options for protein, bushmeat is a luxury bought to show status, and occasionally for cultural reasons. COVID-19 is the huge price society now pays for such encounters with wild species.

Wildlife markets and the legal and illegal wildlife trade bring live and dead wild animals into contact with hunters, traders, consumers, and all those involved in this commerce. Trade follows global consumer demand. The United States is one of the biggest global importers of wildlife, including for the massive exotic pet industry (*10*). The transit conditions, lack of health screening at import, and warehouses that store animals before and after import are similar to live animal markets, all conducive to spreading diseases.

Some countries have wildlife farming industries intended to prevent overhunting of wild species while meeting market demands for protein and appealing to cultural traditions. In China, wildlife farming is a ~$20 billion industry employing some 15 million people (*11*). With the February 2020 announcement by the Standing Committee of the National People's Congress of a ban on wildlife consumption for food and related trade in China, there are ongoing discussions on phasing out this industry. The justification is that it creates risks for disease emergence and

See supplementary materials for authors' affiliations. Email: dobber@princeton.edu, stuartpimm@me.com

Summary of prevention costs, benefits, and break-even probability change

ITEM	VALUES (2020 $)
Expenditures on preventive measures	
Annual funding for monitoring wildlife trade (CITES+)	$250–$750 M
Annual cost of programs to reduce spillovers	$120–$340 M
Annual cost of programs for early detection and control	$217–$279 M
Annual cost of programs to reduce spillover via livestock	$476–$852 M
Annual cost of reducing deforestation by half	$1.53–$9.59 B
Annual cost of ending wild meat trade in China	$19.4 B
TOTAL GROSS PREVENTION COSTS (*C*)	**$22.0–$31.2 B**
Ancillary benefit of prevention	
Social cost of carbon	$36.5/tonne
Annual CO_2 emissions reduced from 50% less deforestation	118 Mt
Ancillary benefits from reduction in CO_2 emissions	$4.31 B
TOTAL PREVENTION COSTS NET OF CARBON BENEFITS (*C*)	**$17.7–$26.9 B**
Damages from COVID-19	
Lost GDP in world from COVID-19	$5.6 T
Value of a statistical life (*V*) adjusted for COVID-19 mortality structure	$5.34 M or $10.0 M
Total COVID-19 world mortality (Q_0) forecast by 28 July 2020, 50th percentile with 95% error bounds	590,643 [473,209, 1,019,078]
Value of deaths in world from COVID-19 = $Q_0 \times V$	
Lowest ($5.34 M × 2.5th percentile mortality forecast)	$2.5 T
Middle ($10 M × 50th percentile mortality forecast)	$5.9 T
Highest ($10 M × 97.5th percentile mortality forecast)	$10.2 T
TOTAL DISEASE DAMAGES (*D*):	
Lowest ($5.34 M × 2.5th percentile mortality forecast)	**$8.1 T**
Middle ($10 M × 50th percentile mortality forecast)	**$11.5 T**
Highest ($10 M × 97.5th percentile mortality forecast)	**$15.8 T**

The break-even change in annual probability of pandemic satisfies $C = \Delta P \times D$, where P_0 = benchmark probability of pandemic; P_1 = probability of pandemic with prevention efforts in place; $\Delta P = P_0 - P_1$; and $\%\Delta P = (\Delta P / P_0) \times 100$.

If $P_0 = 0.01$, C = $30.7 B, and D = $11.5 T (most likely scenario, ignoring ancillary benefits of CO_2 reductions), prevention results in net benefits if it decreases P by 26.7% to $P_1 = 0.00733$. Using other values of C, D, and P results in $\%\Delta P$ ranging from 11.8% to 75.7%; only one scenario has a $\%\Delta P$ exceeding 50%. See supplementary materials.

2,2B

19.4B

16 T

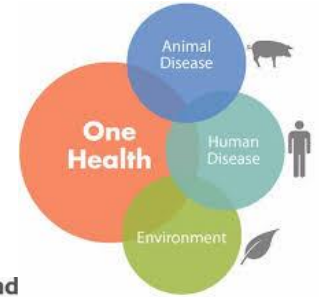
Investments to prevent deforestation and to limit wildlife trade will protect against future zoonosis outbreaks

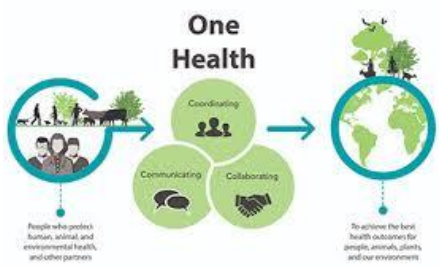
ARE YOU LISTENING

Prediction and Prevention is BETTER than cure


HEALTHY ANIMALS
HEALTHY PEOPLE
HEALTHY PLANET


HUMAN HEALTH
ONE HEALTH
ANIMAL HEALTH
ENVIRONMENTAL HEALTH


Animal Disease
One Health
Human Disease
Environment

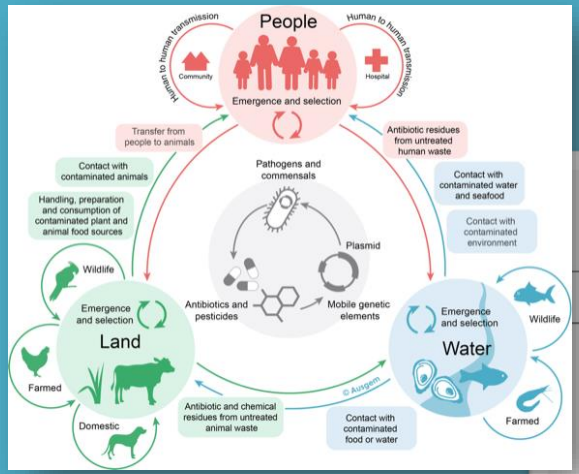

One Health
Coordinating
Communicating
Collaborating

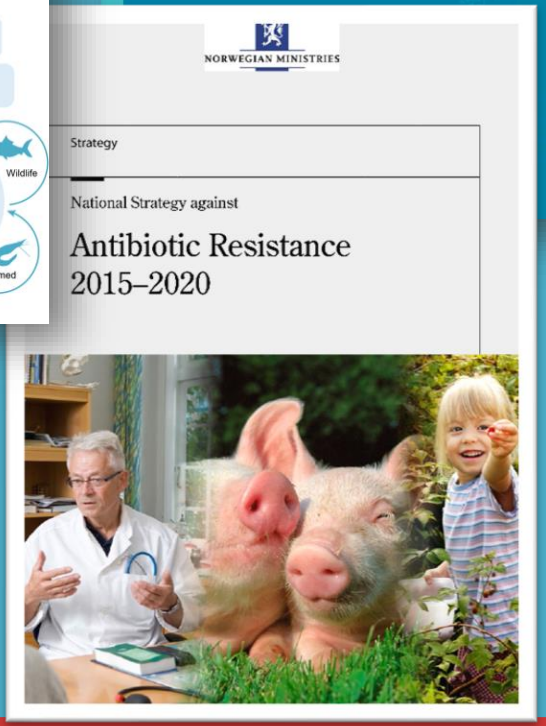

ONE HEALTH


The One Health Triad
Healthy People
Healthy Environments
Healthy Animals

The Norwegian strategy for AMR

Challenges at "high latitudes" for policy makers, scientists and society

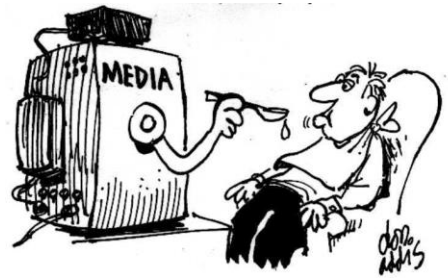




POLITICAL LEADERSHIP

SCIENTIFIC INTEGRATION

SOCIETY AWARENESS



The POWER
To inform…
To prioritize…
To influence…
To …….

MAILBOX

All letters and emails must contain a full name, address and telephone number. Only your name and locality will be published, unless otherwise requested. We reserve the right to edit letters.
Send them in via **e-mail to** mailbox@somersetcounty.co.uk
Please note: We are unable to enter into correspondence about why contributions have not been used

Story of horrific battle my father experienced

WITH Armistice Day just passed, it seemed appropriate to share with you and your readers an incident that occurred in the Great European War in October 1917.

It was during the 3rd Battle of Ypres (Passchendaele).

My father took part as a lance corporal in the 2nd London Regiment of the Royal Fusiliers and in a disastrous engagement on October 26, got wounded by shrapnel in his hip and was swaddled home to England. The shrapnel could not be removed, and remained in him for the rest of his life.

The action was vividly described by Major W E Grey, who authored the official history of the regiment in 1928. It covers the four days that the 2nd Battalion was in the front line preparing for the actual attack on the last day.

That did not start from the men going "over the top" from their trenches as we are always shown. They assembled in advance in no-man's land and launched the attack from there, having crept out of the trenches in the dead of night 24 hours before.

But let Major Grey tell the story.

"From the time of leaving [the base camp behind the lines] on the morning of Tuesday 23rd October until it returned thither in the early hours of Saturday 27th October, the Battalion had had neither hot food nor drink of any sort whatever...

"Assembly [in no man's land], says Capt Harper, was a terrible job... but thanks largely to the magnificent spirit shown by the men, who had to undergo the terrific ordeal of sitting, or lying, in stinking mud-holes for over 24 hours before the assault.

"Promptly at 5.30am a gallant battalion jumped off – waded rather – rom its assembly position... To a battalion at zero hour, disorganised by the casualties of the earlier waiting hours, soaked to the skin, its rifles and Lewis guns fouled with mud and many rendered useless, has to be added the miserable fact that the creeping protective [artillery] barrage was such only in name...

"As the 2/2nd Londons rose from the mud and began their slow advance, the German machine guns, secure in their concrete shelters, opened a brisk fire.

"Quick as lightning news of the... Within three minutes, the advancing troops were enveloped in a curtain of smoke and flames, as shell after shell burst around them. Gaps appeared in their ranks, and little heaps of dead and wounded marked their progress.

"The yielding nature of the ground [i.e. mud] was all against a straight advance, and made it almost impossible to maintain the correct alignment for two consecutive yards.

"The men stumbled and slipped in the stinking slime.

"They crawled and scrambled in and out of enormous craters, and struggled to extricate themselves or their comrades from the embrace of the clinging mud.

"Many struggled in vain, and were submerged in the mud, from which a shell hole never to reappear.

"Out of the reach of their company... ions, they were gradually sucked down to a death, indescribably horrible."

And my father was still a teenager, barely 18 years old.

Neville Hunnings, Evington

Saluting everyone affected by wars

THIS is a photograph of my husband, John Hoffman, outside our house, playing Dark Isle on Remembrance Sunday, for everyone who suffered during the wars of the 20th century.

Usually, every year, John plays and marches with the Leicestershire Seaforth Highlanders at the Victoria Park War Memorial.

For me, whilst John played, I remembered especially my grandfather, Otto Roenisch, who, viewed by the government as a German enemy alien, was interned at Stratford Internment Camp for the whole of the First World War and afterwards repatriated to Silesia, having to desert his partner and children here in England.

And I also remember my own father, Paul Harton Roenisch, who during the Second World War, although severely restricted in his military duties by his German surname, won a commendation from Montgomery for "outstanding service and great devotion to duty during the campaign in France". He sadly died in 1993.

Rowan Roenisch, Leicester

Thank you to piper and protegee at Cenotaph

WE passed the 11am event at the Cenotaph, but arrived at 11.25am on Sunday.

I would like to thank the splendid bagpiper in full Scottish traditional dress, who then played beautifully, and his young protegee, the bugler, similarly attired, who played the Reveille.

Excited about team and quality of its players

A NEW football season has begun in England. Let us rejoice in the fact that Leicester City have won nine of their 11 games played to date – sitting at the Premier League and three in the Europa League.

This has been achieved with several top defenders unavailable for some of these matches.

This surely shows just how strong this squad is that Brendan Rodgers has put together with equal plaudits for young incoming players and long-serving stalwarts still available when needed.

There are a handful of superstars who are making names for themselves, none bigger than Jamie Vardy

what the attitude to a team should be. He is a top sportsman playing not for himself but for the team, loyal as can be. Around him are improving professionals, loyal career players and fresh-looking enthusiastic young players.

One doesn't need to name them all. I admire this group of men anchoring themselves towards the top of a high quality national league.

Yes, it's early days yet but there is enough hope that this team can develop into something special long-term and there is a feeling that they can sustain a season-long challenge at the top.

I wish them all the best. In an age of vicious troubles, this group of men can lift our spirits even if we are not at present allowed live viewing. I must say I'm excited!

Mike Ross, Holyport

Outbreak on fur farms shows other victims

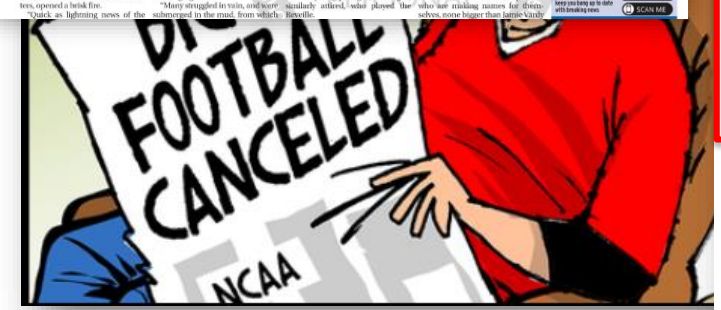
THE widespread outbreaks of Covid-19 on Danish mink farms is more evidence that the exploitation of animals poses a health threat to humans – not to mention the animal cruelty involved ("*Denmark travel alert*", November 7).

Once again it is being shown that cramming animals together results in diseases that can be passed on to humans.

Furthermore, these diseases can mutate as has happened in Denmark. It's been reported that a mutation may not respond to the vaccines currently being developed for Covid-19.

Up to 17 million minks will be killed in the hope of halting the spread of the variant strain of the virus. However, these unfortunate animals receive little publicity. Let's hope that when this pandemic is over (if it ever is) all countries will ban cruel fur farming for ever.

Elizabeth Allison, Aylestone



England legend Shearer impressed with City's title credentials

ALAN Shearer is tipping Leicester City to have a say in this season's Premier League title race, *writes Andy Turner.*

Although the England legend and Match of the Day pundit believes champions Liverpool and Manchester City will be the main contenders slugging it out for the top honours, he reckons the Foxes deserve to be the current pacesetters in the Premier League.

Brendan Rodgers' side moved to the top of the table after a 1-0 home victory over Wolverhampton Wanderers on Sunday, courtesy of a Jamie Vardy penalty.

Man City and Liverpool shared the spoils in a 1-1 draw at the Etihad, leaving the Reds in third place behind Tottenham, both of whom are a single point behind Leicester.

"I still see Liverpool and Manchester City as the stand-out teams in the Premier League and think one of them will win the title – but Leicester and Tottenham might have something to say about that," said Shearer, as part of his Match of the Day 2 analysis.

"Southampton also spent some time on top of the table over the weekend and it is pretty refreshing to see some different teams up there. It certainly keeps things interesting and it's something that might last a bit longer too.

"The big thing that has stood out already about this season is how unpredictable it has been compared to previous years.

"Every team has had at least one bad day – including all of the sides I have just mentioned.

"That makes it exciting, and I don't see it changing any time soon, partly because of the intense schedule and the number of injuries that clubs are going to have to cope with, which is turning into another common theme. It is Leicester who deservedly lead the way at the moment. They are among the teams who have got injury problems but they are still playing some magnificent football.

"I was really impressed by the Foxes in their win over Wolves on Sunday, in everything they did – going forward and defensively.

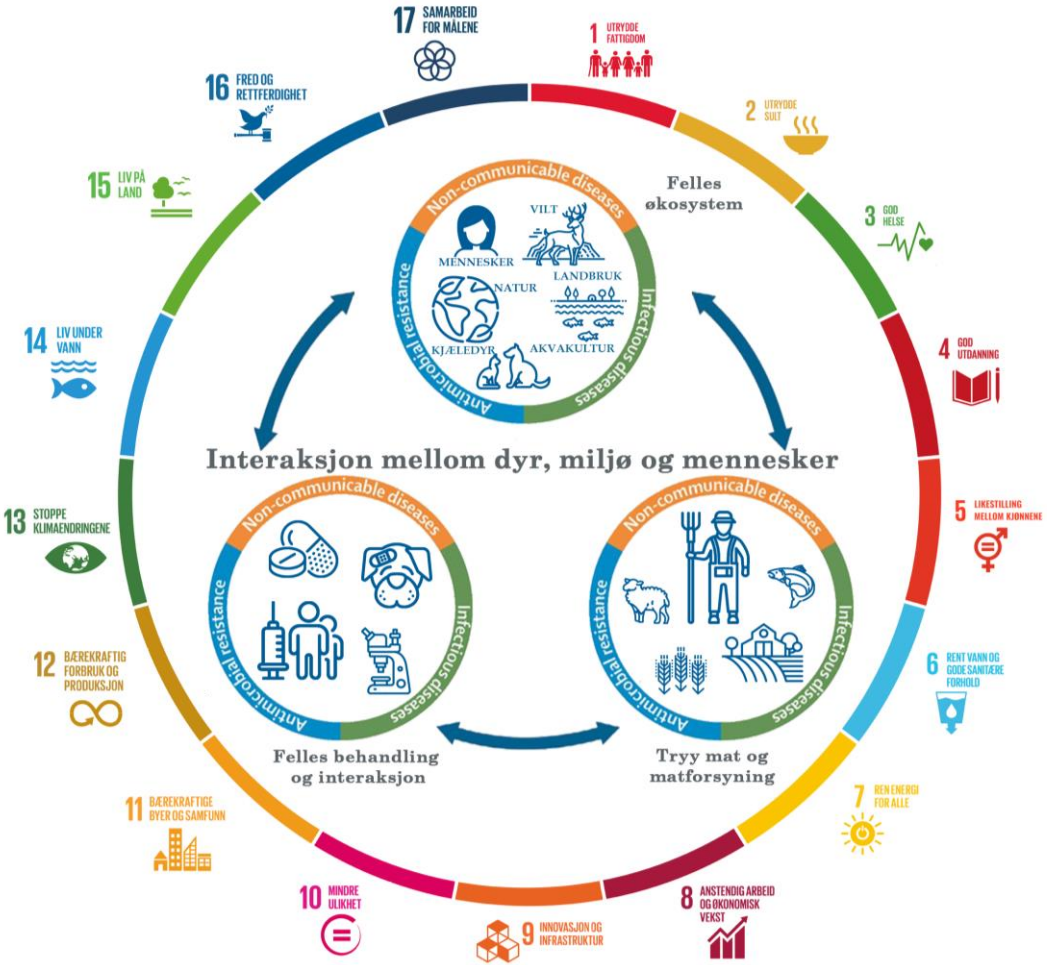
"They are missing some key players in Wilfred Ndidi, Ricardo Pereira and Caglar Soyuncu but you wouldn't know it from watching them.

"Jamie Vardy is 33 in January but he is looking as sharp as he's ever done – I know he missed one of his penalties against Wolves but some of his attacking play was fantastic.

"Then you have Nampalys Mendy, who was unbelievably good in midfield, and what a find Wesley Fofana looks at centre-half.

"Brendan Rodgers' side have had slip-ups, losing at home to West Ham and Aston Villa last month.

"But now they are on a run of six straight wins in all competitions, and they will be full of confidence when they take on Liverpool at Anfield on the league's resumption after the international break."



A En Helse tilnærming er nødvendig for å oppnå 2030 FNs SDG og **FOREBYGG** pandemier

Saving mothers and children

Nearly 6 million children under the age of five die each year because of malnutrition, poor health care, and inadequate sanitation. We expand access to quality care, so mothe… their children can live and g…

Learn m…

Supporting education

More than 775 million people over the age of 15 are illiterate. Our goal is to strengthen the capacity of communities to support basic education and literacy, reduce gender disparity in e… n, and increase adult li…

Learn m…

Growing local economies

We carry out service projects that enhance economic and community development and create opportunities for decent and productive work for young and old. We also strengt… l entrepreneurs and comp… rs, particularly women, in… commu…

Learn m…

Protecting the environment

Rotary members are tackling environmental issues the w… lways do: coming up with proje… ir connections to chan… planning for…

Learn m…

Promoting peace

Rotary encourages conversations to foster understanding within and across cultures. We train adults and young leaders to prevent and mediate conflict and help refugees who h… dangerous are…

Learn m…

Fighting disease

We educate and equip communities to stop the spread of life-threatening diseases like polio, HIV/AIDS, and malaria. We improve and expand access to low-cost and free health care … loping areas…

Learn…

Providing clean water, sanitation, and hygiene

We support local solutions to bring clean water, sanitation, and hygiene to more people every day. We don't just build wells and walk away. W… e our expertise with comm… and educators to make … rts succeed…

Learn…

Rotary | Rotary Opens Opportunities

NORWAY (nordic) pathway to success…

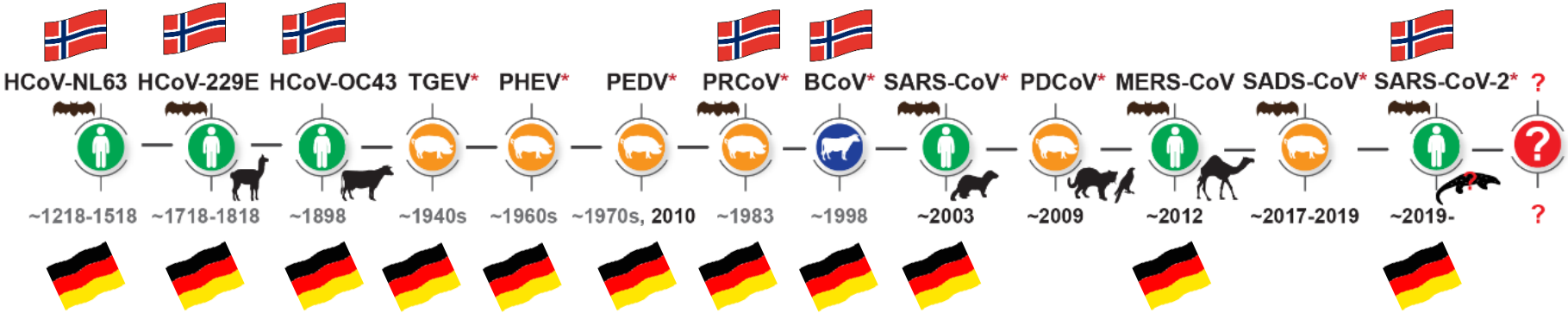
Political leadership & engagement

Society inclusion

Private sector investment

Strong research & innovation

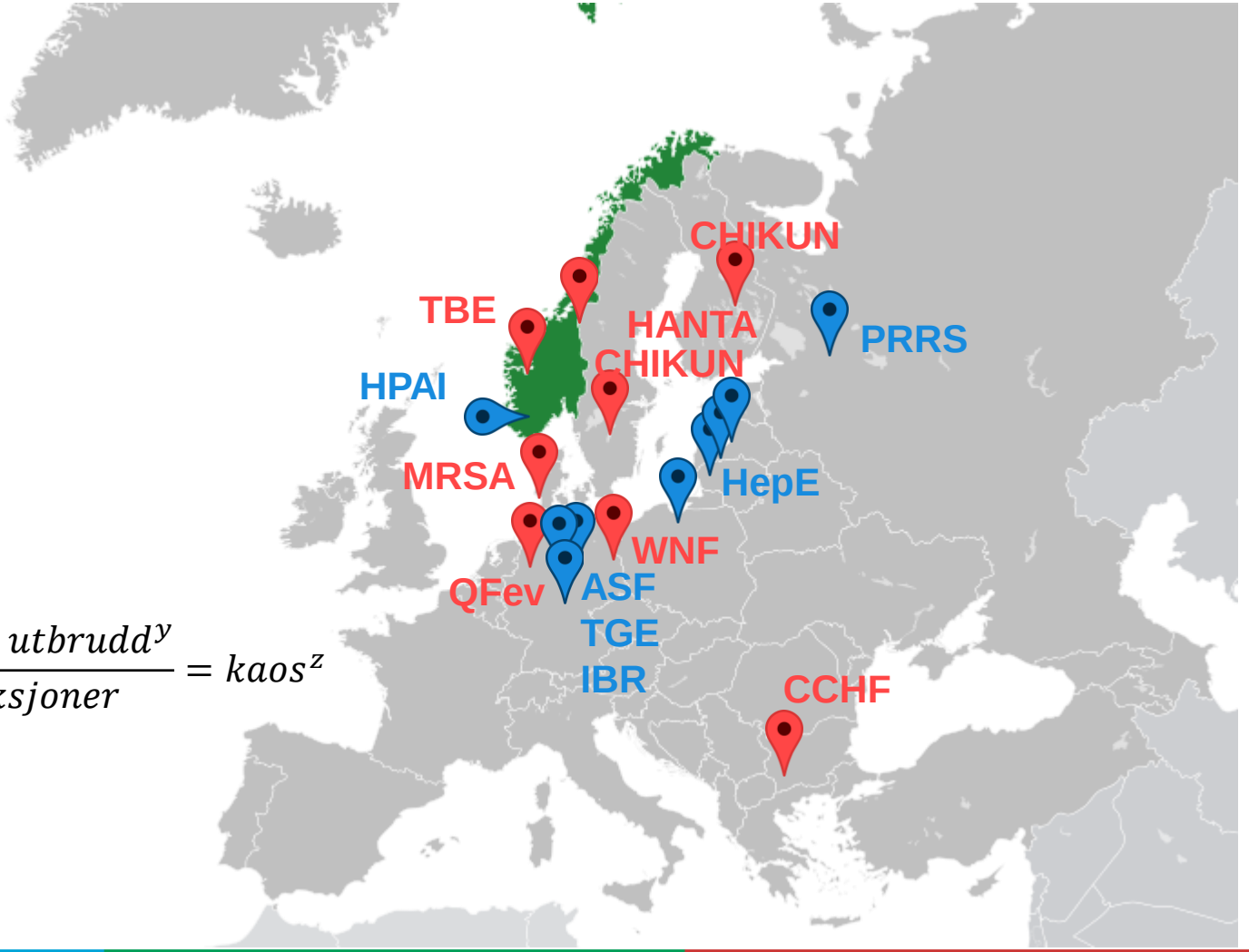
en lang historie med korona...



Én helse er mer
enn pandemier

den er også MAT!!!!

$$\frac{pandemier^{x} + matbåren\ utbrudd^{y}}{matforsyning\ restriksjoner} = kaos^{z}$$



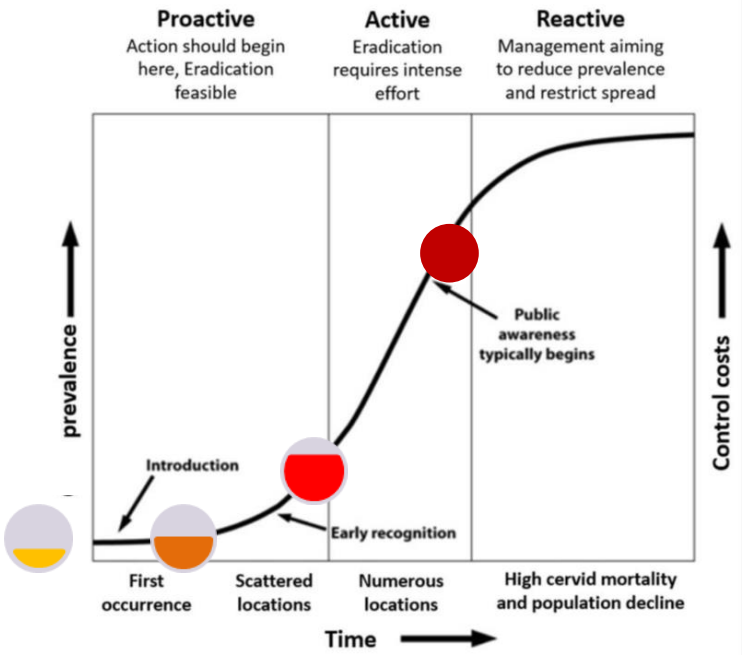
VIs arbeide med beredskap

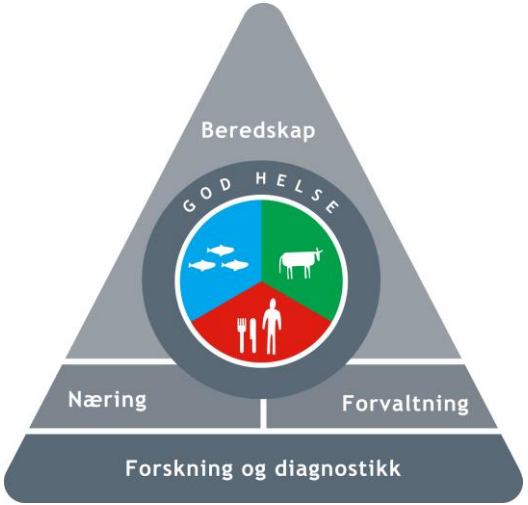
FORUTSI

FOREBYGGE

OPPDAGE

BEKJEMPE





Vår jobb…


01
OPERATIONAL EXCELLENCE
02
SCIENTIFIC CONNECTIVITY
03
INTERNATIONAL ENGAGEMENT
04
INFLUENTIAL VOICE
05
EXCELLENCE IN SCIENCE

- etablert to interne satsinger for å bygge **nye avanserte verktøy** og **metoder** for mer effektiv beredskap (helgenomsekvensering og biomarkører).
- Vi jobber tett **på Offentlig-privat-samarbeid (OPS)** for bedre utnytte kunnskapsbaserte analyser av datastrømmer i sanntid
- Vi støtter implementeringen av **ny dyrehelseforordning fra EU**

- Kobling til MT og FHI bl.a. med pelsdyrovervåkning, men også aktiv samarbeide med NINA på vilthelse og NIBIO på Én helse (landbruk)

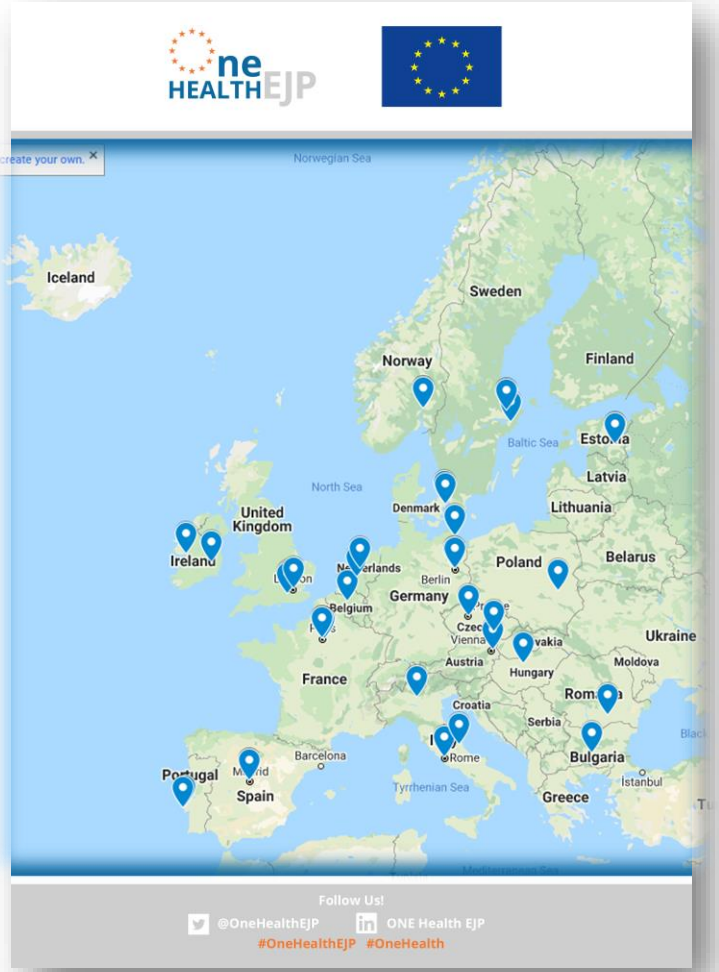
- Etablering av **En helse Norge** plattform

1st One Health Conference Norway 2021

Join the 1st One Health Conference Norway, as we draw a picture of the ongoing One Health work in Norway, and together frame the way forward towards a One Health Norway platform.

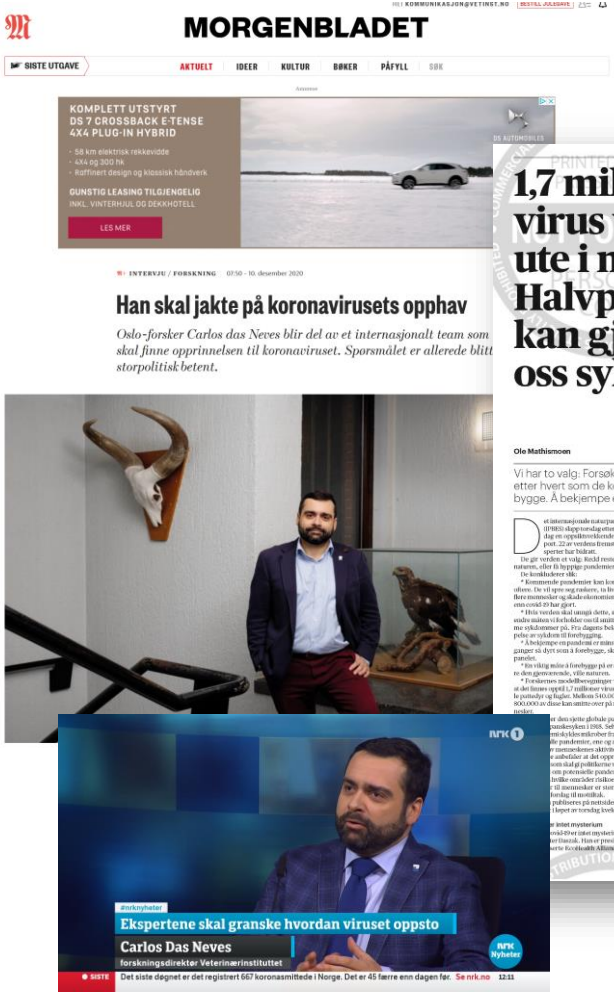
Time: Nov. 3, 2021
Add to calendar

Welcome to the 1st One Health Conference Norway on the 3 November 2021! We invite you to save the date and pre-register for the event. More information regarding the program and invited speakers will be made available soon.



EXCELLENCE IN SCIENCE

05


MORGENBLADET
SISTE UTGAVE
AKTUELT
IDEER
KULTUR
BØKER
PÅFYLL
SØK
KOMPLETT UTSTYRT
DS 7 CROSSBACK E-TENSE
4X4 PLUG-IN HYBRID
· 58 km elektrisk rekkevidde
· 4X4 og 300 hk
· Raffinert design og klassisk håndverk
GUNSTIG LEASING TILGJENGELIG
INKL. VINTERHJUL OG DEKKHOTELL
LES MER
DS AUTOMOBILES
INTERVJU / FORSKNING
Han skal jakte på koronavirusets opphav
Oslo-forsker Carlos das Neves blir del av et internasjonalt team som skal finne opprinnelsen til koronaviruset. Spørsmålet er allerede blitt storpolitisk betent.
1,7 millioner virus venter ute i naturen. Halvparten kan gjøre oss syke.
Ole Mathismoen
Vi har to valg: Forsøke å bekjempe pandemier etter hvert som de kommer – som nå. Eller forebygge. Å bekjempe er minst 100 ganger så dyrt.
FOR SALE
Covid-19-
nrk
#nrknyheter
Ekspertene skal granske hvordan viruset oppsto
Carlos Das Neves
forskningsdirektør Veterinærinstituttet
SISTE
Det siste døgnet er det registrert 667 koronasmittede i Norge. Det er 45 færre enn dagen før. Se nrk.no
12:11
CENTRO INTERNACIONAL NTN24
VÍA ZOOM - OSLO, NORUEGA
CLICK VERDE
EN CLICK VERDE LAS NOTICIAS DE MEDIO AMBIENTE Y CONSERVACIÓN
@CLICKVERDENTN24
@HARRIETHIDALGO
WWW.NTN24.COM

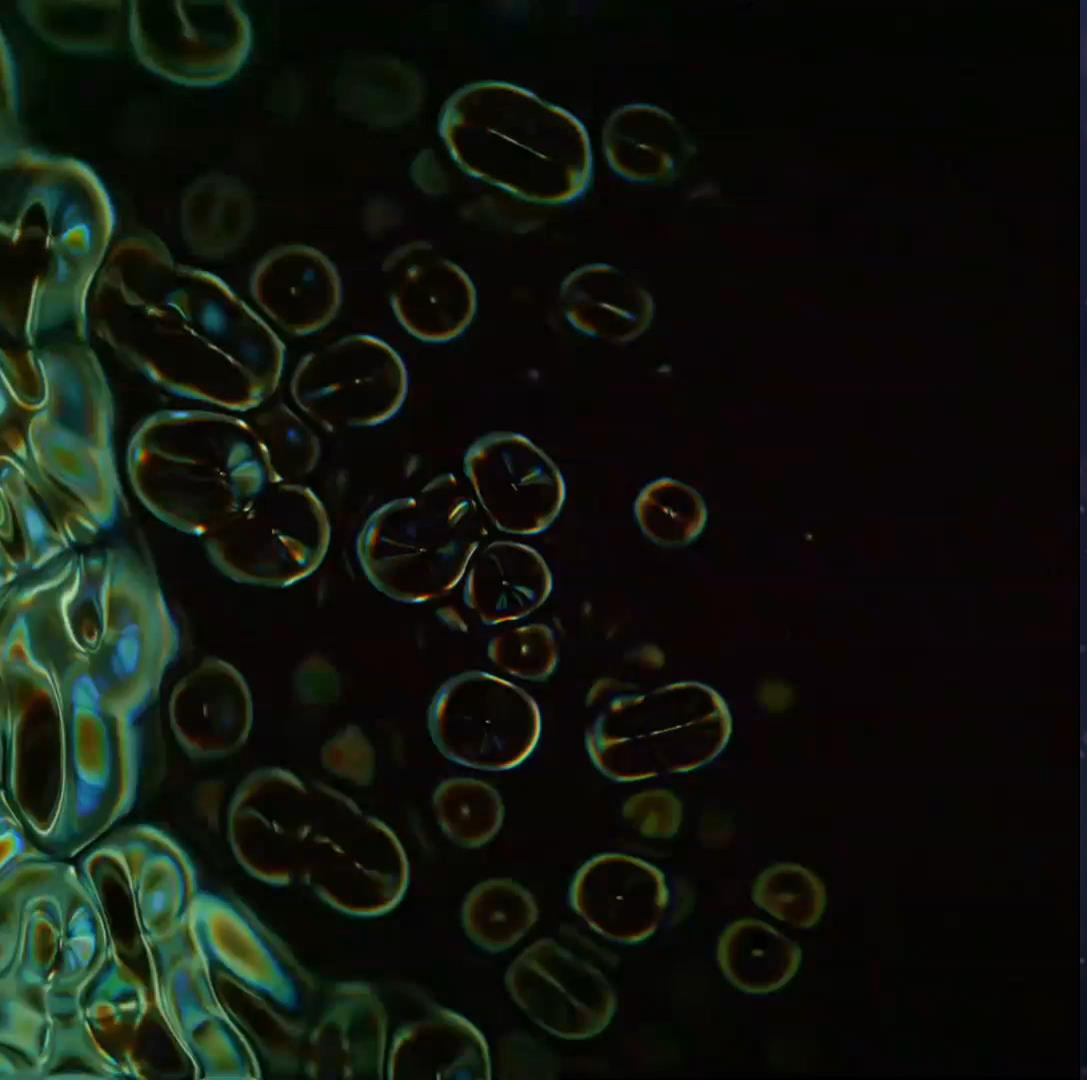

3rd VIRTUAL GLOBAL WHO INFODEMIC MANAGEMENT CONFERENCE
LIVE PUBLIC SESSION ■ 11 DECEMBER, 2020
"The same human activities that drive climate change and biodiversity loss propel pandemic risk through impacts on our environment."
World Health Organization
infodemic MANAGEMENT
RESEARCH PROF. CARLOS GONÇALO DAS NEVES
Expert, IPBES Workshop Report on Biodiversity and Pandemics | President, Wildlife Disease Association | Norwegian Veterinary Institute


03
INTERNATIONAL ENGAGEMENT
04
INFLUENTIAL VOICE

THE *LANCET* COVID-19 COMMISSION

Origins, Early Spread of the Pandemic, and One Health Solutions to Future Pandemic Threats

In its investigation, the taskforce will recreate COVID-19 outbreak timeline from the end of the SARS outbreak in 2003 up to the WHO's declaration of COVID-19 as a Public Health Emergency of International Concern on January 30, 2020. They will analyze the available evidence for each of the hypotheses put forward on the origins of COVID-19. They will compare its early spread and control to previous outbreaks to identify strategies that might assist future pandemic prevention, and examine research published between the end of the SARS and December 2019 that highlighted coronavirus risks and could have better prepared us for COVID-19.

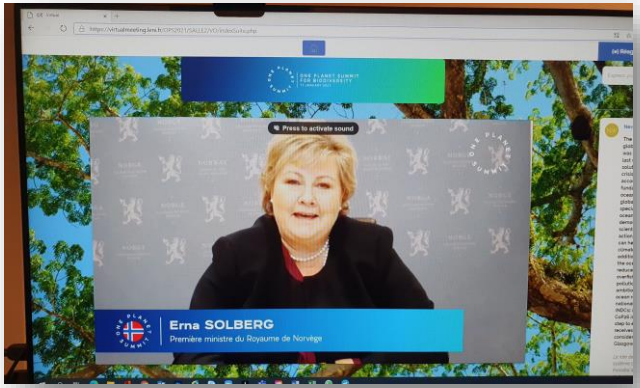


What can governments do to prevent future pandemics?

ipbes

#PandemicsReport

ONE PLANET SUMMIT
FOR BIODIVERSITY
11 JANUARY 2021



ONE PLANET SUMMIT

PREventing ZOonotic Diseases Emergence, PREZODE

Initiative for the One Planet Summit on Biodiversity, January 11, 2021

Extracts from the Plenary Session:

18 December 2020 and outcomes of 5 Regional Workshops: 14-17 December 2020

RÉPUBLIQUE FRANÇAISE
Liberté
Égalité
Fraternité

cirad
AGRICULTURAL RESEARCH FOR DEVELOPMENT

INRAE
science for people, life & earth

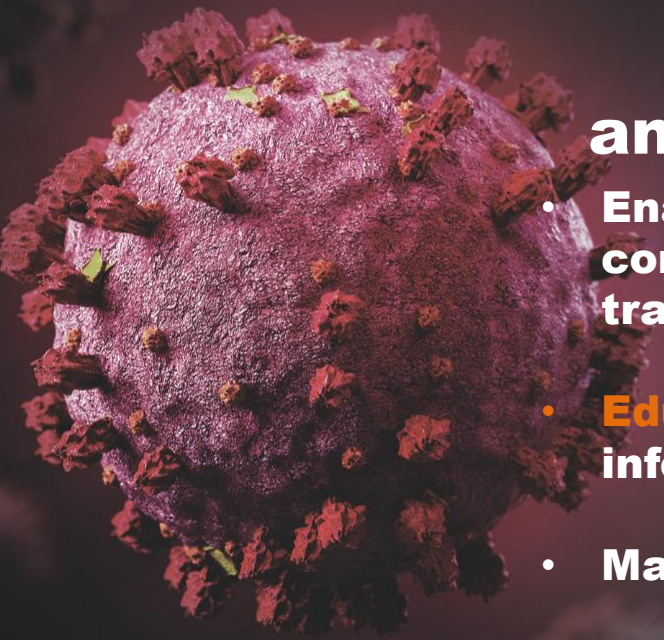
IRD
Institut de Recherche pour le Développement
French National Research Institute for Sustainable Development

“FAO STRONGLY SUPPORTS THE CREATION OF THE ONE HEALTH HIGH-LEVEL EXPERT COUNCIL”

QU Dongyu
Directeur général de la FAO

ONE PLANET SUMMIT
FOR BIODIVERSITY
11 JANUARY 2021

#PandemicsReport



Prediction and Prevention is better than cure and it starts with... me and you!

- Enabling transformative change to reduce the types of consumption, globalized agricultural expansion and trade that have led to pandemics
- Educating communities from all sectors in emerging infectious diseases hotspots
- Making better use of indigenous knowledge
- Incorporate pandemic risk into planning
- Working across disciplines to ensure better prevention strategies (don't forget the media!)

Hva må skjer etter **Sars-Cov2** ?

- forsterke forebyggende verktøy (integrert overvåkning dyre-miljø-human)
- forsterke “science-politics-society”
- etablere nasjonale Én helse-plattformer
- videreutvikle bærekraftige matsystemer i Norge og utland. Dette kommer til å kreve stor investering på kunnskapsbygging
- «North-South»-samarbeid må forsterkes – det er fortsatt litt lengre sør at mange av disse problemer oppstår og vi kan hindre store problemer her hjemme senere om vi bidrar.

Dette er en bærekraft-forpliktelse for Norge fremover.

Fordi …. **Sars-Cov3** finnes sikkert !

PREDICTION AND PREVENTION HAVE A VALUE THAT CANNOT BE QUANTIFIED IN DOLLARS

TUSEN TAKK