

Pest control

Summary of natural capital assets and drivers of change

A three-tier (red/amber/green) assessment of: (1) the importance of natural capital assets to ecosystem service provision; and (2) the influence of drivers of change on these natural capital assets.

		Natural capital assets		
Importance of natural capital asset to ecosystem service		Habitats	Species	
Drivers of change	Anthropogenic	Habitat modification		Influence of drivers on natural capital assets
	Biological resource use	Intensive agriculture and aquaculture		
		Overhunting		
	Biological interactions	Population changes		

Description of ecosystem service

Pest control and invasive alien species management is provided through direct introduction and maintenance of populations of the predators of the pest or the invasive species, landscaping areas to encourage habitats for pest reduction, and the manufacture of a family of natural biocides based on natural toxins to pests.

Ecosystem service: classification according to CICES

Section	Division	Group	Class
Regulation and maintenance	Maintenance of physical, chemical and biological conditions	Pest and disease control	Pest control

Natural capital assets providing the service: identification and hierarchical classification of the key natural capital assets that provide or enable the ecosystem service (Leach *et al.* in review)

Level 1	Level 2	Level 3	Level 4
Biotic	Biodiversity	Habitats	Coastal Inland surface waters Grasslands Heathland and scrub Woodland and forests Unvegetated or sparsely vegetated Agriculture and croplands Habitat complexes
		Genetic resources, and plant, animal, fungal and algal species	Wild Domestic, commercial

Narrative description of the natural capital asset- ecosystem service system: generic description of the way in which natural capital assets provide the ecosystem service.

Pest control is delivered through habitats and species.

- **Habitats** - Changes in habitats can create empty niches that allow invasions to occur.
- **Species** - Species can provide pest control services but also be pests themselves. Any change in species composition can therefore impact the ability to provide pest control.

Drivers of change in the asset-service system

Driver of change	Asset affected	Likely response of asset	Effect on variability of service provision	Human action or natural variation	Timescale	Spatial characteristics	Reference
Habitat modification	Habitats, species	Increase in non-native species.	Changes in habitat characteristics facilitate non-native species which can outcompete native species creating more opportunities for pests.	Human action	Long term	Global	Masters & Norgrove 2010.
Intensive agriculture and aquaculture, Overhunting	Species	Eradication of predator populations by use of insecticides, different crop rotation practices or removal by other means e.g. hunting.	Explosion of pest (prey) populations due to predator absence.	Human action	Short term	Global	Brust et al. 1985.
Population changes	Species	Control of predator populations.	Food availability through a finite source of prey limits nutritional resources for predators, and declines in prey will constrain predator population size.	Natural variation	Short-mid term	Global	Hairston et al. 1960.

Information and data

Data needs: Identification of data needed to assess the current of historical state of the asset-service system.

Description of data need	Classification	Aspect of the system
Change in habitat quality	Habitats	Natural capital asset
Change in species abundance or occurrence	Species	Natural capital asses
Change in land use and land cover	Habitat modification	Driver of change
Change in agricultural activity	Intensive agriculture and aquaculture	Driver of change
Change in hunted species	Overhunting	Driver of change
Change in species populations	Population changes	Driver of change

References

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