Prelim Bits 28-01-2017

Keystone species:

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- A keystone species is a plant or animal that plays a unique and crucial role in the way an ecosystem functions.
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- Without them, the ecosystem would be dramatically different or cease to exist altogether.
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- Its disappearance could affect other species that rely on it for survival.
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- Example for keystone species is **sea otter**. It feed on sea urchins and controls their population. If sea urchins population is not controlled, it would eat up the seaweed, which is a major source of food for the ecosystem
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- A keystone species is often, but not always, a predator. Herbivores can also be keystone species.
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- For example, In African savannas, **elephants** are a keystone species. It controls the tree population which makes the grasses thrive and sustain grazing.
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Foundation Species:

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- It refers to the species that creates or maintains an ecosystem.
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- It has a strong role in structuring a community and can occupy any trophic level in a food web.
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- **Corals** are one example of a foundation species. It produce the reef structures on which countless other organisms, including human beings, live.
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- Other examples of foundation species are hardwood forests, kelp beds, and seagrass meadows.
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Umbrella Species:

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- An umbrella species is a large animal or other organism on which many other species depend.
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- Umbrella species are very similar to keystone species, but umbrella species are usually migratory and need a large habitat.
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- Protecting umbrella species automatically protect a host of other species.
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- **Tigers** are an example of an umbrella species. Efforts to save wild tigers in forests also accomplish the goal of saving other species there, such as leopards, boars, hares, antelopes, and monkeys.
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Indicator Species:

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- An indicator species is a plant or animal that is very sensitive to environmental changes in its ecosystem.
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- Indicator Species gets affected almost immediately by damage from external influences such as water pollution, air pollution, or climate change to the ecosystem and **gives early warning**.
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- Examples of Indicator species\n
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  - **Lichens** are indicators of air pollution, especially sulfur dioxide.
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  - **Adult frogs and toads** are good indicator species since the skin of the adults is moist and permeable, allowing numerous pollutants entry into their bodies. Tadpoles live in water and indicate water quality issues.
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  - **Salmons** are an indicator species for wetland ecosystems.
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Ecosystem Engineers:

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- These are organisms that create, modify and maintain habitats.
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- Ecosystem engineering can alter the distribution and abundance of large numbers of plants and animals, and significantly modify biodiversity.
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- The best known examples of ecosystem engineers are humans (Homo sapiens).
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- Two types of Ecosystem Engineers
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1. **Allogenic engineers** - change the environment by transforming living or nonliving materials around them.
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> e.g **Beavers** create dams in the streams, which slows the movement of water. Behind the beaver dam, a pond of still water is formed. This pond is then colonized by animals and plants that typically live in lakes rather than streams.

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2. **Autogenic engineers** - change the environment via their own physical structures, i.e. their living and dead tissues create habitats for other organisms to live on or in.
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e.g. **Trees, corals, and giant kelps** are good examples of autogenic engineers.

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