Quadrant II – Transcript and Related Materials

Programme: Bachelor of Science (Third Year)

Subject: Zoology

Paper Code: ZOC 109

Paper Title: Environmental Biology and Toxicology

Unit: Unit 4: Conservation Biology

Module Name: Strategic Species Concept: Umbrella species and Flagship species

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Notes:-

Umbrella species:

Umbrella species are species selected for making conservation-related decisions, typically because protecting these species indirectly protects the many other species that make up the ecological community of its habitat.

They have the name "umbrella" because protecting these species indirectly protects the many other species in their habitat. The umbrella species can be used to help select the location of potential reserves that can help balance the ecosystem. They also help determine the size, composition, structure and ecosystems of these conservation areas. These species generally need large territories for their populations to be viable. They tend to live for many years and be an important addition to their natural habitat.

Importance of Umbrella species

The umbrella species are of great importance when deciding and selecting

potential conservation areas, such as the creation of national parks, reserves or other protected wildlife areas. It serve as a natural tool to assess the health status of an ecosystem, its composition, and thus know how to preserve it. This is why umbrella species are so important in conservation projects. Identifying these species is important in creating an efficient conservation area to protect certain ecosystems

Examples:

Bengal Tiger (*Panthera tigris tigris*)

In India, the Bengal tiger is the most prominent umbrella species. Protecting tiger habitats is also protecting other large mammals that have similar habitat requirements like elephants, monkeys, leopards, wild boars and more. Most of the connections across the food web of the habitat are in some way benefitted by tiger conservation. This is the reason tigers have been labelled some of the sturdiest umbrella species in the world. Their biology ensures that they cover a large range, thus protecting a very large area, making them ideal candidate

Spotted Owl (*Strix occidentalis*)

Currently "near threatened" due to their habitat loss because of excessive timber harvesting. They depend on tall and old trees as they nest in tree holes. Conserving this species implies protecting their habitat: ancient forests, growing trees and other species that thrive in the same habitat

Flagship species

In conservation biology, a flagship species is a species chosen to raise support for biodiversity conservation in a given place or social context.

The species need to be popular, to work as symbols or icons, and to stimulate people to provide money or support. A flagship species is a species selected to act as an ambassador, icon or symbol for a defined habitat, issue, campaign or environmental cause. By focusing on, and achieving conservation of that species, the status of many other species which share its habitat or are vulnerable to the same threats may also be improved.

Flagship species are usually relatively large, and considered to be '*charismatic*' in western cultures. Flagship species may or may not be keystone species and may or may not be good indicators of biological process

The main objectives of flagship species are:

- The unique features of these animals help in attracting society's attention

- Raising awareness about the protection and conservation of these species

Benefits of Flagship Species

The flagship species such as pandas and elephants help in generating revenue through visits to institutions where they are kept. This revenue helps in the protection and sustainability of species. The flagship species attract the public due to its unique features. This way the plight of such creatures can be brought to the notice of the society and strategies can be implemented to improve their condition. This creates awareness regarding biodiversity conservation among individuals

Categories of Flagship species

Flagship species can be divided into three different categories:

- **International Flagship Species**:

These are the species that are recognized throughout the world.

Giant panda

WWF considers the giant panda as a 'flagship' species: that is, a charismatic representative of the biologically rich temperate forest it inhabits. By conserving the giant panda and its habitat, many other species will also be conserved - as will water resources that are essential for the future of hundreds of millions of people

Monkey puzzle tree – *Araucaria araucana*

The national tree of Chile and a flagship species for several National Parks in Southern Chile, the monkey puzzle is known worldwide. The species is in Endangered due to threats such as fire and logging facing its wild populations, but its iconic status has increased conservation actions to protect it from extinction. It is also popular in horticultural collections

- **Cultural Flagship Species**:

  These species represent a specific culture

  Bornean Ironwood – *Eusideroxylon zwageri*

  Native to Borneo, the ironwood is synonymous with the Dayak tribe and their culture. This species is seen as a protectress, a 'gift from the creator' to the people and is used by shamans for medicinal purposes and night rituals. However, Dayak elders are concerned that its increasing scarcity is putting traditional carving under threat as the wood is hard to find

- **Ecological Flagship Species**: These represent species with unique diversity

  E.g. **Malagasy Baobab** found in Madagascar

Baobabs are known as upside down trees and are instantly recognizable with their swollen trunks and crown of small branches. Six of the eight species of baobabs are found only in Madagascar and they symbolize the islands unique diversity. The flowers of the baobab are pollinated by local fruit bats and serve as an essential food source for the bats over winter. The Global Trees Campaign is supporting Madagasikara Voakajy to work with local communities to protect these important species