

# OIE Guidelines and “Disaster Management Cycle”

## Animal Welfare and Climate Change



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# Global Risks over next 10 years

For the next 10 years

Water crises  39.8%

0% 10% 20% 30% 40% 50% 60%

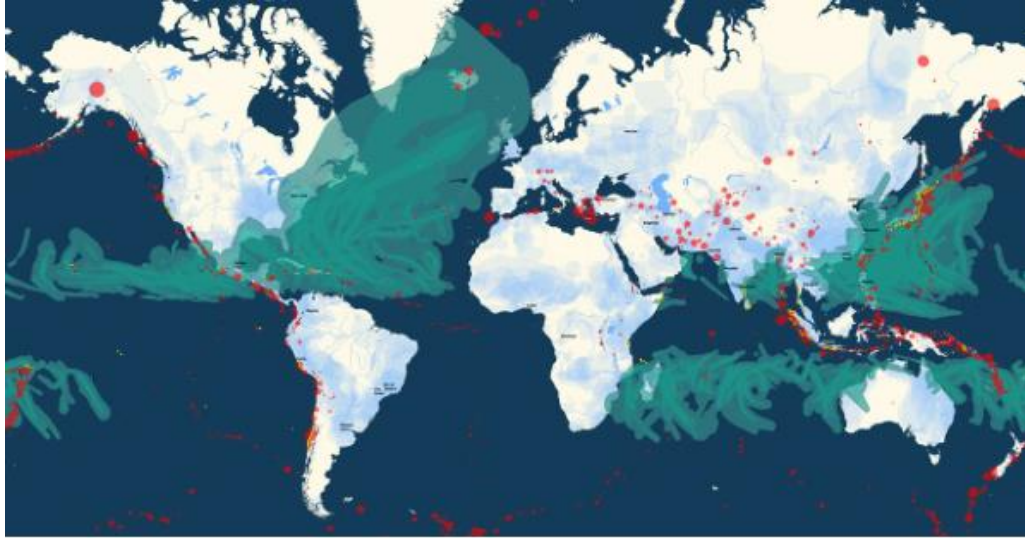
Read more: [wef.ch/risks2016](http://wef.ch/risks2016) #risks2016

# Veterinary Service Disaster Preparedness and Response Gaps in the 2014 Survey



21% no National Legislation  
- animals in disasters

# Veterinary Service Disaster Preparedness and Response Gaps in Survey



66% Veterinary Service with no disaster guidelines

GLOBAL DISASTER ALERT AND COORDINATION SYSTEM

## GUIDELINES





**GUIDELINES  
ON DISASTER MANAGEMENT  
AND RISK REDUCTION IN RELATION  
TO ANIMAL HEALTH AND WELFARE  
AND VETERINARY PUBLIC HEALTH**  
(GUIDELINES FOR NATIONAL VETERINARY SERVICES)



# OIE Guidelines on Disaster Management

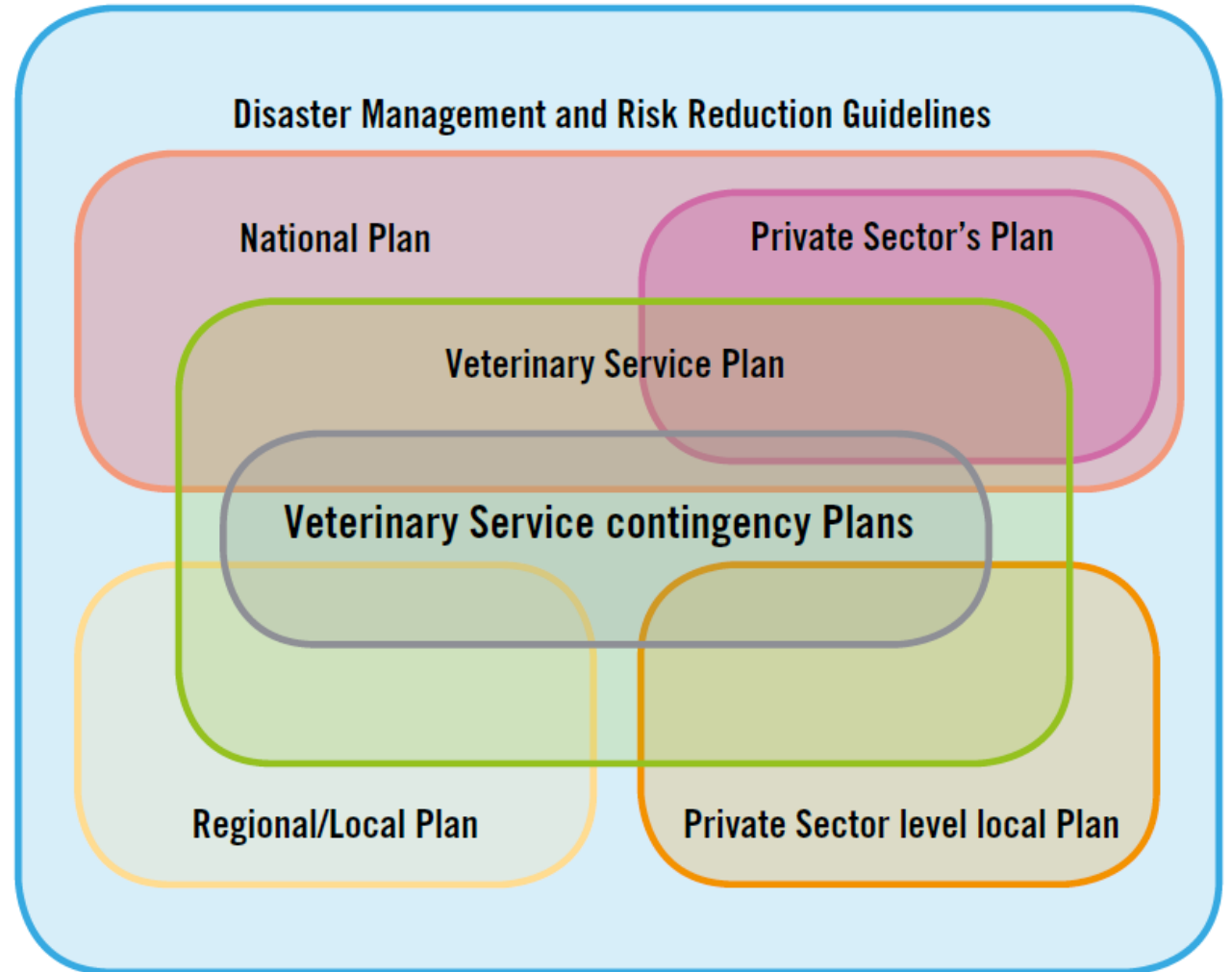
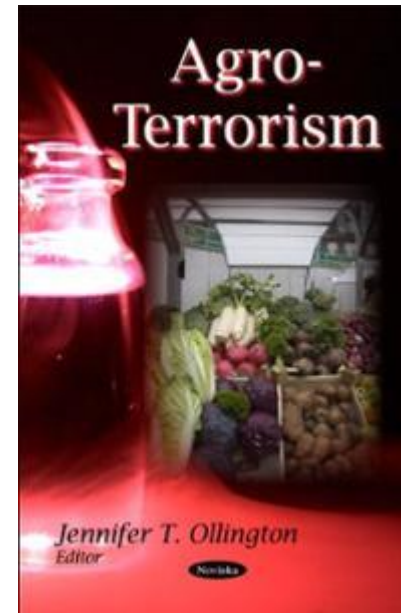


Figure 2. Relationship of Multi-Sectoral Disaster Management and Risk Reduction Plans and Guidelines

# OIE *ad hoc* Group on Disaster Management and Risk Reduction in Relation to Animal Health and Welfare and Veterinary Public Health Guidelines

- Uses an **all-hazards approach** including natural disasters, bio-threats, agroterrorism, conflict, technology disasters.



# OIE *ad hoc* Group on Disaster Management and Risk Reduction in Relation to Animal Health and Welfare and Veterinary Public Health - Guidelines

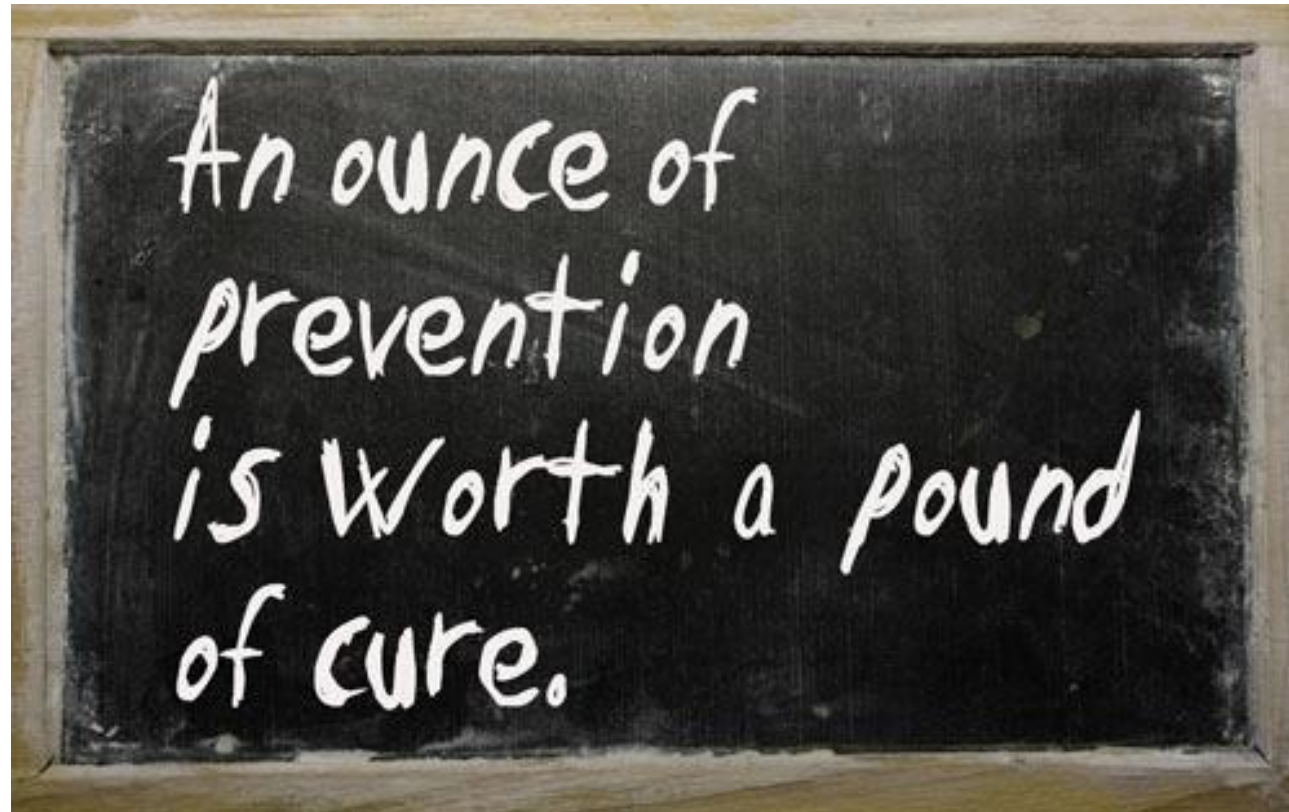
- Uses a **whole of nation** approach.
- **Coordination** with government, intergovernmental, private sector, and public entities and **other countries**.





# OIE *ad hoc* Group on Disaster Management and Risk Reduction in Relation to Animal Health and Welfare and Veterinary Public Health - Guidelines

- Emphasis on preparedness and mitigation/prevention.





# Disaster Cycle

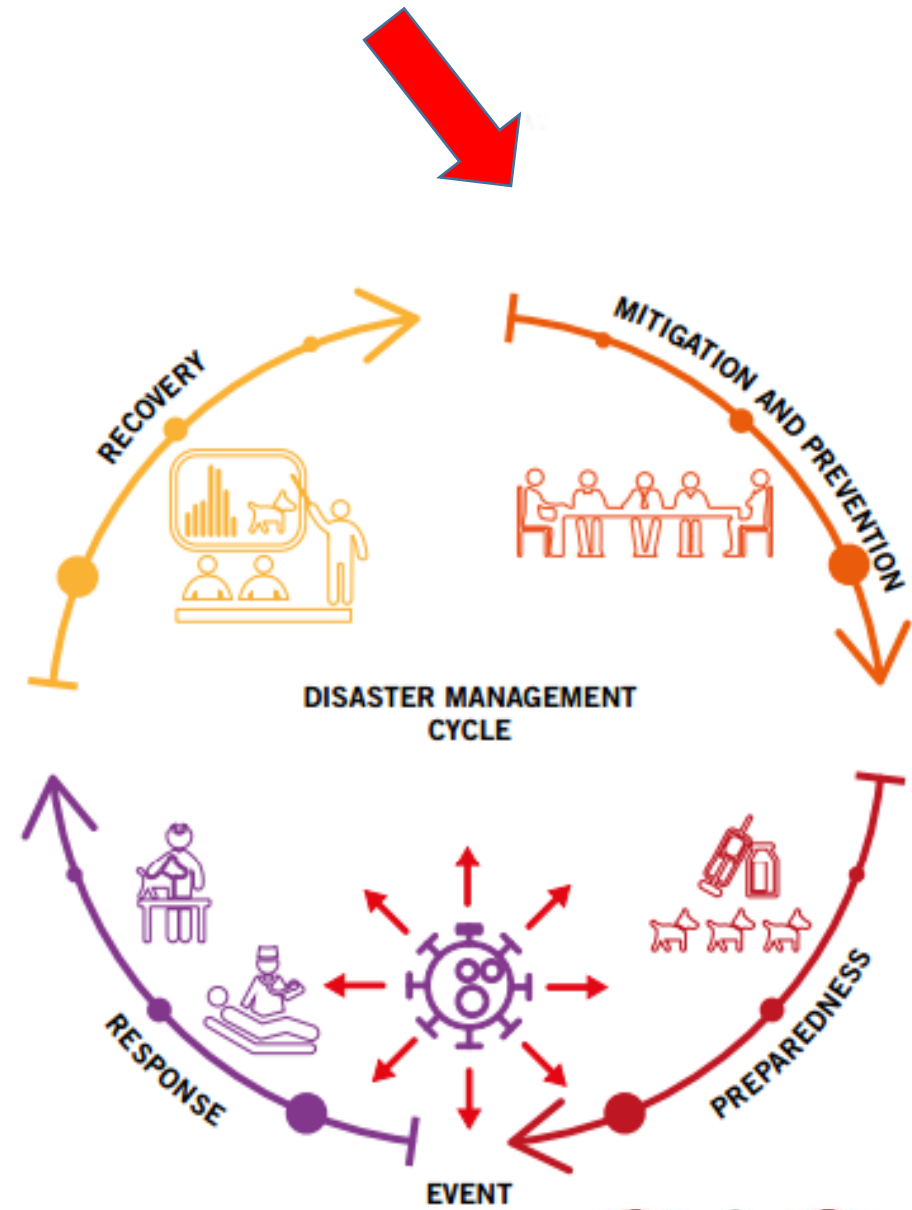
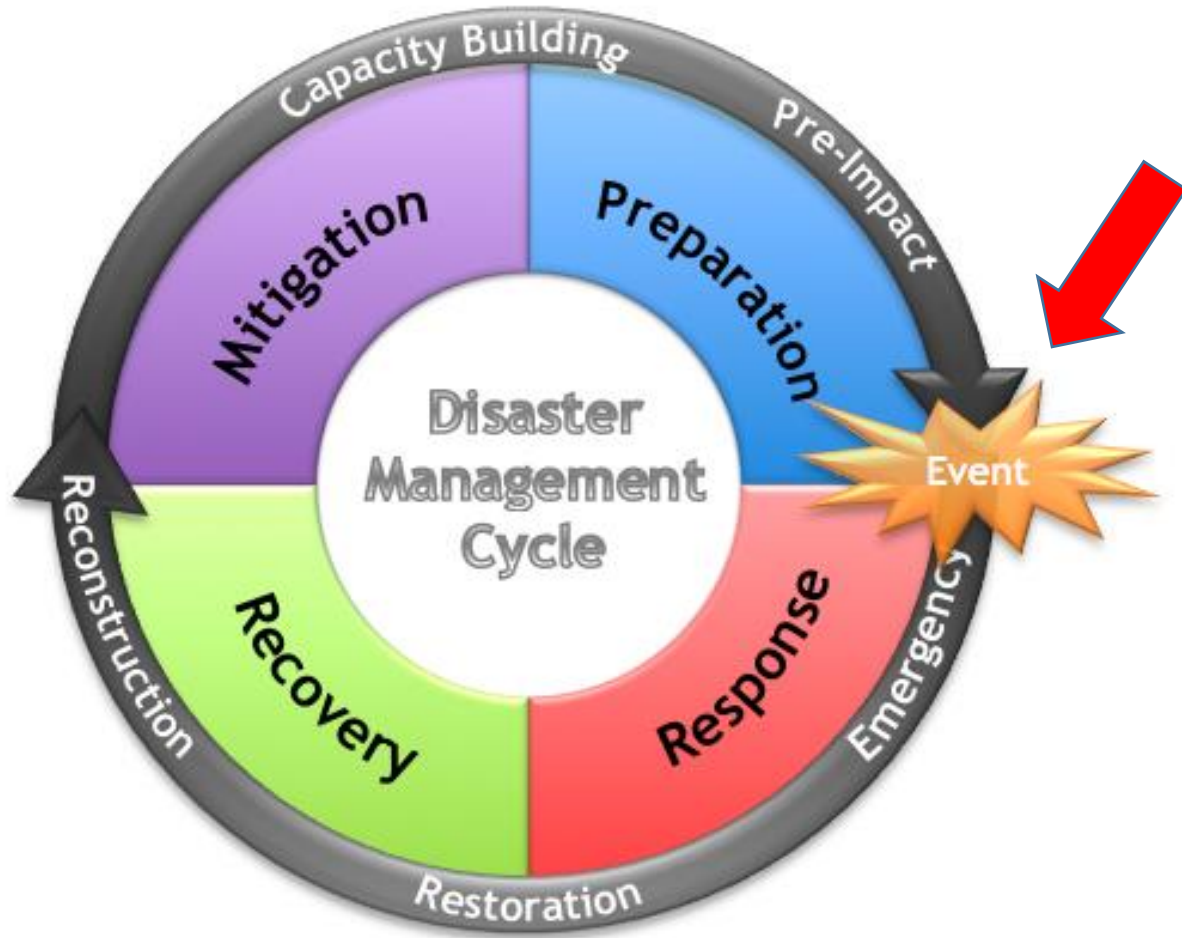
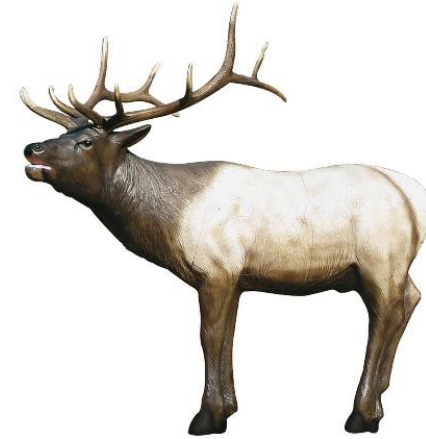


Figure 1. Phases of the Disaster Management Cycle

# What Animal Species are Covered in National Disaster Management Plans?



Livestock 81 %



Wildlife 42 %



Companion Animal 52 %



Zoo and Aquatic 52 %

# The Future

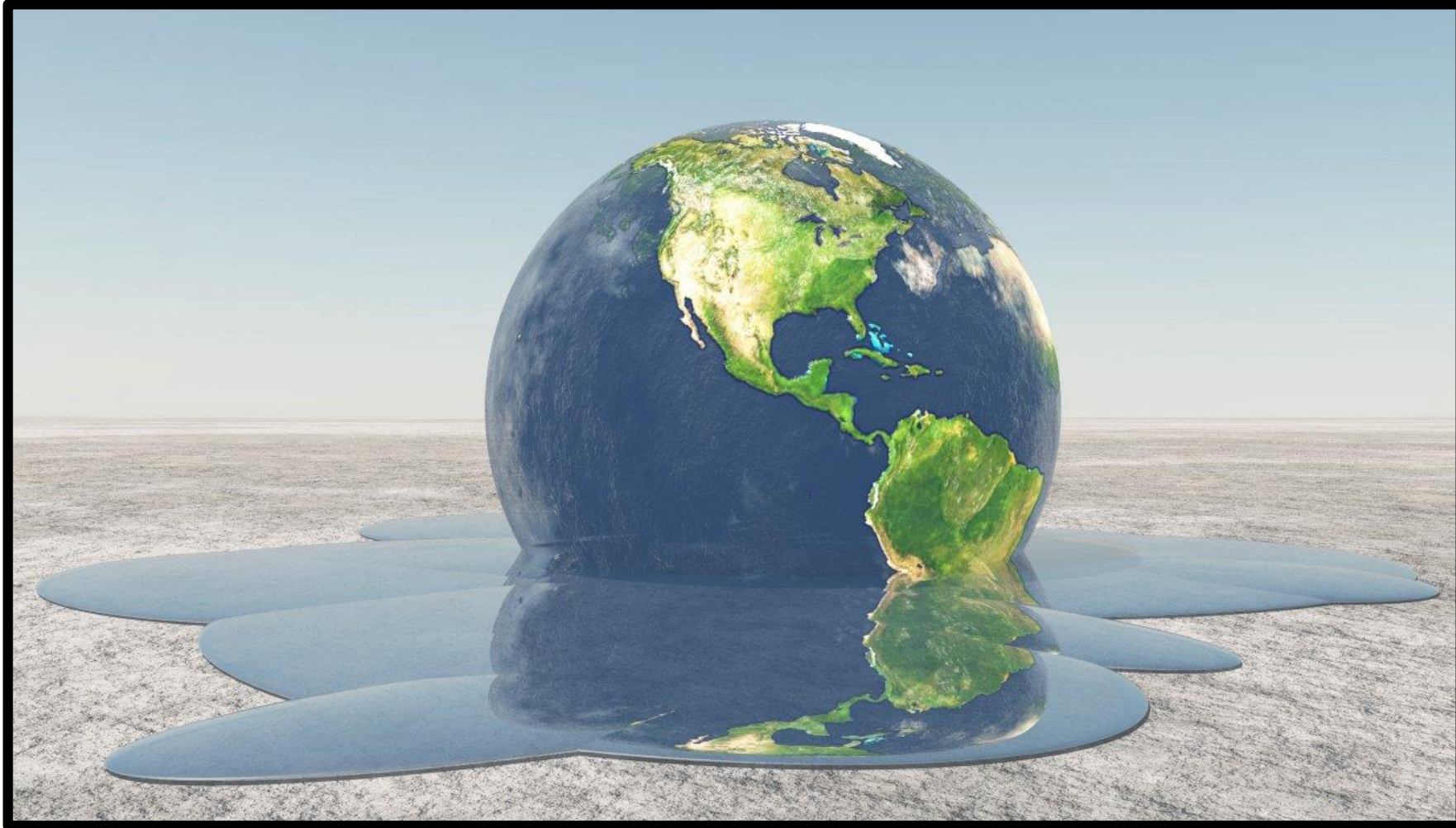


**"Prediction is very difficult, especially if it's about the future."**

**-Niels Bohr**

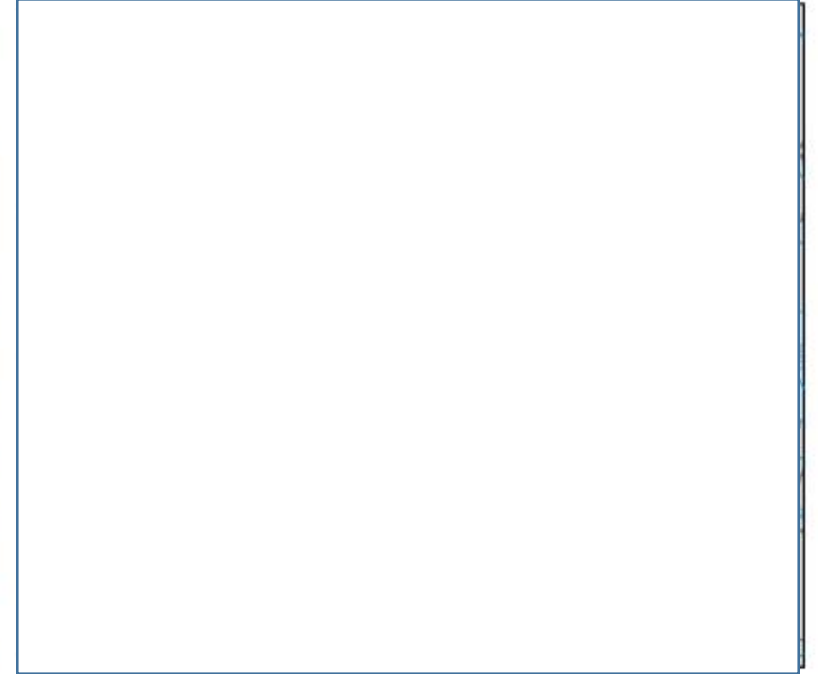
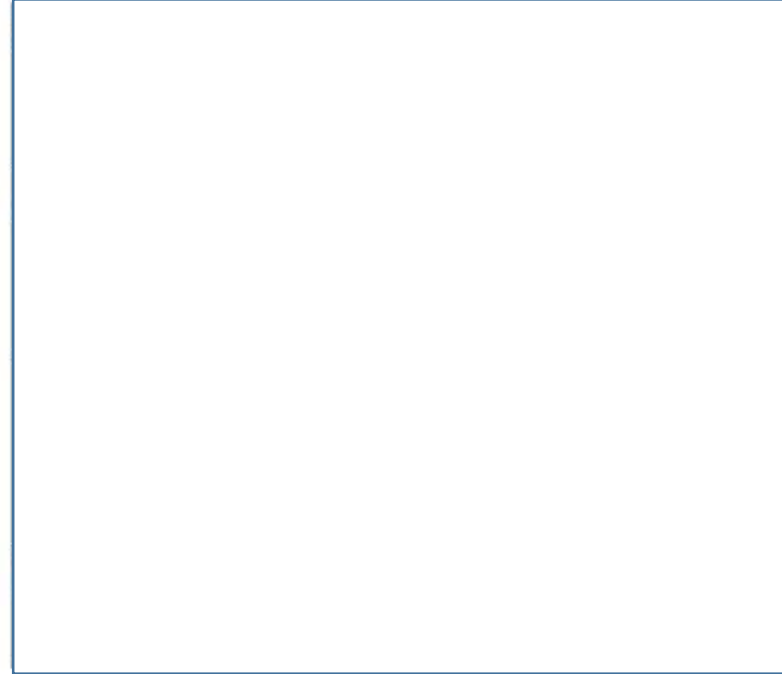
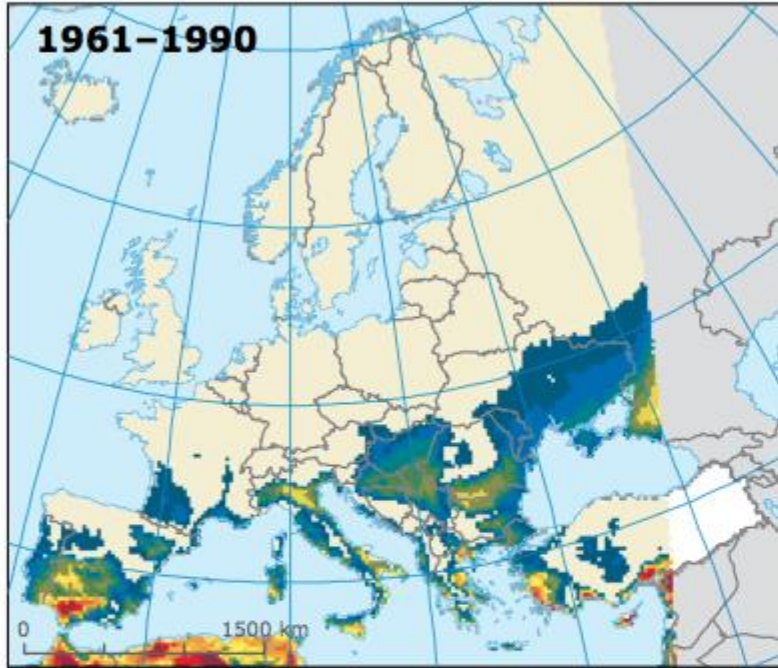


# Climate Change and Animal Welfare

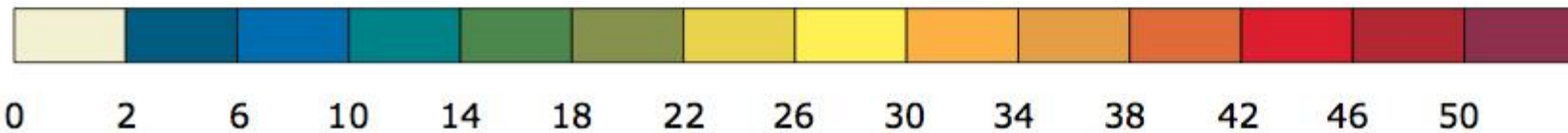


# Projections of Extreme Temperatures

Map 2.4 Projections of extreme high temperatures



Number of combined tropical nights (> 20 °C) and hot days (> 35 °C)



No data

Outside coverage



## Ten Species That Are Evolving Due to the Changing Climate

From tropical corals to tawny owls, some species are already being pushed to evolve—but adaptation doesn't guarantee survival



A 2001 study in *PNAS* showed that the genetic changes responsible for the shift can manifest in as little as five years, according to lab tests.

### Pink Salmon

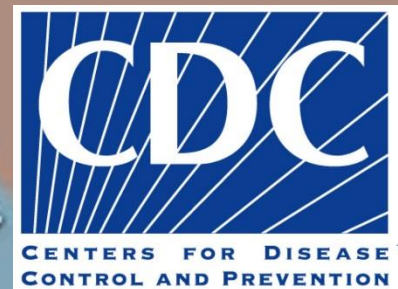
Environmental factors often drive migratory behavior patterns in animals. For salmon, migration is crucial to their survival as a species, because the fish swim from the ocean and up freshwater streams to spawn. The need to migrate is so strong it is even written into their genes. In Auke Creek, Alaska, one pink salmon (*Oncorhynchus gorbuscha*) population is migrating about two weeks earlier than it was 40 years ago. So scientists looked at both [genetic and migratory data](#) over 32 years to see if genetic changes were behind the switch.



The team found that between 1983 and 2011, the frequency of a genetic marker for late migration dropped significantly. By 2011, late migrating fish only made up about 10 percent of the population. Over that same time period, the local water temperature has increased by about one degree Celsius on average, an uptick that's linked to climate change. The researchers argue that earlier migrating fish are better fit to handle warmer waters. Auke Creek salmon populations have held steady over the last few decades, and this adaptation may have made them more resilient.



# Impact of Climate Change on Human Health



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Emerging Risk Report – 2015  
*Innovation Series*

SOCIETY & SECURITY

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## Food System Shock

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*The insurance impacts  
of acute disruption to  
global food supply*

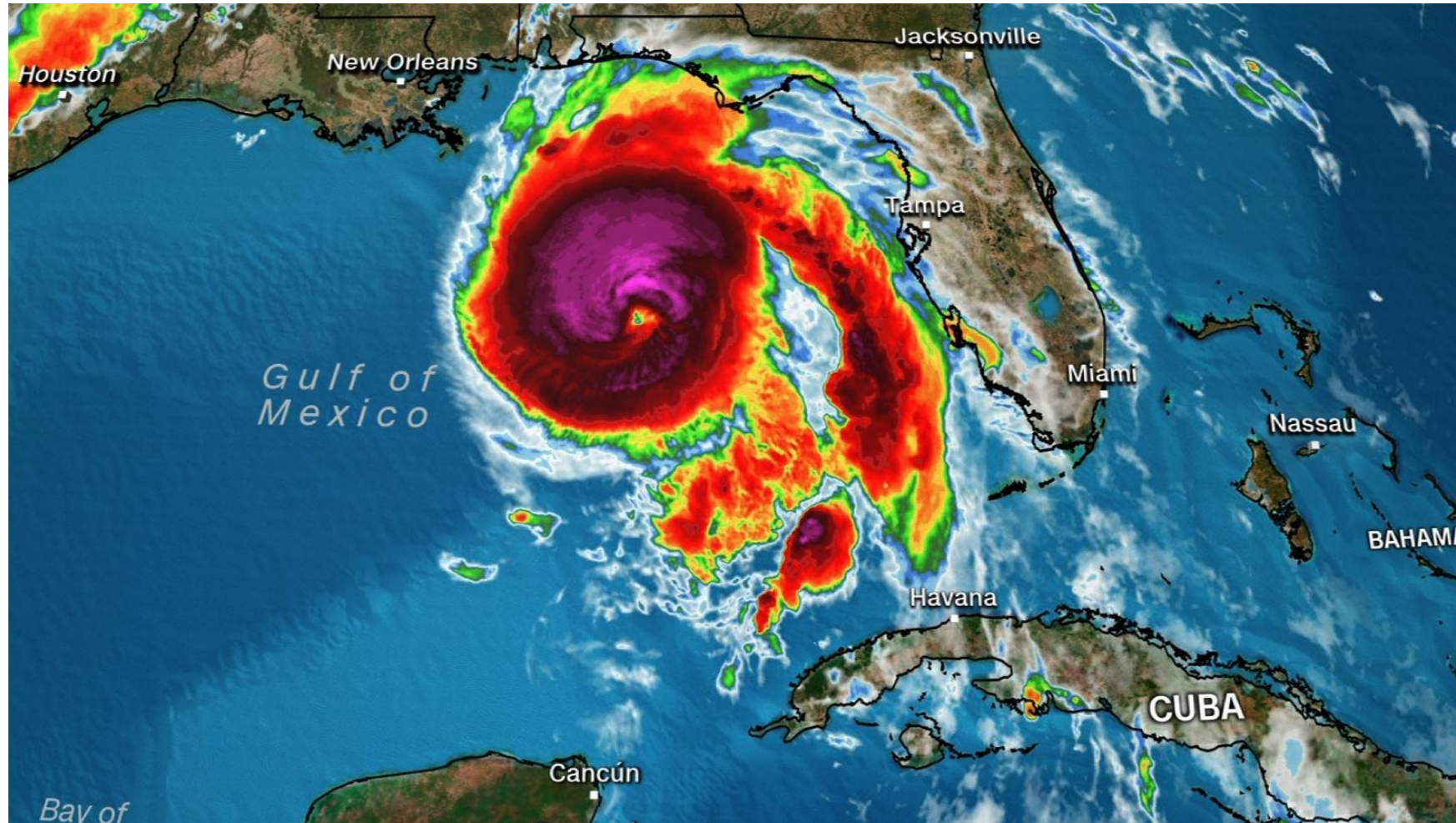
# Future Shock to Food Systems

Although there is a large amount of uncertainty about exactly how climate change might impact world food production over the coming decades, there is general consensus that the overall effect will be negative

This is further exacerbated by the growing issue of water scarcity, which is accelerating at such a pace that two-thirds of the world's population could live under water stress conditions by 2025.



# Hurricane





# Pollution Overflow From Heavy Rain





# Floods





# Wildfire





# Drought

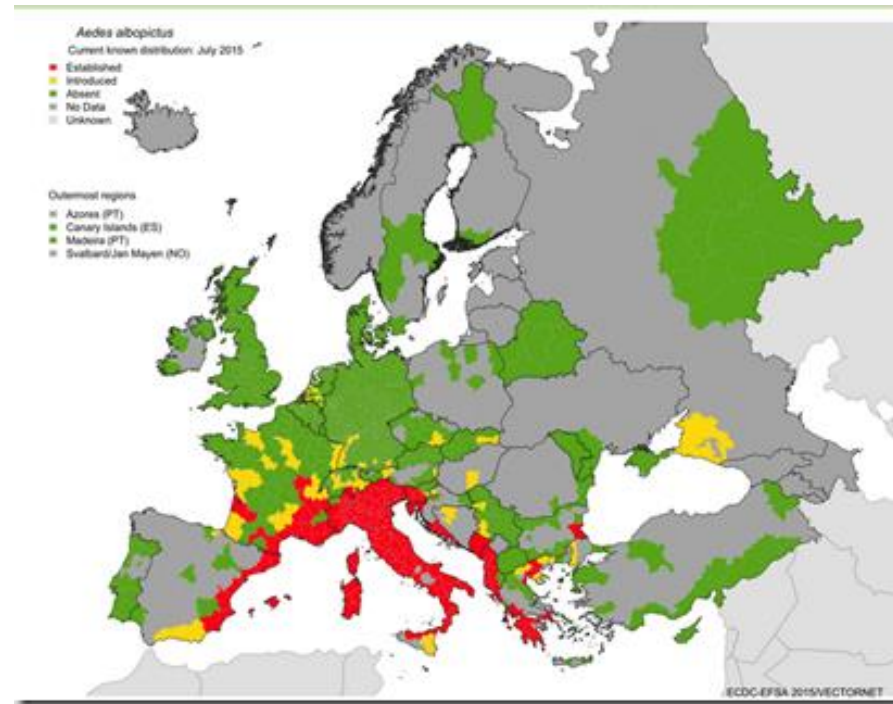


# Direct Impacts of Climate Change on Animal Health

Heat stress

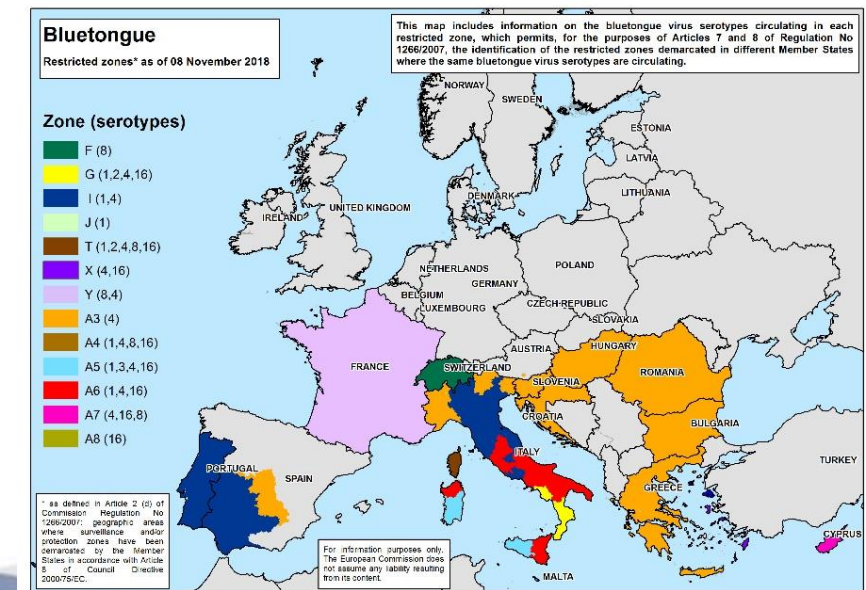
Incursion of Parasites

Incursion of Disease



## Working Trees for Livestock

Working Trees protect livestock from the stressful effects of winter and offer relief in the summer. They can also create diversified income opportunities.





# Indirect Impacts of Climate Change on Animal Health

Extreme weather – Floods-  
Drought-Landslides

Wildfire

Competition for  
Food and Water



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October 30, 2017

**Competition of Livestock for Food**



