



GOVERNMENT OF ANDHRA PRADESH
COMMISSIONERATE OF COLLEGIATE EDUCATION



BIODIVERSITY & ITS IMPORTANCE

Life Skill Course: Environmental Education

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Biodiversity & Its Importance

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Learning Outcomes

After completion of this topic the students will be able to :

- Understand what is biodiversity and its value.
- Gain Knowledge on the importance of biodiversity.
- Explain how variety of plants and animals support each other in food chain and food web.
- Analyse the importance of complexity of biodiversity.
- Assess the necessity of sustainability of biodiversity and ecosystem services.



Biodiversity

Biodiversity-Definition

- The term biodiversity was coined by Walter G. Rosen in 1985.
- **Biodiversity** means the richness and variety of life (of genes, species and ecosystems).
- It is defined as “the variability among living organisms from all sources, including inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are the part. This includes diversity within the species, between species and of ecosystem”.

Biodiversity-Definition



Source: <https://rb.gy/9werhy>



Source: <https://rb.gy/fnztnc>

Biodiversity-Definition



<https://www.flickr.com/photos/the-open-university/8967827743>



https://commons.wikimedia.org/wiki/File:Plantae_Diversity.jpg

Biodiversity-Definition



https://commons.wikimedia.org/wiki/File:Bird_Diversity_2011.png



https://commons.wikimedia.org/wiki/File:Bird_Diversity_2013_Cropped.jpg

Biodiversity-Definition

- Biodiversity helps to maintain the health of the earth and its life forms.
- The greater the variety of species on earth the healthier the biosphere.
- The term '*biodiversity*' is a short form of '**biological diversity**' in which the word 'bio' means life and 'diversity' means variety.



Importance of Biodiversity

Importance of Biodiversity

- Biodiversity is extremely important for the wellbeing of our planet.
- It maintains the health of earth and its people.
- It provides us with food and medicine.
- It contributes to the economic development of our country.
- Biodiversity of an ecosystem contributes to the sustainability of that ecosystem.

Importance of Biodiversity

Sustainability is the ability of an ecosystem to maintain its structure and function over time.

Higher biodiversity = More sustainability

Lower biodiversity = Less sustainability

High biodiversity in an ecosystem means that there is an availability of great variety of genes and species in that ecosystem

Importance of Biodiversity

The Helix of Sustainability



Plants grow, making sugars, starches, oils, cellulose and other complex molecules from simple raw materials, mostly water, CO₂ and sunshine.

In addition to harvesting food, people extract fuel and base materials for industry and commerce.

Manufacturers make wares, measuring profitability in environmental and social terms as well as financial.

The end-user reuses and repairs, only recycling after as long a useful life as possible.

At the end of its life the article decays, reducing large complex molecules to simple raw materials by the action of bacteria and fungi - composting

Plants grow, making sugars, starches, oils, cellulose and other complex molecules from simple raw materials, mostly water, CO₂ and sunshine.

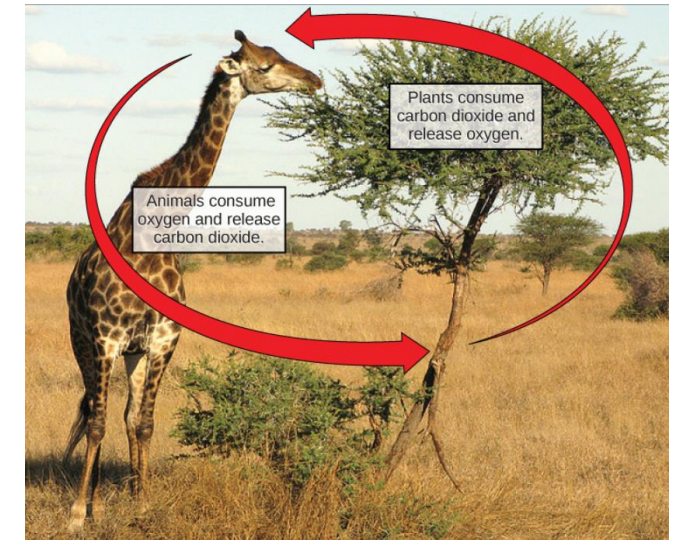
Importance of Biodiversity

Importance of Biodiversity can be classified as:

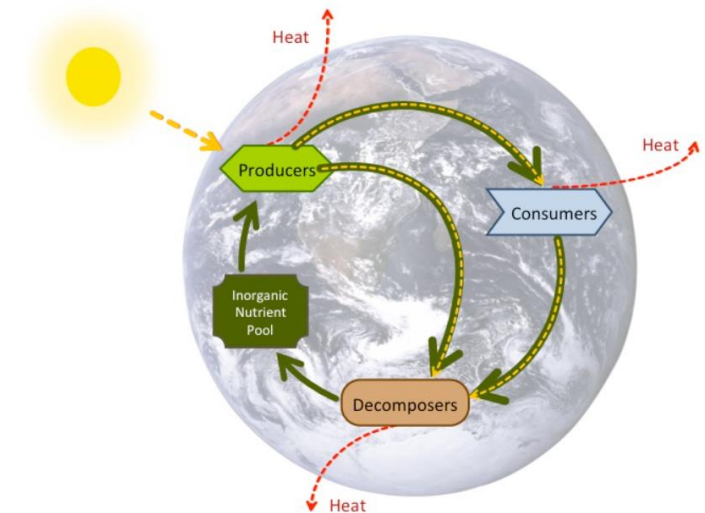
1. Ecological importance of biodiversity
2. Economic importance of biodiversity
3. Ethical importance of biodiversity
4. Scientific importance of biodiversity

Ecological Importance of Biodiversity

- Controls Soil Erosion
- Improves Soil Quality
- Formation of a Healthy Ecosystem
- Protection of species and natural resources in the ecosystem
- Pollution management
- Study and Research
- Nutrient Recycling
- Reduction of risk from natural disasters



Source: <https://rb.gy/1hguew>



Source: <https://rb.gy/tyubsl>

Economic Importance of Biodiversity

- Source of Food
- Source of Fuel
- Source of Medicine
- Promotes Economic Growth and Reduces Poverty
- Source of Eco-Tourism

Ethical & Scientific Importance of Biodiversity

Ethical Importance of Biodiversity:

- All living organism have an equal right to live and exist on earth.
- Ethics and morality teach us to preserve all forms of life and not to harm any organism unnecessarily.

Scientific Importance of Biodiversity:

It helps scientists to find evidences about the evolution of life in certain species.



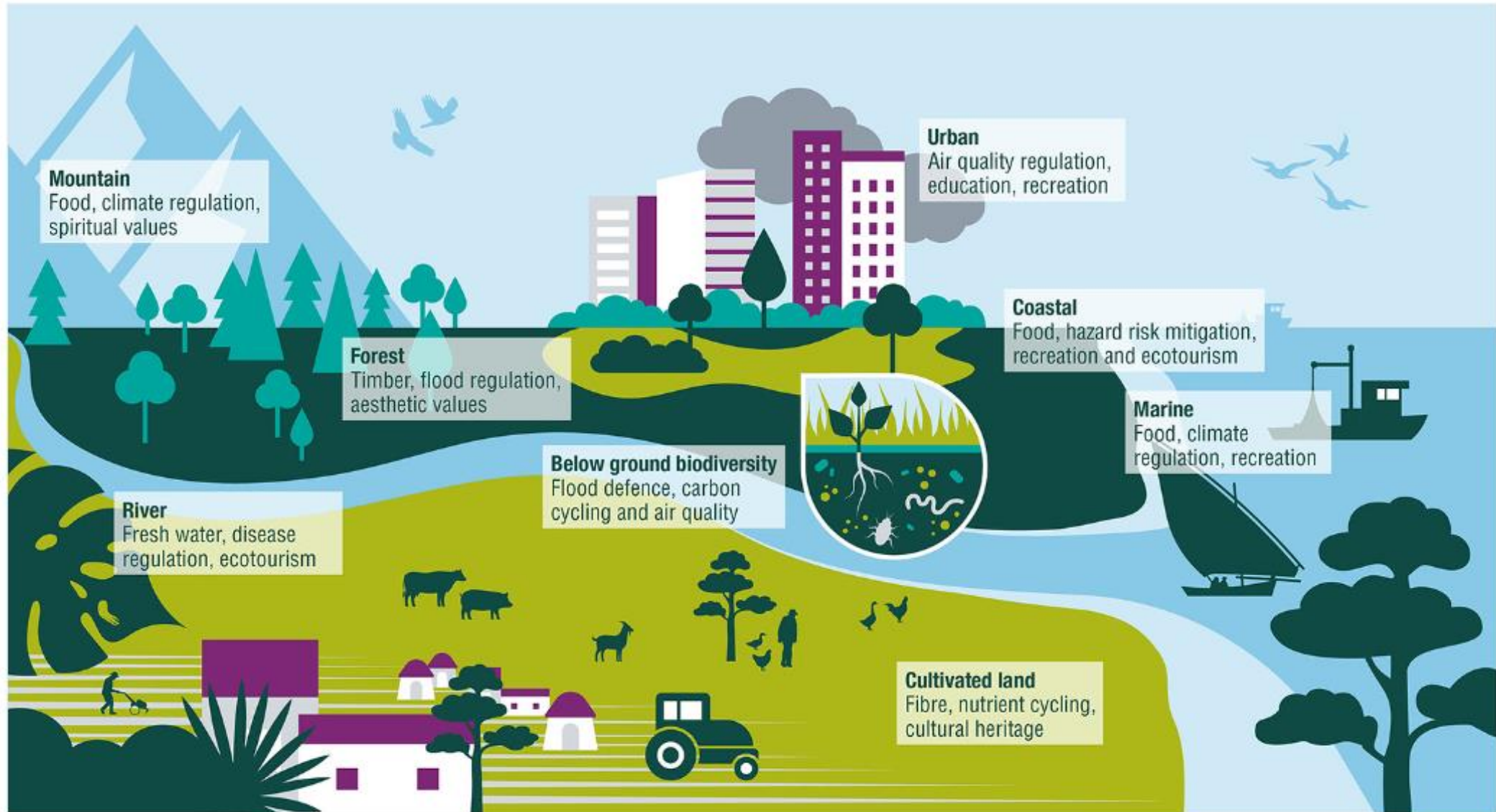
Values of Biodiversity

Values of Biodiversity

- ❑ Valuable natural resource for the survival of living organisms.
- ❑ Provides a variety of ecological services.



Values of Biodiversity



Values of Biodiversity

- The biodiversity can be categorised into different values based on its direct use and indirect use by the mankind. They include:
 1. Ecological Value
 2. Consumptive Use Value
 3. Productive Use Value
 4. Social Value
 5. Ethical and Moral Value
 6. Aesthetic Value
 7. Option Value

Ecological Value of Biodiversity

- Life support service value
- Each species plays a unique role.
- **Services Provided are.....**
 - ✓ supply of oxygen, maintenance of soil fertility, nutrient recycling
 - ✓ biogeochemical cycles, water cycle, stable climate, waste water treatment
 - ✓ prevention of soil erosion, pollutant absorption
 - ✓ reduction of the threat due to global warming and many more



https://commons.wikimedia.org/wiki/File:Rock_balancing_%28Counter_Balance%29.jpg

Consumptive Use Value

- It is a direct use value, where the products of biodiversity are harvested and consumed directly.
- E.g., food



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Consumptive Use Value

- It is a direct use value, where the products of biodiversity are harvested and consumed directly.
- E.g., Fuel



Free bunch of coal image, public domain material CC0 photo.




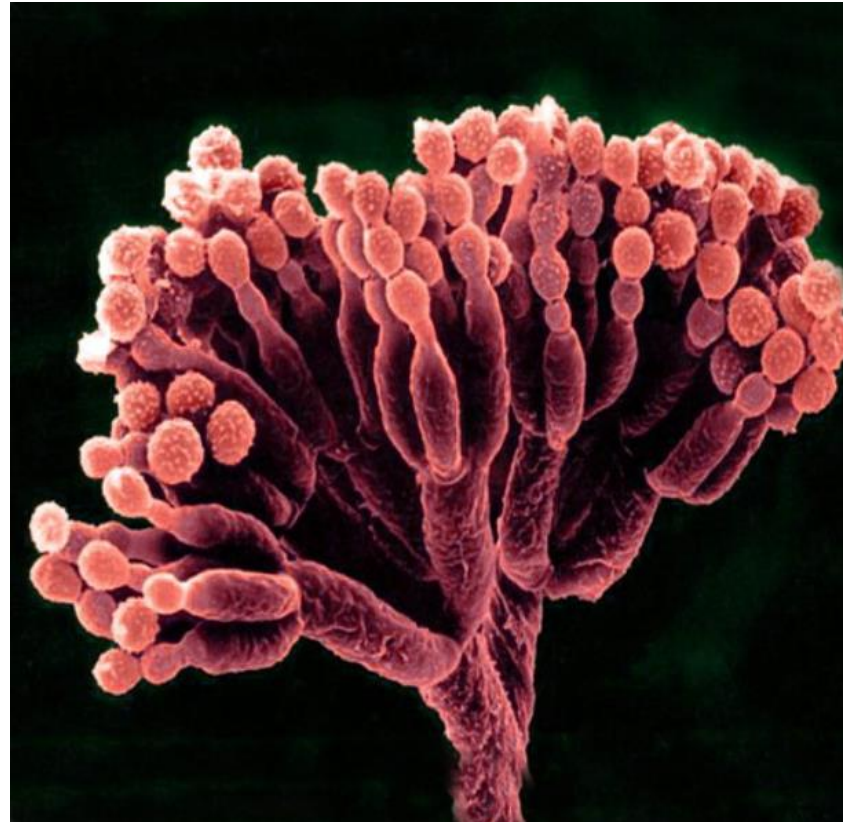
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Consumptive Use Value

- It is a direct use value, where the products of biodiversity are harvested and consumed directly.
- E.g., Medicine



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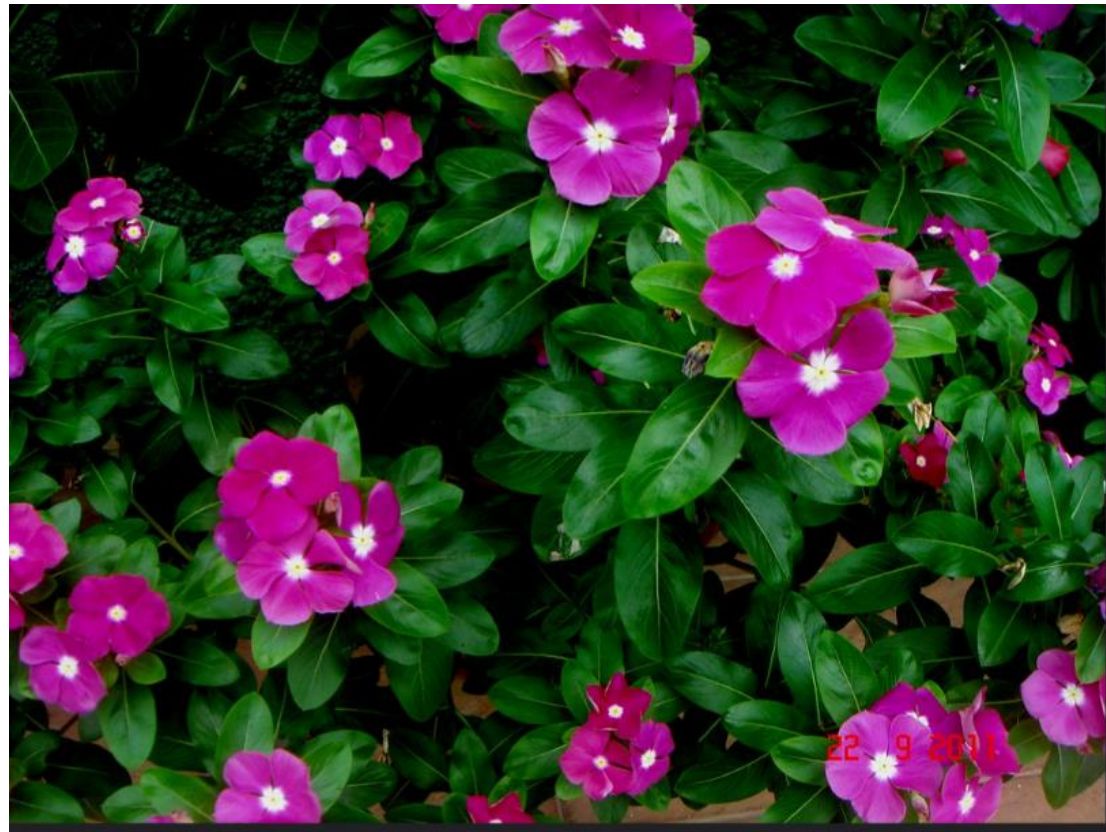
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Consumptive Use Value

- It is a direct use value, where the products of biodiversity are harvested and consumed directly.
- E.g., Medicine



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Productive Use Value

- This is also a direct use value assigned to the products of biodiversity that are harvested and marketed commercially.
- E.g.: Silk, Wool, Rubber etc.




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Productive Use Value

Many industries commercially depend on the products of biodiversity.

E.g., textile industry

paper and pulp industry

leather industry

plywood industry

pearl industry

Social Value of Biodiversity

- Related to the social life, religion and spiritual aspects of the people



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<https://rb.gy/wuhtqf>



<https://rb.gy/borrcw>

Social Value of Biodiversity

- Related to the social life, religion and spiritual aspects of the people



<https://rb.gy/xfm07m>



<https://rb.gy/irddlm>



<https://rb.gy/gjxfpw>

Ethical and Moral Value

- **“Live and let others live”** is the basic principle of ethical value of biodiversity.
- Every lifeform on this earth has the right to exist.



Aesthetic Value

- ❖ Biodiversity enhances the beauty of our planet.
- ❖ Without plants, animals and other life forms, earth would be like any other barren planets revolving in the universe



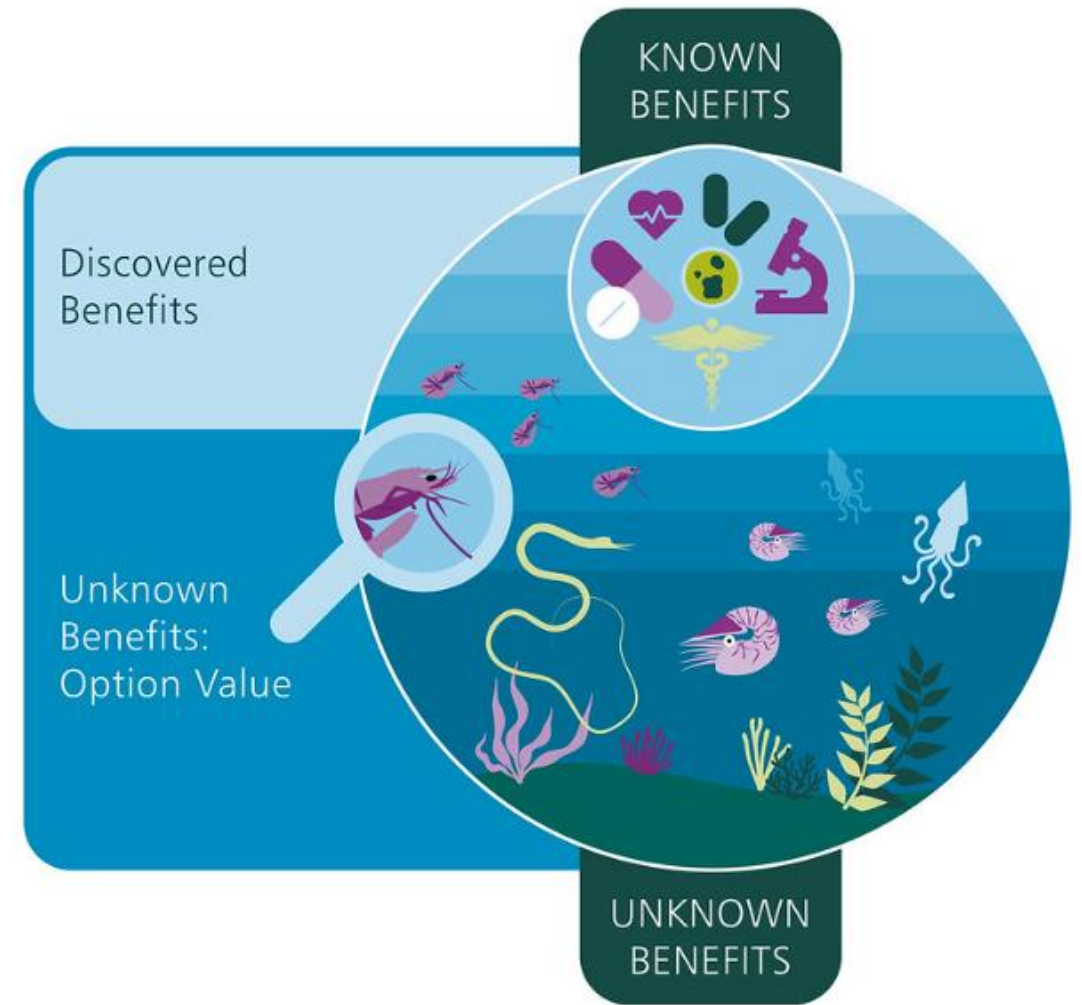
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Option Value

- Keeping future possibilities open for their use is called ‘option value’.
- The search for various species is already under process for finding answers to several environmental issues.
- Many problems like cancer, diabetes etc., AIDS, COVID-19 and others still to be addressed.



Values of Biodiversity

**Preservation of
biodiversity for
future generations
is our
responsibility**



References:

1. <https://www.ck12.org/book/ck-12-understanding-biodiversity/section/4.1/>
2. https://youtu.be/nUo_LL-2PoU
3. https://www.researchgate.net/publication/342638063_Biodiversity_Its_Different_Levels_and_Values
4. <https://www.mrgscience.com/ess-topic-34-conservation-of-biodiversity.html>
5. <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=119670>
6. https://www.google.co.in/books/edition/An_Advanced_Textbook_on_Biodiversity/2Vczdr9ysZYC?hl=en&gbpv=1&dq=biodiversity&printsec=frontcover
7. <https://www.worldwildlife.org/pages/what-is-biodiversity#:~:text=Biodiversity%20is%20all%20the%20different,maintain%20balance%20and%20support%20life.>
8. <https://education.nationalgeographic.org/resource/biodiversity>
9. <https://rb.gy/jcrvh4>
10. <https://rb.gy/qdmz1i>

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Biodiversity



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Acknowledgements



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to
APCCE