WORLD ORGANISATION FOR ANIMAL HEALTH
Protecting animals, preserving our future

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Wildlife Working Group

OIE Webinar **World Wildlife Day**

Global wildlife health

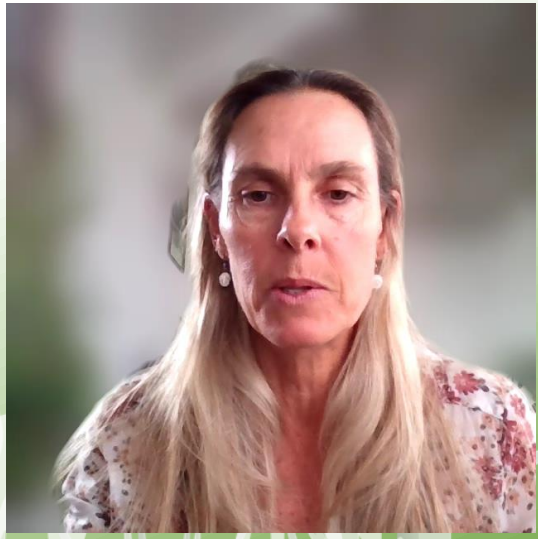
3 March 2022

Importance of biodiversity for ecosystem health

Ecosystem health and biodiversity

Importance of biodiversity for ecosystem health

- Biodiversity is **essential** for a **healthy environment** which is essential for the **health of people**
- Environment, wildlife and human health are **interconnected**
- We can have impacts on environments which can upset **natural balances** and the health and function of ecosystems
- **Wildlife declines** can have broad and **substantial consequences**, including impacts on pest control, pollination, food chains, soil productivity, biodiversity, conservation



Why bats matter

Insect control

Agriculture pests

Disease vectors

Crops

Edible plants

Polinization

Seed dispersion

Forest regeneration

[Climate regulation]

50% trees tropical forests are completely dependent on bats for pollination or seed dispersal

Bats reduce grape damage in vineyards

- Wine growers save up to 7% of the annual production because of bats.
- Grape cluster **damage reduction** yielded an **average economic benefit of US$188-$248/ha/year** due to bat predation.

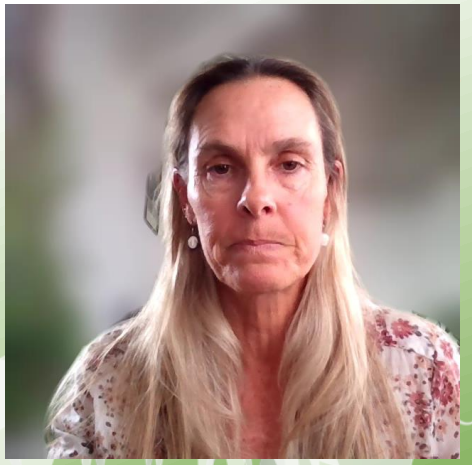
Contents lists available at ScienceDirect

Agriculture, Ecosystems and Environment

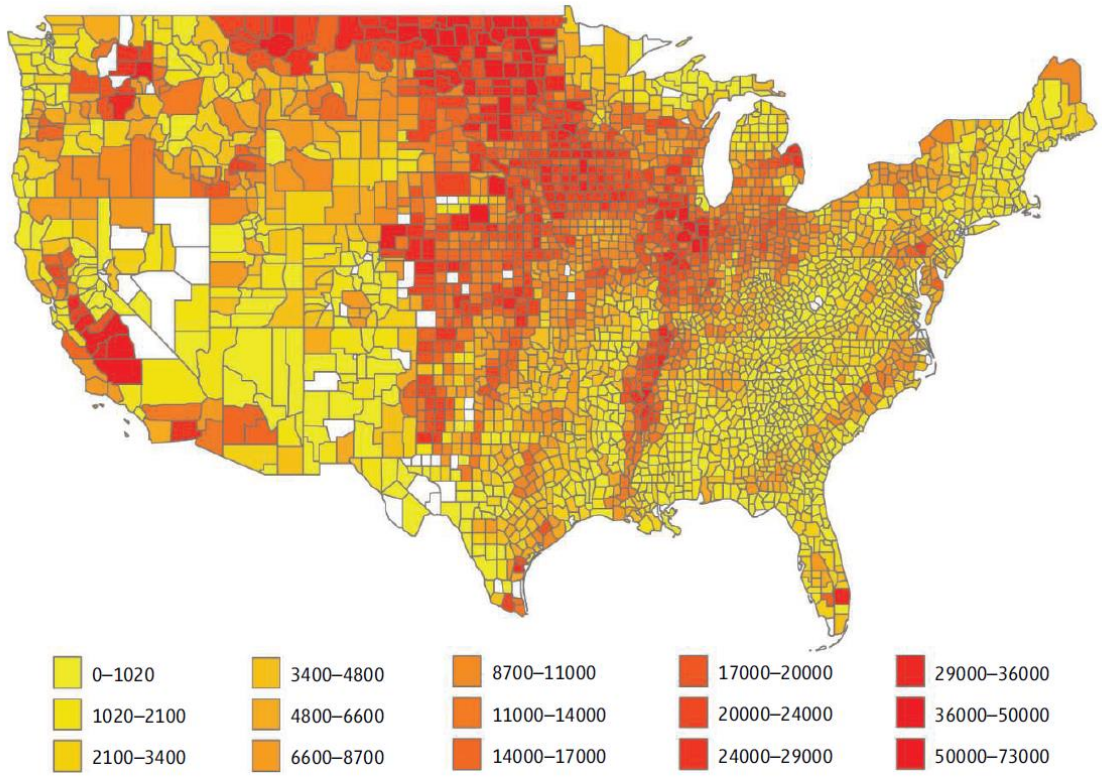
journal homepage: www.elsevier.com/locate/agee

Quantifying ecological and economic value of pest control services provided by bats in a vineyard landscape of central Chile

Annia Rodríguez-San Pedro[a,b,c,*], Juan Luis Allendes[b,c], Clemente A. Beltrán[a,c], Pascal N. Chaperon[a,c], Mónica M. Saldarriaga-Córdoba[d], Andrea X. Silva[e], Audrey A. Grez[a]



Economic value of bats in agriculture



The worth of insectivorous bats. Estimated annual value of insectivorous bats in the agricultural industry at the county level. Values (×$1000 per county) assume bats have an avoided-cost value of ~$74/acre of cropland (*12*). (See SOM for details.)

North America

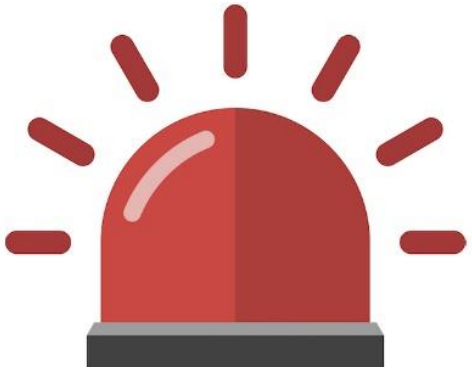
- **One million little brown bats** (*Myotis lucifugus*), the species most affected by **WNS**, consume over **a thousand tons** of insects a night.

- **Bat-dependent pest suppression and associated reduction in pesticide use** is valued at ~ **53 billion USD/year**

Boyles et al., 2011; Kunz et al., 2011

Phytoplankton absorbs 40% of all CO_2 and produces 50% of world's O_2

phytoplankton bloom off the coast of Patagonia, Argentina



Early warning EIDs

Livestock – wildlife interface

Sarcopitc mange

PLOS ONE

RESEARCH ARTICLE

Sarcoptic mange outbreak decimates South American wild camelid populations in San Guillermo National Park, Argentina

Hebe del Valle Ferreyra[1], Jaime Rudd[2na], Janet Foley[2], Ralph E. T. Vanstreels[3], Ana M. Martin[4], Emiliano Donadio[5nb], Marcela M. Uhart[3*]

98% decline

Sarcoptic mange decimates South American wild camelid populations in San Guillermo National Park, Argentina. Ferreyra et al. 2022

Cascading trophic impacts

- Loss of herbivory grasslands
- Wildlife-livestock conflict
- Wildlife poisoning

Ecological crisis

- **Japan Wolf extinction early 20th century**
- Apex predator worshipped by farmers as guardian of the field for preying on deer, wild boar and other animals.
- Climate change + decreased numbers of hunters + government-led program that replaced native forests with secondary forests
- Proliferation of deer and wild boar, damage to forest, agriculture and the environment
- Potential reintroduction of wolves to restore ecosystems.

Ohta Seiki Co.'s Monster Wolf was invented to scare away crop raiders.| COURTESY OF WOLF KAMUY

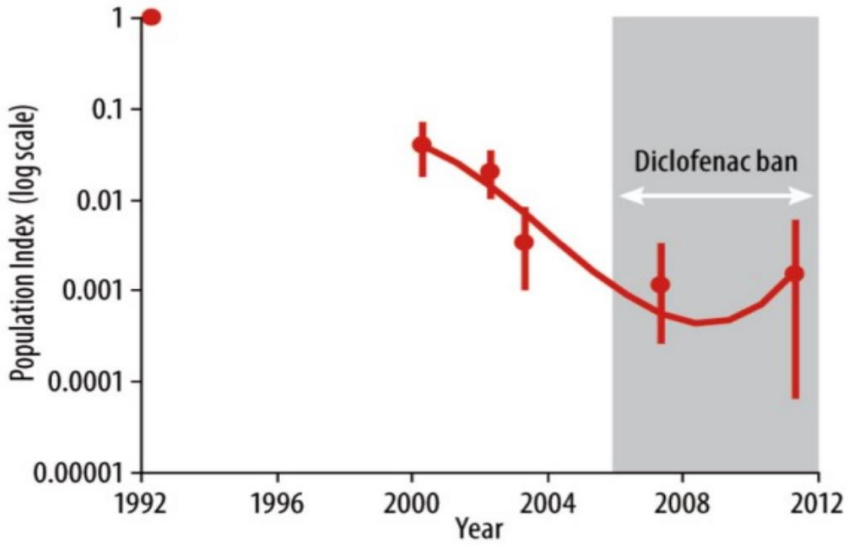
https://features.japantimes.co.jp/4-search-japan-wolves/

Veterinary pharmaceuticals

Diclofenac

- 90% decline Asian vultures
- 4 of 9 species critically endangered
- Increased disease risk –e.g. anthrax
- Increased pest species –e.g. rats
- Increased feral dogs, increased dog bites, increased human rabies
- Costs of treatments, workdays, lives lost

Some hope



Changes in population indices of White-rumped Vulture *Gyps bengalensis*, from repeat surveys of a large number of road transects in India. Vertical lines show 95% confidence limits derived by bootstrapping.

Source: Cuthbert et al . (2011) PLoS ONE 6(5): e19069, Jamshed et al . (2012) Bird Conservation International 22: 389–397, Prakash et al . (2012) PLoS ONE 7(11): e49118.

- Safe option: Tolfamenic acid

INSIGHTS | PERSPECTIVES

Griffon Vultures at a feeding station in Lleida, Spain.

SCIENCE AND REGULATION

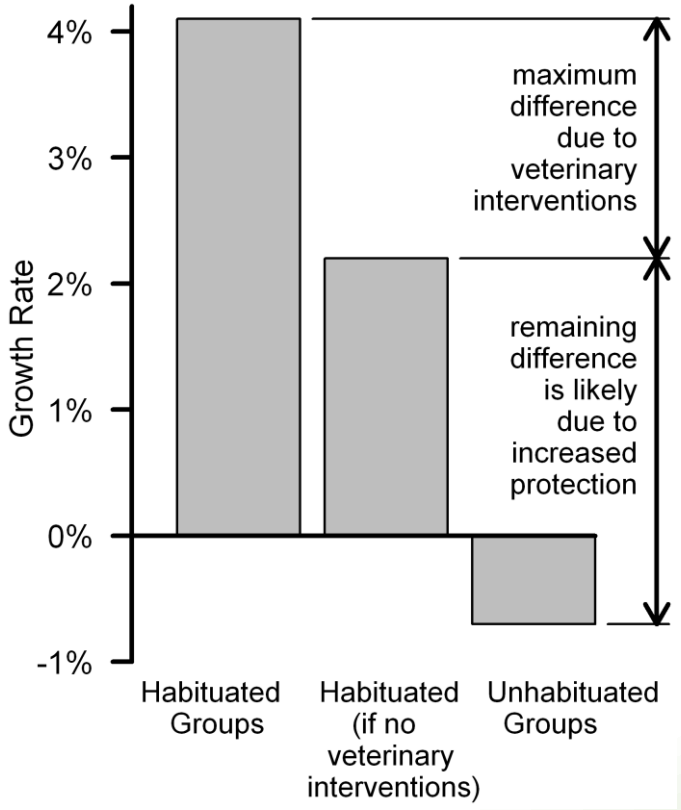
One Health approach to use of veterinary pharmaceuticals

Weak environmental assessments undermine regulations

Experimental safety testing shows that the NSAID tolfenamic acid is not toxic to Gyps vultures in India at concentrations likely to be encountered in cattle carcasses. Chandramohan et al. 2022

Extreme Conservation

https://www.gorilladoctors.org/




PLOS ONE

PUBLISH ABOUT

RESEARCH ARTICLE

Extreme Conservation Leads to Recovery of the Virunga Mountain Gorillas

Martha M. Robbins, Markye Gray, Katie A. Fawcett, Felicia B. Nutter, Prosper Uwingeli, Innocent Mburanumwe, Edwin Kagoda, Augustin Basabose, Tara S. Stoinski, Mike R. Cranfield, James Byamukama, Lucy H. Spelman, Andrew M. Robbins

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Extreme Conservation Leads to Recovery of the Virunga Mountain Gorillas.
Robbins et al. 2011

Gorilla conservation –umbrella

- Gorilla tracking contributes ~ 70 % of Uganda's tourism revenues.
- Gorilla trekking accounted for 14% of the $498 million Rwanda earned from tourism in 2019. Tourism is Rwanda's biggest source of foreign exchange

Bloomberg Sign In S

Rwanda 2019 Tourism Revenue Up 17%, Boosted by Gorilla Trekking

A silverback mountain gorilla in the Sabyinyo Mountains of Rwanda. *Photographer: Ivan Lieman/AFP via Getty Images*

CGTN

Animal 13:54, 27-Oct-2019

Gorilla tracking boosts tourism revenue in Uganda

CGTN

Share

Ugandan conservationists are now keeping track of a visiting group of gorillas from neighboring country Rwanda.

The land surrounding mountain and Grauer's gorilla habitat is some of the most densely populated in Africa, with most people farming for their livelihoods. Fields cultivated by members of the community press against the boundary of Rwanda's Volcanoes National Park.

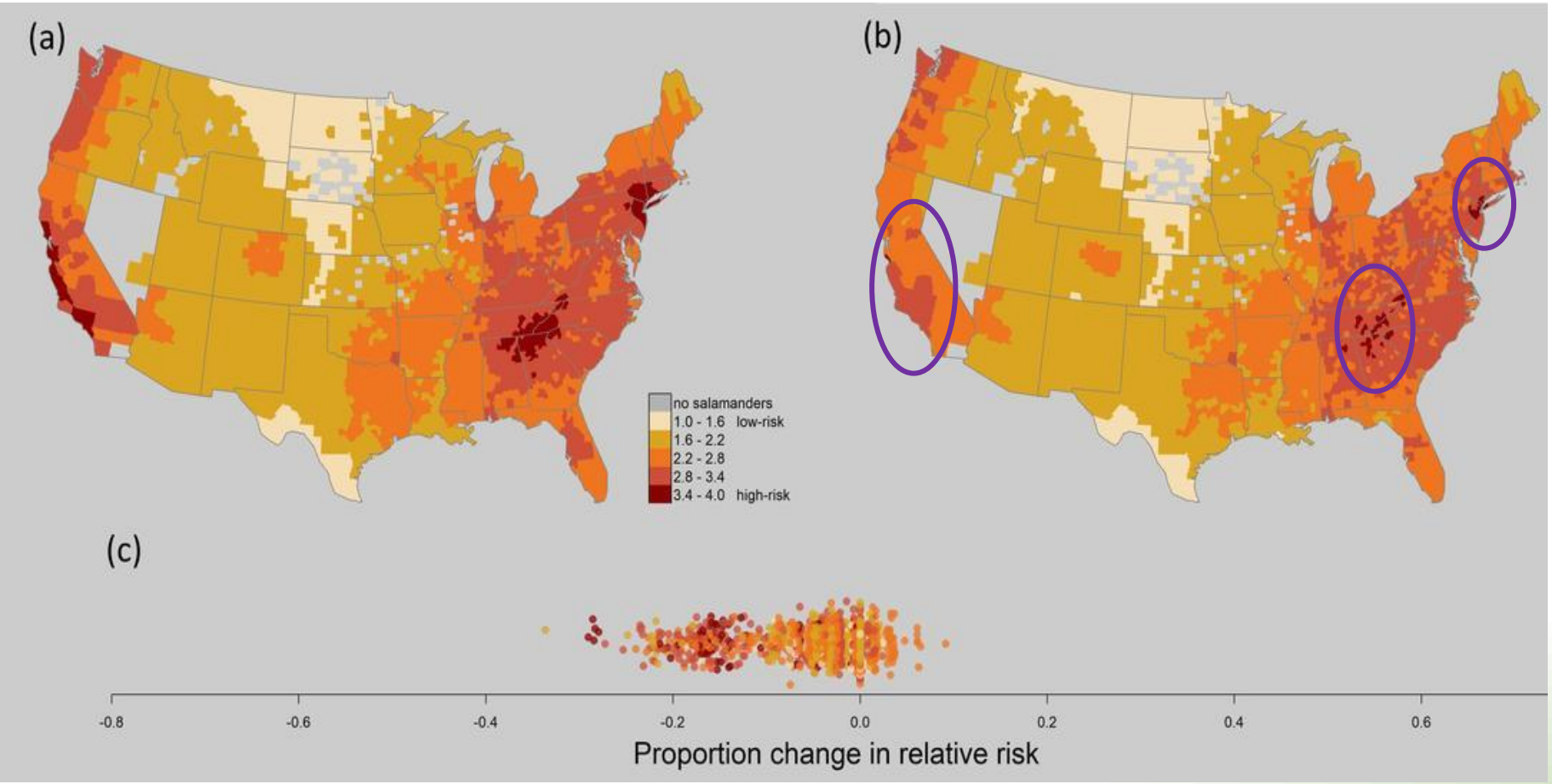
Risk-based management & surveillance

- *Batrachochytrium salamandrivorans* (**Bsal**)
- Bsal fungus - severe threat to salamanders
- **Risk-based** approach to **preventive** management actions, including **interim regulations** on importation of captive salamanders and a **large-scale surveillance** effort
- North American Bsal Task Force (USGS, researchers, conservationists, pet industry, and regulatory & management agencies)

Preventive actions in response to the Bsal threat reduced Bsal risk in the U.S.

By National Wildlife Health Center July 12, 2021

Import regulations and a large surveillance effort have reduced the risk of *Batrachochytrium salamandrivorans* (Bsal) introduction to the United States. A new study evaluated the impact of these actions and updated a previous Bsal risk assessment to provide information for adaptive decision–making.



SCIENTIFIC REPORTS
nature research

Check for updates

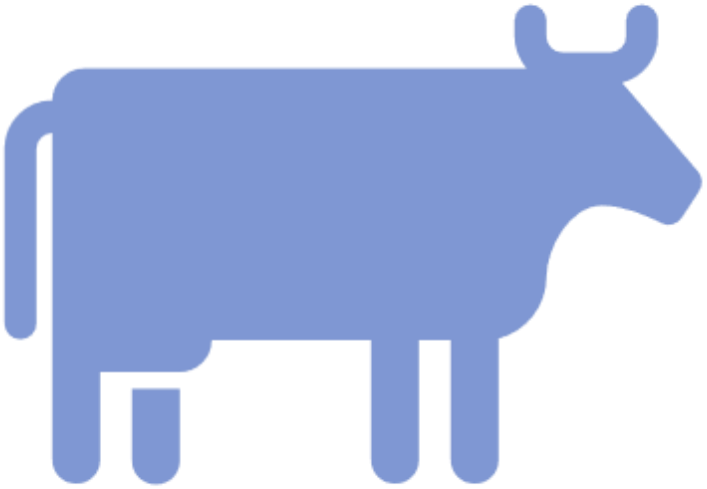
OPEN

Batrachochytrium salamandrivorans (Bsal) not detected in an intensive survey of wild North American amphibians

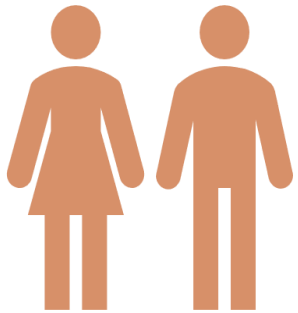
J. Hardin Waddle[1✉], Daniel A. Grear[2], Brittany A. Mosher[3,4,5], Evan H. Campbell Grant[4], Michael J. Adams[6], Adam R. Backlin[7], William J. Barichivich[3], Adrianne B. Brand[4], Gary M. Bucciarelli[8], Daniel L. Calhoun[9], Tara Chestnut[10], Jon M. Davenport[11], Andrew E. Dietrich[4], Robert N. Fisher[7], Brad M. Glorioso[12], Brian J. Halstead[13], Marc P. Hayes[14], R. Ken Honeycutt[15], Blake R. Hossack[15], Patrick M. Kleeman[16], Julio A. Lemos-Espinal[17], Jeffrey M. Lorch[2], Brome McCreary[6], Erin Muths[18], Christopher A. Pearl[6], Katherine L. D. Richgels[2], Charles W. Robinson[2], Mark F. Roth[19], Jennifer C. Rowe[6], Walt Sadinski[19], Brent H. Sigafus[20], Iga Stasiak[21], Samuel Sweet[22], Susan C. Walls[1], Gregory J. Watkins-Colwell[23], C. LeAnn White[2], Lori A. Williams[24] & Megan E. Winzeler[2,25]

Current global mammal biomass

4% wild mammals



62% domestic animals



34% people

The biomass distribution on Earth. Bar-On et al. 2018

Biodiversity is important for ecosystem health

- We need to **protect and advocate for healthy wildlife** populations and be mindful of the **value that these populations bring.**

- We also need to remember that a well-developed **national animal health program which incorporates wildlife** is one of the main ways to **manage wildlife health risk and ensure biodiversity conservation.**





Thank you for your attention