Sustainable funding

OECS, July 2022

Arne Witt
a.witt@cabi.org

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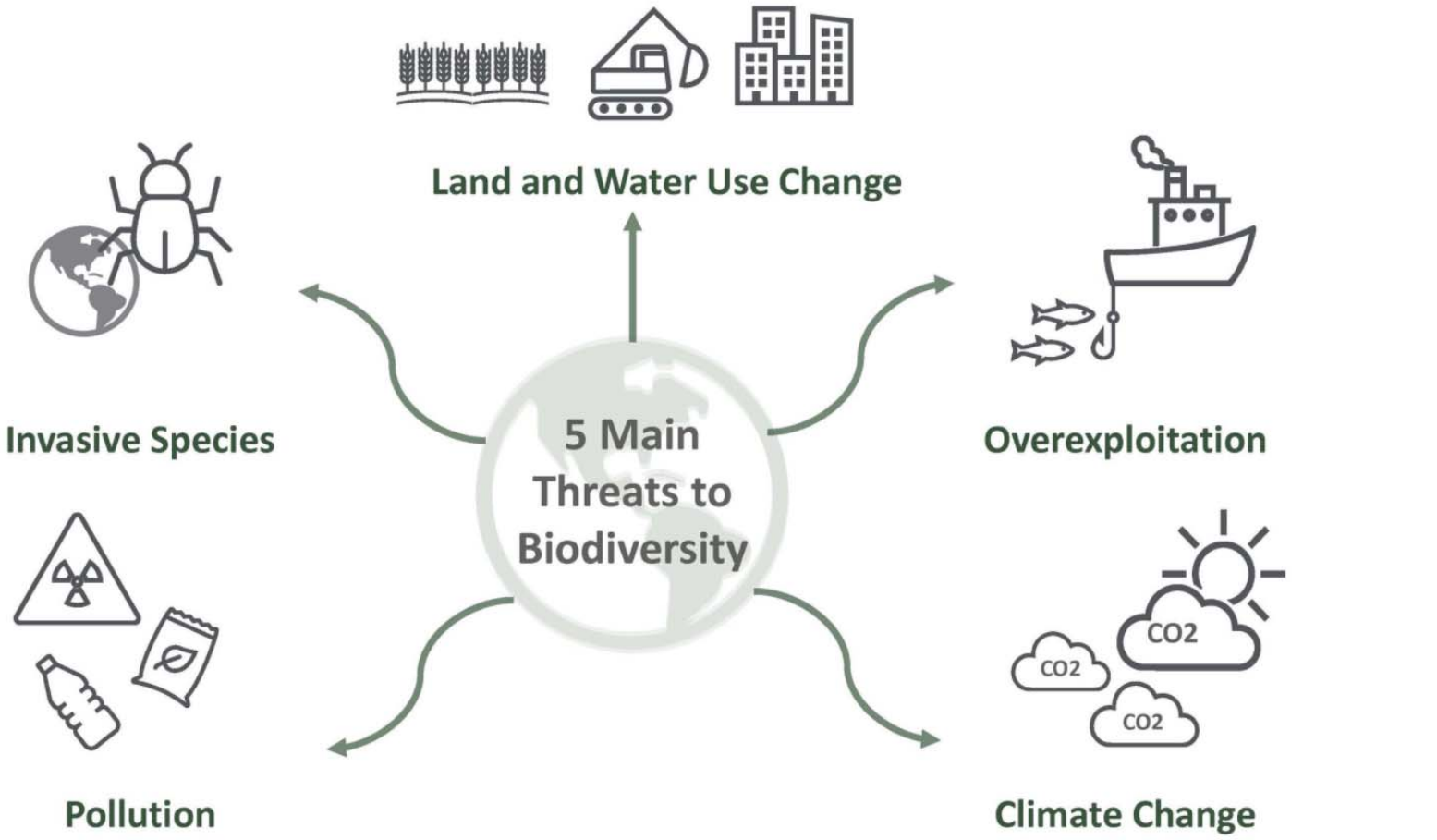
Main threats to biodiversity:



Design: Abby Litchfield

Don’t’ forget:

- IAS will benefit from climate change;
- IAS are biological pollutants;
- Plant invasions contribute to landscape degradation i.e. invaded lands are degraded lands;
- IAS also impact on a range of sectors other than biodiversity – crop and pasture production; human and animal health, water; fire; etc. They really are a cross-cutting issue

Remember:

Every landscape is at risk of invasions, even areas that are currently uninhabited and as such protected by default

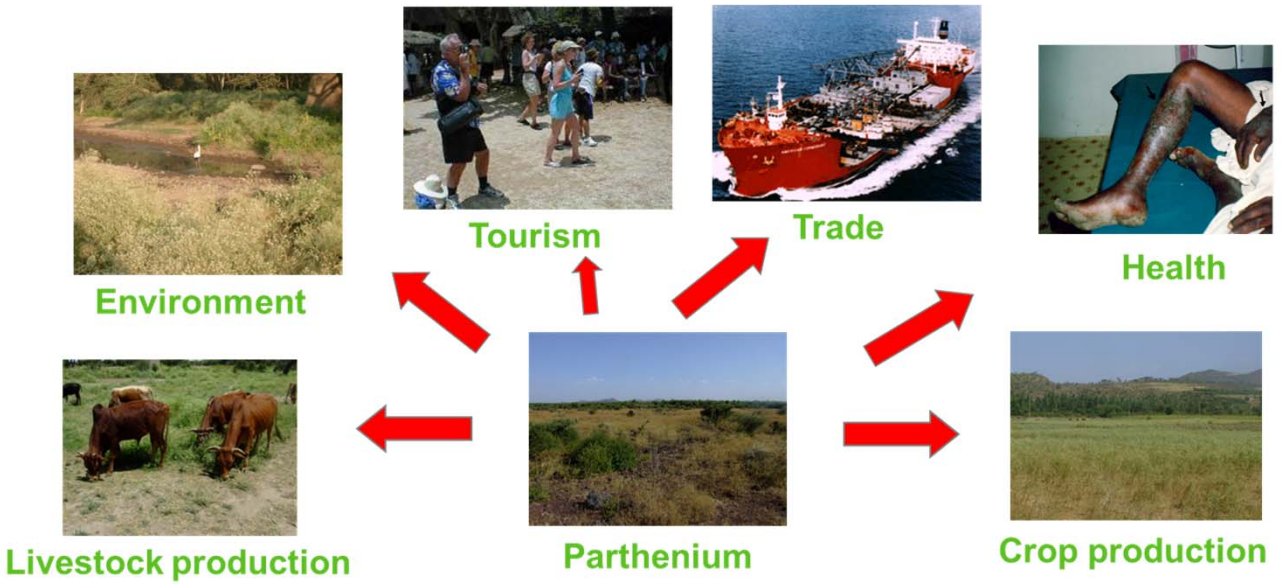
Every PA will be invaded, by some or other species, no matter how high the walls or fences or how isolated

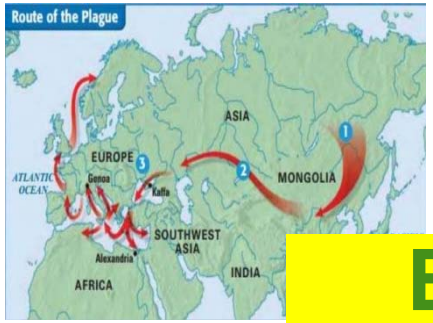
The threat of IAS will get worse over time …

We are rapidly heading towards the “homogynene” – the world will be dominated by a few hundred IAS …. Nature-based tourism will collapse.

Main barriers to IAS management:

- Lack of policies or implementation thereof;
- Little to no coordination to address a cross-cutting issue;
- Not enough money – sustainable funding is a challenge;
- Insufficient capacity;
- Lack of awareness.





Black death or bubonic plague in the 14th century

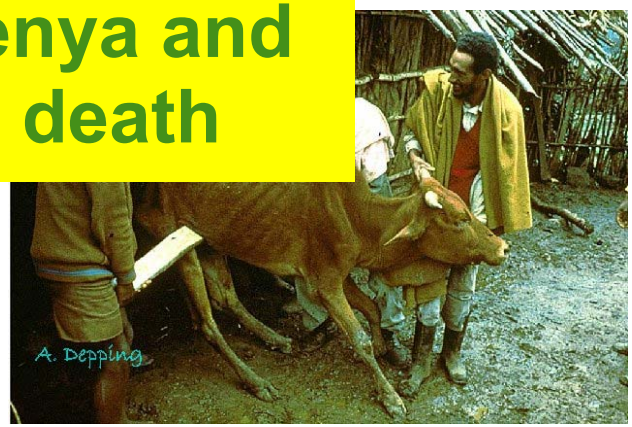
Killed 30-60% (75-200 million) of Europe's total population

http://www.slideshare.net/e007534/the-black-death-8867800

Rinderpest in Africa in the late 19th century

1/3 of human population of Ethiopia died

2/3 of the Masai in Kenya and Tanzania starved to death



fao.org; cvm.tamu.edu; awp.eduwikis.co.za)

Great Famine in Ireland

1845-1849 – potato blight – more than a million people died and a million fled the country

Wikimedia Commons


Since the year 1600 39% of animal extinctions arose mainly from the introduction of alien species, 36% from habitat destruction, and 23% from hunting or deliberate extermination.

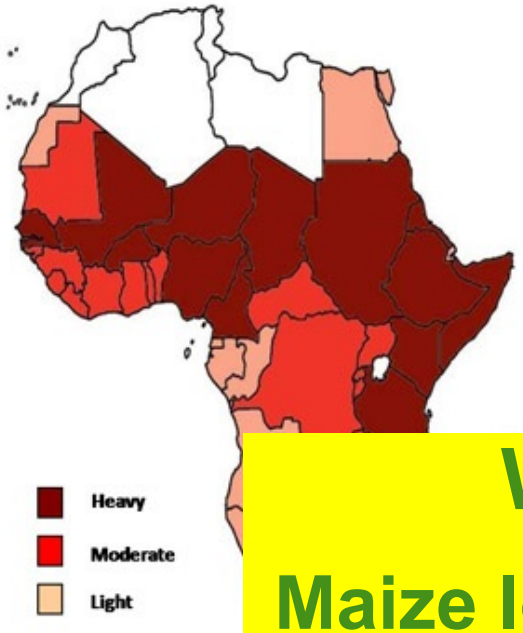


Fig 3. Extent of Striga

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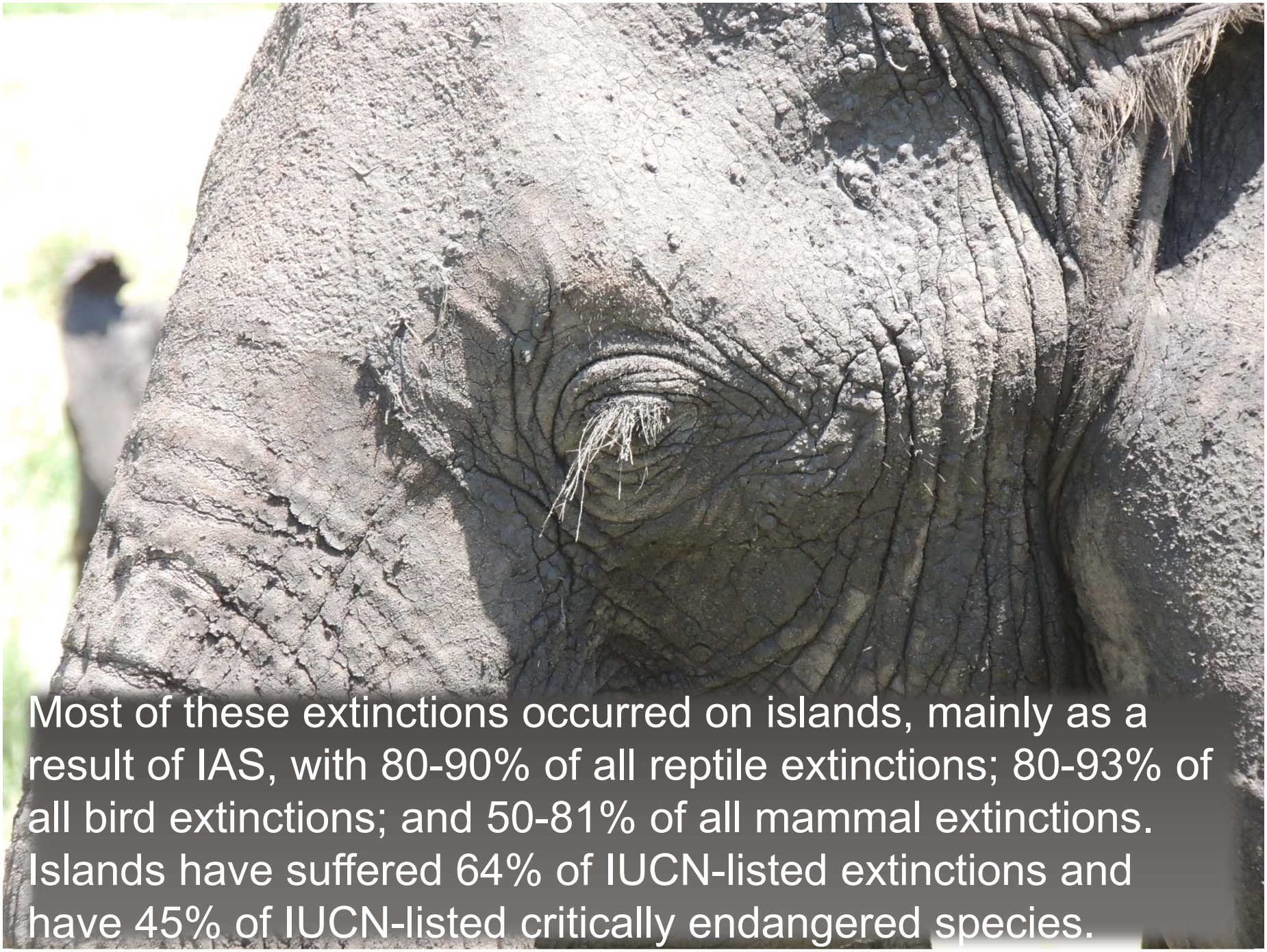
Witchweed in Africa

Maize losses of US$7 billion/annum

Impacts on lives of 300 million people


Most of these extinctions occurred on islands, mainly as a result of IAS, with 80-90% of all reptile extinctions; 80-93% of all bird extinctions; and 50-81% of all mammal extinctions. Islands have suffered 64% of IUCN-listed extinctions and have 45% of IUCN-listed critically endangered species.


In the past 500 years, IAS have contributed to the extinction of nearly half of global bird extinctions: 67% of globally threatened birds inhabiting oceanic islands are affected by IAS compared to 30% of globally threatened birds on continents. For example, over half of the endemic birds of the Hawaiian Islands are now extinct, due to habitat loss, introduced predators and diseases.

So why bother to manage IAS?

"Estimated costs of damage and control are at least $US 1.4 trillion per annum - recognised as being one of the greatest threats to the environmental and economic well-being of our planet"

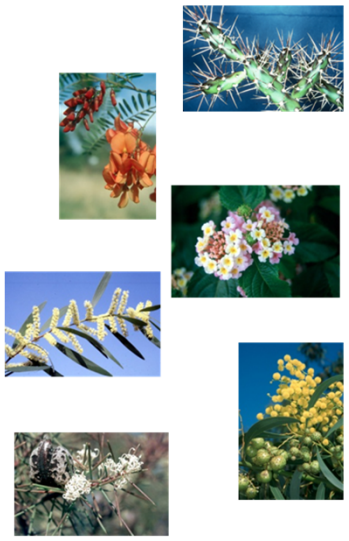
Cost impacts are significant – is it cost-effective to control them?

Brown and Daigneault (2014) found that an integrated approach to the control of the invasive tree *Spathodea campanulata* Beauv. (Bignoniaceae) in Fiji, derived monetized benefits of US$ 3.7 for each US$ 1 spent even without explicitly considering biodiversity, culture and other non-monetized benefits of control.

Costs of aquatic weed control in Florida in the late 1960s were estimated to be US$ 6 million annually and benefits were reported as US$ 82 million, with the largest benefits coming from increased land use (due to drainage) and prevented flood damage (Lovell et al., 2006).

Under a dynamic simulation of an ecological-economic model of alien plant control, in a mountain fynbos ecosystem in South Africa, it was found that the cost of proactive clearing would range from 0.6% to 4.76% of the economic value of ecosystem services, but increases the value of these services between 138% and 149%, depending on the assumptions of the model (Higgins et al., 1997).

De Lange and van Wilgen (2010) estimated the value of ecosystem services in South Africa at ZAR 152 billion (~US$ 20,8 billion at 2010 exchange rate here and below) annually of which an estimated ZAR 6.5 billion (~US$ 890,175,000) was lost every year due to invasive alien plants. However, the loss would have been an estimated additional ZAR 41.7 billion (~US$ 5,7 billion) had no invasive plant control been carried out. Between 5% and 75% of this protection was due to biological control.



Species	Benefit :cost ratio
Jointed cactus	1 154 : 1
Red sesbania	45 : 1
Lantana	34 : 1
Long-leaved wattle	1 465 : 1
Golden wattle	4 333 : 1
Silky hakea	611 : 1

So benefits of management outweigh costs!!!

However, despite benefits few countries actively manage IAS for various reasons – lack of data, capacity, resources, will, etc.

The most successful countries are those that receive generous government allocations.

Most LMIC are dependent on intermittent donor funds which is not ideal - you need long-term sustained funding for IAS management.

COVID set back IAS management interventions by years in countries that were making allocations

It is critical to recognize that the absence or reduction of IAS management funds, even for a few months/years, can set a country back by decades and lead to millions of USD being wasted – reinvasion of a rat-free island; no follow-up of a previously cleared landscape to remove seedlings germinating from a long-lived seed bank, etc.

My argument is always – if you don't have the money in the bank for long-term management, don't even start.

So, we need to look at long-term funding, and for LMIC Trust Funds, and the like, are the way forward. We also need to look at cost-recovery – how can we generate funds from other sources like PES, tariffs, levies, taxes, etc.

In terms of management we need to invest in the most cost-effective interventions like prevention and biocontrol.

We need to develop, embrace and support the development and implementation of National Invasive Species Strategies and Action Plans which should focus on prevention, EDRR, control, awareness creation, capacity building and resource generation. Without funds no activities in a NISSAP can ever be implemented.

Trust Funds can contribute, but other funding streams need to be developed and implemented.

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