




# AI for Wildlife Conservation: Past, Present, and Future

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01

# Overview

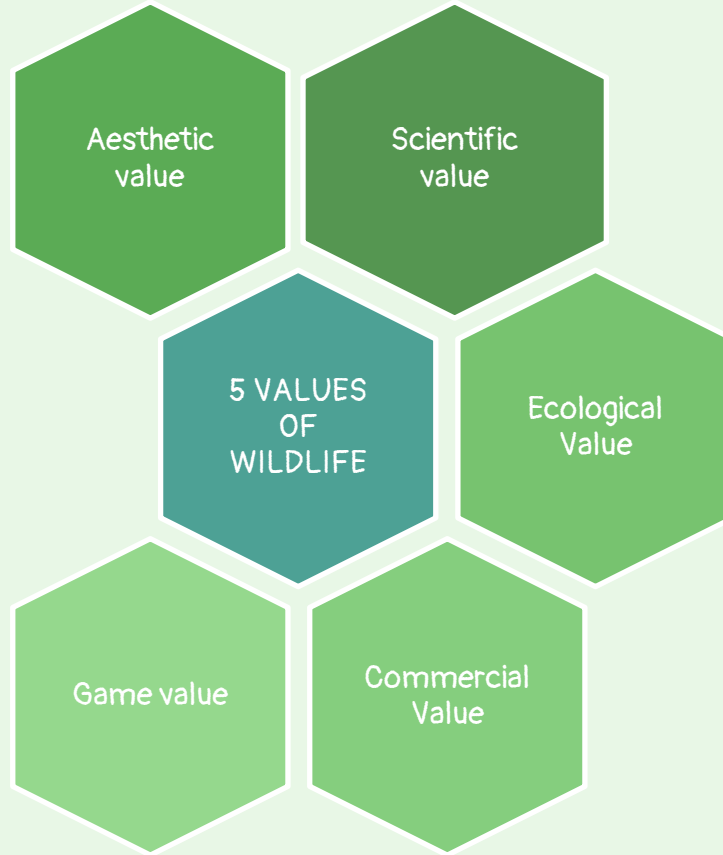
**WHY** should we preserve wildlife?

**WHAT** is the current situation of wildlife?

**WHAT** are the reasons?



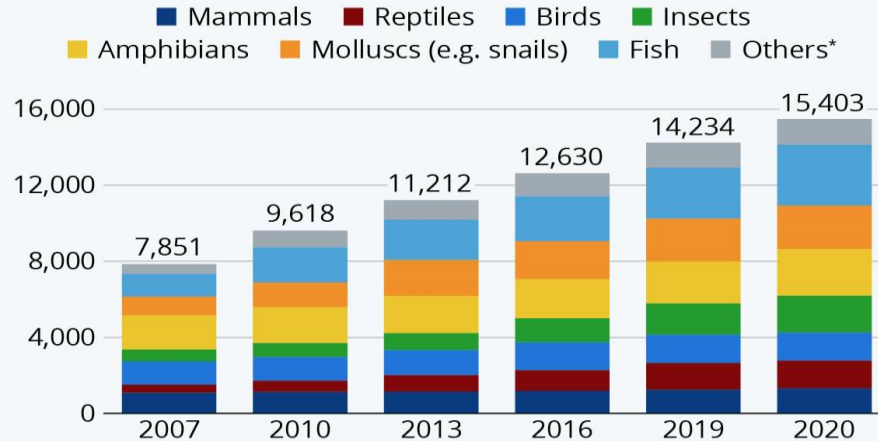
# WHY should we preserve wildlife?



# WHAT is the current situation of wildlife?

## The Number of Endangered Species is Rising

Number of animal species of the IUCN Red List, by class



\* other invertebrate (spineless) animals, such as crustaceans, corals and arachnids (spiders, scorpions)

Source: IUCN Red List



statista

# WHAT is the current situation of wildlife?

## WILDLIFE SEIZURES IN SOUTHEAST ASIA



US\$38  
million

26 tons  
of scales

38,000  
killed



Pangolins

US\$38  
million

26 tons  
of scales

Over  
240  
killed



Rhinos

US\$11  
million

11 tons  
of ivory

230  
killed



Elephants

US\$0.2  
million

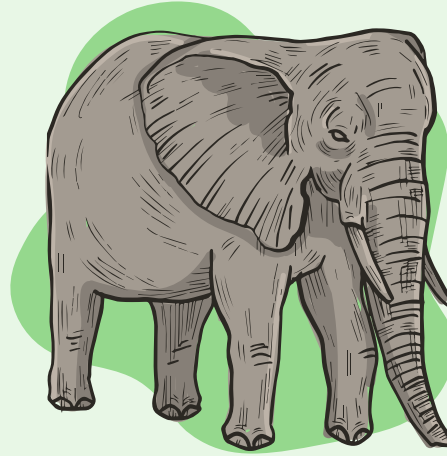
11  
skins

230  
killed



Tigers

US\$ worth of parts   Weight of seizures   Numbers killed



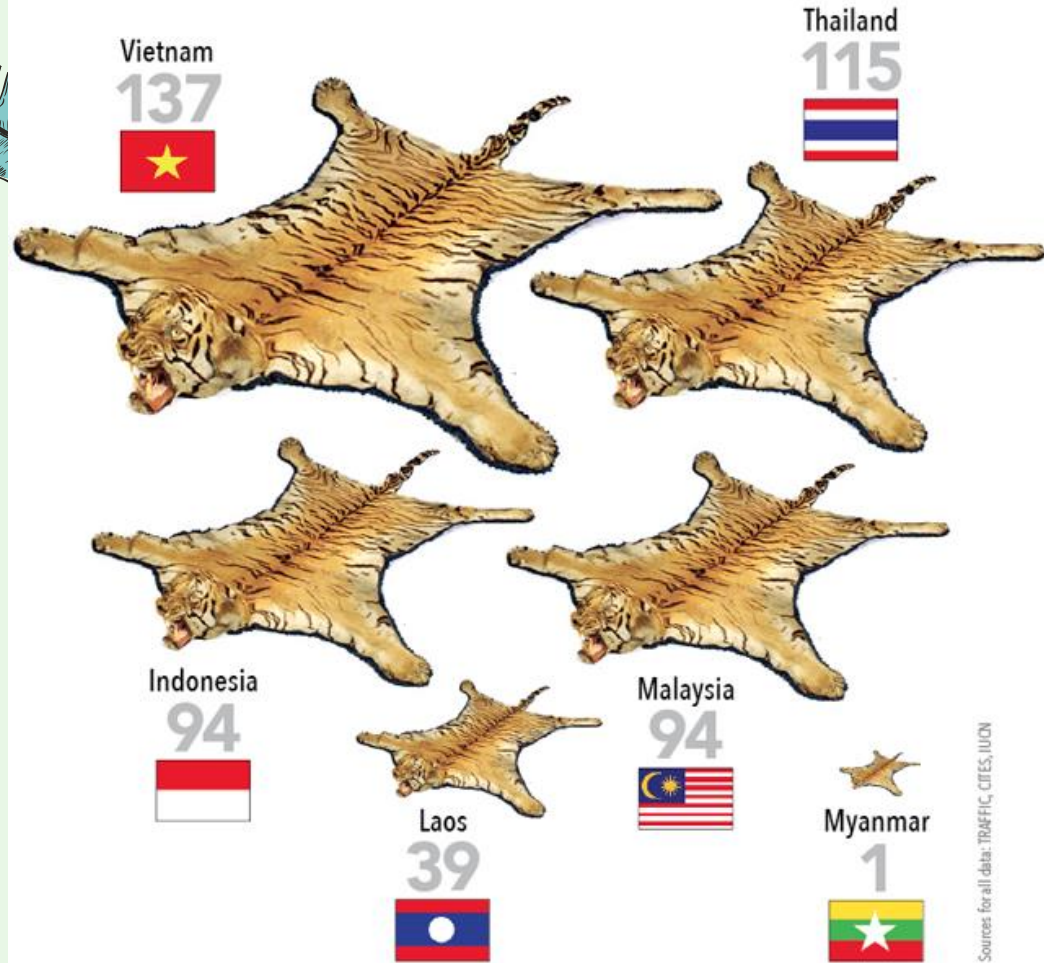


**WHAT** is the current situation of wildlife?



## Tigers seized in Asean: 2000-2012

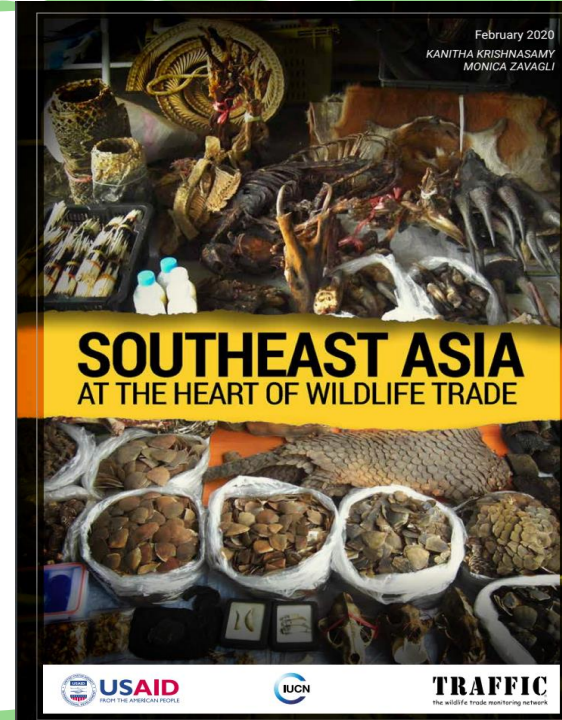
Number of live and dead tigers seized by wildlife and customs authorities



Sources for all data: TRAFFIC, CITES, IUCN

“By **2050**, Southeast Asian forests may **shrink by 5.2 million** ha (hectares) or **grow by 19.6 million** ha, depending on which pathway we will take,” said the scientist.

If Southeast Asia is not serious in preserving its unique and **irreplaceable biodiversity**, the losses will continue to mount.

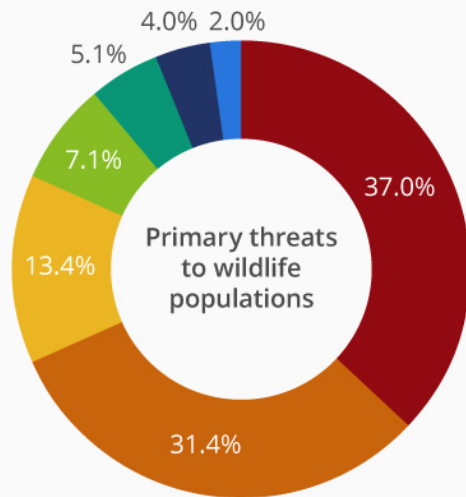




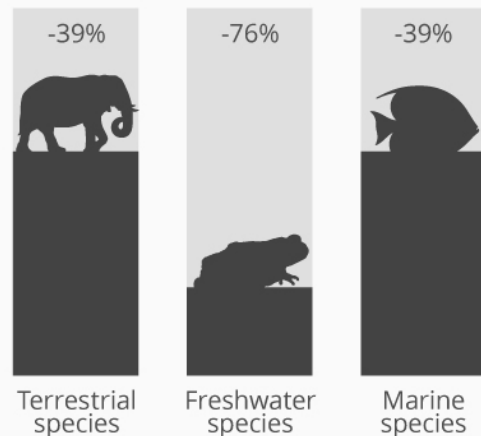
# WHAT are the reasons of wildlife decline?

## Wildlife Populations Worldwide Have Plummeted

Threats to wildlife and population decline from 1970-2010



### Species population decline from 1970-2010



# History of Conservation

GENERALLY TIED TO THE **INDUSTRIAL AGE** BUT IN REALITY, IT GOES BACK A FEW HUNDRED MORE YEARS BEFORE



1662

JOHN EVELYN  
PRESENTED HIS  
WORK TO THE  
ROYAL SOCIETY



1760-1840

INDUSTRIAL  
REVOLUTION



1948

IUCN WAS FORMED  
UNDER UNESCO  
SPONSORSHIP



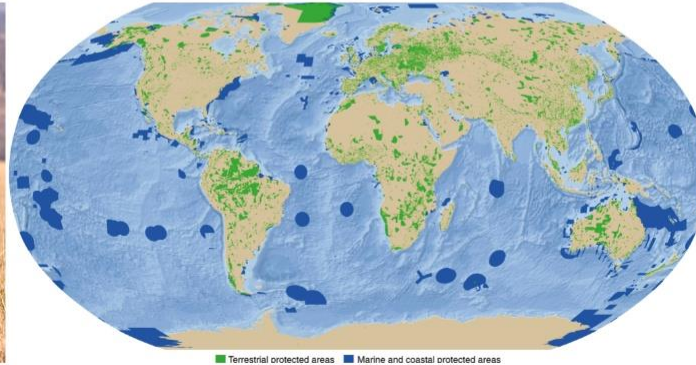
1961

WORLD WILDLIFE  
FUND WAS FOUNDED

# Traditional vs New Conservation

## TRADITIONAL CONSERVATION

1. Save a species
2. Protect some land or water



## NEW CONSERVATION

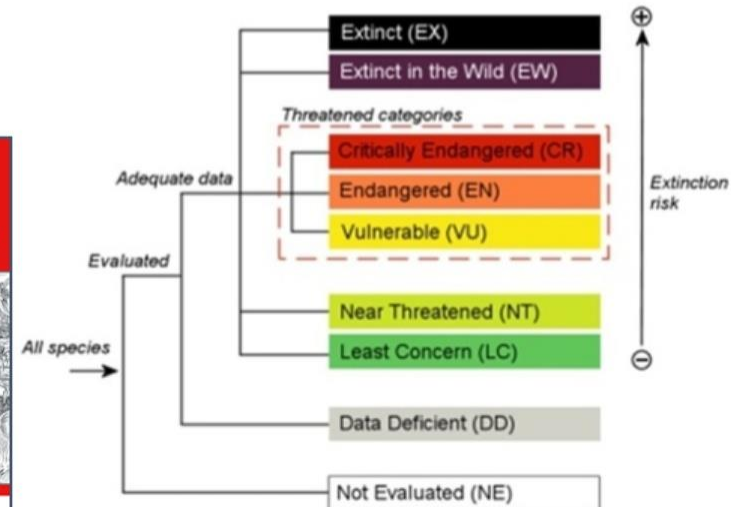
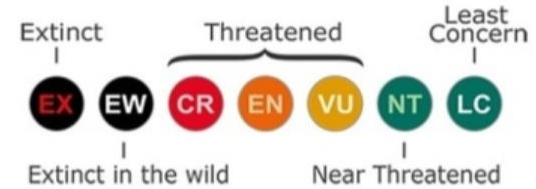
Focuses on human needs and economics as they relate to the natural world



# The IUCN Red List of Threatened Species

World's most comprehensive information source for extinction risk of species

- Not just a list, but a compilation of the conservation status of species at the global level
- Based on the scientific information available
- Widely used to inform and influence biodiversity conservation



# AI Revolutionizes Wildlife Conservation



Animal Detection  
& Counting





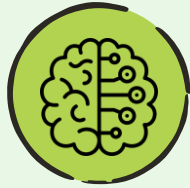
# AI Revolutionizes Wildlife Conservation



Animal and Human  
Activity Surveillance




# AI Revolutionizes Wildlife Conservation



Machine learning predicts  
the extinction risk of  
species





# Consequences by AI in Wildlife



## Conflict

Due to the over use of Drones, Cameras and Sensors, some Wildlife Animals are relocating their habitats, happens conflict between species and some species can extinct.



## Lost of Habitats

Based on the AI Bias which only care about on one species, the other invasive alien species, sometimes human areas are becoming smaller.



# Consequences by AI in Wildlife



## High Cost

AI, ML and Deep Learning Projects can give more precise data, the more computing power is needed, therefore, wildlife conservation cost becomes double.



## Black Market

The Rare is the most valuable one, With the help of AI, The Rare animal species become popular in animal black market



# Future of Technology \_ Technology Evolvemement

- **Accessible, evolving** quickly and the culture is becoming more **collaborative**
- Integrate A.I. and Citizen Science  
– **Crowd A.I.**
- With A.I., genetics, and sensors already revolutionizing – a **tremendous opportunity to invest** in harnessing potential for wildlife conservation





# Future of Technology – Impact to Society

## Challenges

**Unsustainable  
financing**

**Lack of  
coordination  
across efforts**

**Inadequate  
capacity building**

## Recommendation

**Blending** emerging technologies with proven solutions.

**Awareness** and **accessibility** to marginalized communities as front lines of saving wildlife.

**“Co-exist with AI”** in a more intertwined manner



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