

### Biological Species

A group of **interbreeding natural** population that **do not** (usually) successfully **mate** or **reproduce** with **other such groups** (which occupy a specific niche)

### Asexual Species

**Fragmentation - Starfish** An arm is removed, and grows into a new Starfish. Where the arm that was removed, a new arm will regrow on the old body.

**Budding - Yeast** Buds come off of their organisms which, are genetically identical to them.

### When relatives mate

Two different, yet closely relating species mate	Horse + Donkey = Mules (mostly infertile)	Russet-backed Thrush + Oliv-backed Thrush (fertile offspring)
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### Cohesion Species

Small group of cohesive individuals that share intrinsic cohesive mechanisms.

**Genetic cohesive mechanisms** Gene flow and stabilising selection function to maintain species integrity

### Cohesion Species (cont)

**Ecological cohesive mechanisms** Abundance, demographic stability, strengths of interactions with other species

Potential for genetic and/or demographic exchangeability. Downplays hybridisation (i.e. what separates species)

### Ecological Species

Lineages that **occupy** and **adaptive zone** **different** in some way from that of any other lineage **within** its range, and which **evolves separately** from all other lineages **outside** its range

**Common ancestor** but now diverged **Ecological competition** within its **own species**

Adapting to individual niches

### Recognition Species

**Recognise each other** for the purpose of **mating and reproduction** Linked to **features** used to recognise mates

**White peacock** Females would not recognise him as the same species. They may not mate with him.

**The Western meadowlark and Eastern meadowlark** Look very similar but have a different song. They do not breed as their distinct song prevents them from recognising each other.

### The sixth mass extinction

Earth appears to be undergoing a **6<sup>th</sup> mass extinction** Extinction is occurring **faster** than **"background extinction"** (which occurs between the mass extinction events)

1 species extinct per 1 million species **each year** Rate of between 10-10,000 times faster than background extinction

### Recent data

**Lower estimate** 200-2000 species a year

**Upper estimate** 10,000-100,000 species a year

### Extinction comes after

Decrease in population **size** Decrease in population **distribution**

### Hard to know..

We don't know how many species exist

Impossible to estimate >Take **samples** and extrapolate up >Look at **patterns** in identification rates >Look at **ratio** - such as 1:6 vascular plants to fungi

**Bias towards species** >Charismatic >Larger >Common species

**Least known or described** >Fungi >Viruses >Bacteria

1.5 million catalogued so far 100k well known

Estimated to be 3-10 million species **globally**

### Anthropogenic causes

Anthropogenic hazards are **hazards** caused by **human action** or **inaction**. They are contrasted with natural hazards. Anthropogenic hazards may adversely affect humans, other organisms, biomes, and ecosystems.

**land development** is altering the landscape in any number of ways such as:  
Changing landforms from a natural or semi-natural state for a purpose such as agriculture or housing  
Subdividing real estate

**overexploitation** the action or fact of making excessive use of a resource.

**Species translocations and introductions** Translocation: The intentional capture and release of animals to the wild to establish, reestablish, or augment a population.

**pollution** the presence in or introduction into the environment of a substance which has harmful or poisonous effects.



By **Becky B** (Becky9)  
[cheatography.com/beckyb9/](https://cheatography.com/beckyb9/)

Published 17th January, 2022.  
Last updated 20th January, 2022.  
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