

**DTIL PROJECT REPORT ON**

**Protection of Endangered  
Species**

**Submitted By,**

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**(F.Y.BTech CSE)**

**Guide**

**Dr. Ajit Muzumdar**

**Prof. Pravin Chokakkar**



**In the academic year 2024-25**

**Department of Computer Science and Engineering,**

**Sanjivani University**

**Kopergaon - 423 601.**

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## **CERTIFICATE**

**This is to certify that**

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**(F.Y. BTech CSE)**

**Have successfully completed their DTIL project report  
on**

### **Protection of Endangered Species**

**Towards the partial fulfillment of Bachelor's Degree  
In Computer Science Engineering During the  
academic year 2024-25**

**Prof. Pravin Chokakkar**

**Dr. Ajit Muzumdar**

# Acknowledgement

We are deeply thankful to Dr. Ajit Muzumdar Sir and Prof. Pravin Chokakkar Sir for their constant support, guidance, and help throughout the Design Thinking and Idea Lab course.

Working on the project, Protection of Endangered Species, has been a very meaningful and enjoyable experience. This project would not have been possible without the helpful advice, ideas, and encouragement from our professors. They guided us in improving our thoughts and turning them into a useful solution.

We are very thankful to them for creating a learning space where we could think clearly, work creatively, and solve problems with care. Their teachings on design thinking helped us understand how to approach issues step by step and make things better.

Our heartfelt gratitude go to Dr. Ajit Muzumdar Sir and Prof. Pravin Chokakkar Sir for always supporting and inspiring us in this wonderful journey.

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# **Report**

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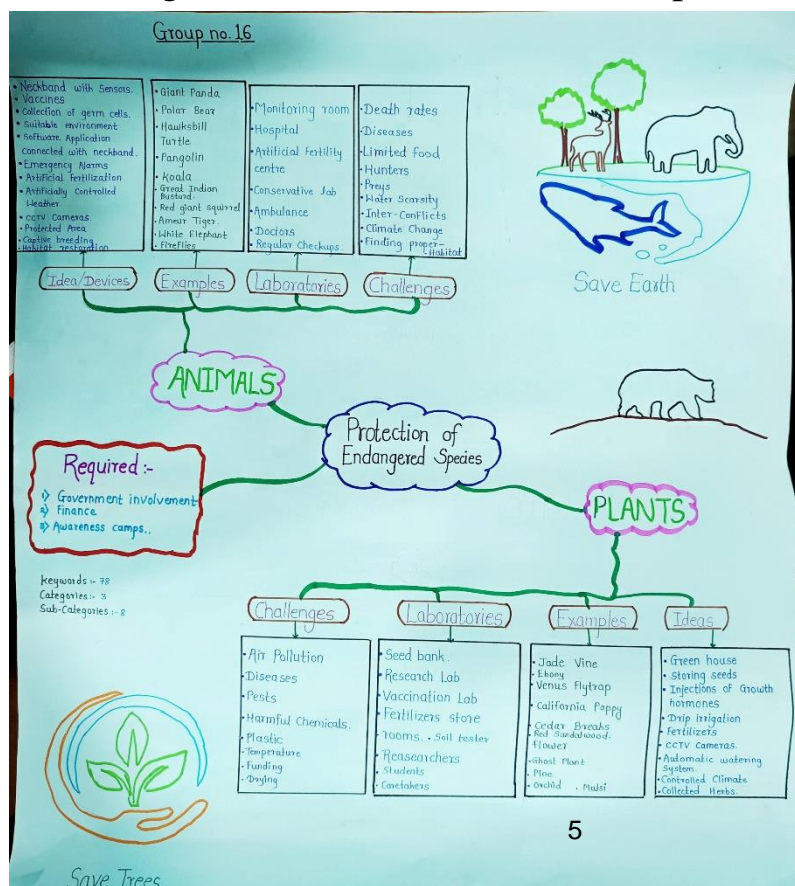
# Report

## 1. Topic Selection-

- The project was selected to focus on the urgent need to spread awareness about endangered species. The project will use digital tools to make information about endangered species easy for everyone to access and It will also explain why it's important to work together to save them.

## 2. Mindmap –

- Mind mapping is a simple tool that helps organize thoughts and ideas in a clear, easy-to-understand way. You start with one main idea in the center, then add related ideas around it.
- Everyone's ideas are gathered and grouped together. Since each person thinks differently, it helps come up with new and creative ideas.
- The Mindmap proposes a plan to protect endangered animals and plants. It suggests various ideas, devices, and laboratories for conservation efforts, highlighting the challenges faced and the need for government involvement and public awareness.



### 3. 5W1H Activity –

- Applying the 5W1H Method for Protection of Endangered Species. The 5W1H method (Who, What, When, Where, Why, and How) is a powerful tool for planning and problem-solving. We have applied it to the complex issue of endangered species protection to ensure a comprehensive and effective approach.

	Idea / Devices	Laboratories	Challenges	Examples & Requirements
What	What is the overall purpose of devices? What role do vaccines play? What kind of data would software collect and process? What is artificial fertilization? What are the functions of conservative lab? What is captive breeding?	What are the functions of artificial fertility centers? What are the essential components of a greenhouse? What is the role of monitoring room? What are the functions of conservative lab? What is the importance of Hospital?	What are some major challenges faced by endangered species? What role do diseases play in the survival of organisms? What are the effects of environmental degradation? What are some harmful chemicals? What is meant by death rate?	What are the examples of endangered animals? What are the requirements for this project? What are the examples of endangered plants? What is the current population status of endangered species? What adaptation does plants possess? Where are the species found in their natural habitats?
Where	Where should seeds be stored? Where should drip irrigation systems be installed? Where should emergency alarms be placed? Where is a suitable environment for species? Where should CCTV cameras be placed?	Where are the laboratories located? Where are the soil testing facilities? Where do researchers and students typically work? Where the fertilization will take place? Where the hospital specialized for animals?	Where are effective environmental solution being implemented? Where is air pollution highest? Where are disease outbreaks most common? Where is death rate lowest? Where will the project take place?	Where are the primary threats to these species located? Where are the remaining populations of animal species located? Where has the geographic range of plants declined over time?
When	When should software be upgraded? When is the proper time for fertilization? When is weather controlled be implemented? When are herbs typically harvested? When collection of germ cells will be done?	When are regular checkups scheduled? When are tests conducted in the lab? When are habitats will be made for species? When seed bank will get ready? When the fertilizer is given to plants?	When will we see significant progress in addressing these issues? When will funding increase for the project? When will the diseases decline? When will the vaccine be prepared? When will the challenges decrease?	When are these species first listed as endangered? When did these species start facing significant threats to their survival? When were conservation efforts initiated to protect these species?
Why	Why are growth hormones used? Why are suitable environments are created for captive breeding? Why are CCTV cameras used? Why are emergency alarms are used? Why are vaccines important?	Why the soil is tested? Why are ambulances essential for emergency medical services? Why the seeds are stored in seed bank? Why the greenhouse is important? Why the CCTV cameras are placed?	Why are disease rates rising? Why is the environment being damaged? Why the climate is changing? Why the plastic is developed? Why are trees and water decreasing?	Why is the virus flying facing threats in its natural habitat? Why is the Giant Panda's bamboo diet a concern for its survival? Why are the individuals working to conserve these animals?
Who	Who would collect germ cells? Who would develop a software? Who would benefit from using agricultural techniques? Who would manage seed bank? Who would manage the ambulances?	Who manages the seed bank? Who conducts the vaccination? Who works in hospitals? Who will built greenhouse? Who will monitor all the activities?	Who can help in habitat protection? Who is contributing in increasing plastic waste? Who is responsible for hunting? Who is creating harmful chemicals? Who can benefit from sustainable practices and a healthy planet?	Who are indigenous communities that rely on these animals for their livelihood? Who are the individuals working to conserve these animals? Who will fulfill the requirements? Who is responsible for protecting these endangered species?
How	How can species be managed and protected? How can greenhouse be constructed? How can track an animal? How to inject hormones? How drip irrigation system works?	How the soil is tested? How the germ cells are collected? How the fertilization activities can be performed in fertility center? How the students will help in research? How are animals treated in hospitals?	How can we prevent the spread of diseases? How can we limit the use of harmful chemicals? How can individuals / communities contribute to environmental conservation? How to reduce hunting? How to store water for future?	How are plant species being affected by climate change? How are human activities contributing to the decline of population? How are conservationists working to protect various species? How to protect endangered species?

### 4. Theory of Prioritization –

- This activity aims to prioritize different aspects from problems. We assigned points of 10g , 100g, and 1000g to each key feature, where higher the points the greater importance of priority.
- Theory of prioritization gives a clear understanding on a particular topic. In this first we identified all the problems related to our topic, Protection of Endangered Species using 5W1H matrix and give them points according to the depth of the problem.
- We got 14 problems and prioritized them.



## PRIORITY WEIGHTAGE

SR NO.	problems	points
1	GLOBAL WARMING	5100
2	LACK OF AWARENESS	6000
3	HUNTING	4200
4	HABITAT LOSS	4110
5	DISEASES	330
6	OVEREXPLOITATION	2400
7	DEFORESTATION	6000

## PRIORITY WEIGHTAGE

SR NO.	problems	points
8	SPECIES MIGRATION	600
9	INVASION	3300
10	ILLEGAL TRADE	1500
11	TRANSMISSION	2400
12	INDUSTRIALIZATION	600
13	TRANSMISSION	4110
14	DEGRADATION OF LAND	6000

## **5. Problem Statement –**

- A problem statement defines the issue a project aims to solve.
- Problem Statement of our project is –
- The ongoing loss of biodiversity is one of the most serious environmental challenges. A significant factor contributing to this crisis is the lack of public awareness about the importance of protecting endangered species.

## **6. SCAMPER Activity –**

- SCAMPER is a device and a creative thinking technique developed by Bob Eberle in the early 1970s. It's primarily used for idea generation, problem-solving, and innovation.
- SCAMPER is an acronym that stands for:
  - S – Substitute
  - C – Combine
  - A – Adapt
  - M – Modify
  - P – Put to Another Use
  - E – Eliminate
  - R - Rearrange
- **SCAMPER Tools we used – Modify and Adapt**
  - In the SCAMPER technique, “Modify” refers to changing certain characteristics of an existing product, system, or process to improve it or make it more suitable for a particular purpose.
  - Reforesting: Modify habitats (National parks etc.) through reforestation or planting native species to restore ecosystems, providing necessary resources like food, shelter, and breeding areas for endangered species.
  - “Adapt” in the SCAMPER tool helps you to adjust existing ideas, products, or solutions to better suit a new purpose or context.
  - Adapt is used to transform existing educational content from various website about endangered species into interactive, mobile-friendly formats, such as simplified articles and infographics making it engaging and easy for the public to understand and act on.



## 7. End Users and Persona –

- In this activity we have find our end user which will be helpful for our project in future. After finding the end users we have created persona on their basis of life and how will they be helpful in our project as a end user.

### • End Users of our project are –

- > Research Students
- > Eco-tourists
- > Local Communities

## 8. Persona –

- Persona construction is the process of creating a detailed summary of a person ,that represent the different type of users , audiences product or a service you're trying to provide.

**Persona**

**Student from biology Field**

**Background**

- A student who wants to be a scientist to save endangered species.
- Who lived in a big town.
- learned to love nature by going camping with family and learning about it in school.
- Wanted to save endangered species after watching movies about them.
- Wants to protect wildlife.

family background, education, childhood

**Motivation**

- Motivated by wildlife documentaries.
- Renewed passion through spending time in nature.
- Encouraged by family and friends support.
- Inspired by renowned conservationists.
- Motivated by academic success.

What motivates the individual

**Doubts / Fears**

- Worried about knowing enough skills for job.
- Limited job opportunities in conservation field.
- Not sure if ~~he~~ she can really help species.
- Scared of having trouble in finding information.
- Worried about endangered species.

What are the doubts / fears faced by the individual

**Challenges faced**

- Didn't have much experience or knowledge about how to do research.
- Balancing coursework and research projects.
- Didn't have enough money to go on research trips or meetings.
- Couldn't find a good teacher to help them.
- Struggles with applying theoretical knowledge to practical conservation challenges.

Challenges faced by the person in dealing with his stakeholders

**Aspirations**

- Contribute to significant conservation projects.
- know more about species in danger, where they live and how to protect them.
- Build a strong professional network.
- Expand knowledge about endangered species.
- Work as a conservation researcher.

What this individual aspires to be / vision

Construct a story while explaining the persona to your peers and document the insights....

Riya is a student who wants to save animals and plants. She grew up in a big city but loves nature by going camping with family. She's learning to be scientist protects endangered species. She wants to work with animals and plants in the real world but is worried about finding a job and having enough skills and knowledge.

Group 16 **Local Communities** **Persona**

**Background**

- Resides in a rural area near a protected area or wildlife sanctuary.
- Dependent on natural resources for livelihood (agari, fishing, etc.)
- Strong cultural and spiritual connection to the land and wildlife.
- Limited formal education but possesses traditional ecological knowledge
- Experiences frequent human-wildlife conflicts.

*Family background, education, childhood*

**Motivation**

- Desire to protect the environment for future generations.
- Maintain cultural and spiritual connection to the land.
- Reduce human-wildlife conflicts.

*What motivates the individual*

**Doubts / Fears**

- Uncertainty about the benefits of conservation efforts.
- Concern about job loss due to conservation initiative.
- Lack of trust in government and conservation organizations.

*What are the doubts / fears faced by the individual*

**Aspirations**

- Improved living conditions for the community.
- Sustainable livelihood opportunities.
- Peaceful coexistence with wildlife
- Access to quality education & healthcare.

*What this individual aspires to be / vision*

**Challenges faced**

- Loss of livelihood due to declining wildlife populations or habitat degradation.
- Damage to crops and property caused by wildlife.
- Lack of access to basic amenities and healthcare.
- Limited opportunities for income generation.

*Challenges faced by the person in dealing with his stakeholders*

Construct a story while explaining the persona to your peers and document the insights ....

Living near protected area its depend on natural resources for living. They face many problems like habitat loss, human-wildlife conflicts, limited access to resources. while busy in protect the environment, they are worried about job-loss. understanding these perspective is necessary. They desire to protect the environment for future.

Group 16 **Eco-Tourist** **Persona**

**Background**

- Urban Resident with a growing appreciation for nature.
- Enjoy travelling and exploring new cultures.
- Concerned about environmental issues and Climate Change
- Seeks environmental and want's to feel a connection to the nature.

*Family background, education, childhood*

**Motivation**

- Move out of daily routine and connect with nature.
- Learn about different-different cultures and it's eco-system across the world.
- Contribution towards the conservation efforts through tourism.

*What motivates the individual*

**Doubts / Fears**

- Fear about getting robbed while travelling across the world.
- Safety in remote area on visiting.
- Worried about the ethical significance of wildlife tourism
- Hesitation about spending money on eco-tourism.

*What are the doubts / fears faced by the individual*

**Aspirations**

- Experience of the vast and diverse ecosystem and wild-life
- Capture real images of endangered species.
- Learning new things through travelling.
- Contribute positively to local communities and conservation.

*What this individual aspires to be / vision*

**Challenges faced**

- Balancing the work life with the travelling.
- Concerns about the safety and comfort in unfamiliar places.
- Finding the perfect location for next travelling adventure.
- Uncertainty about the places of visit.
- Lack of funding for travelling.

*Challenges faced by the person in dealing with his stakeholders*

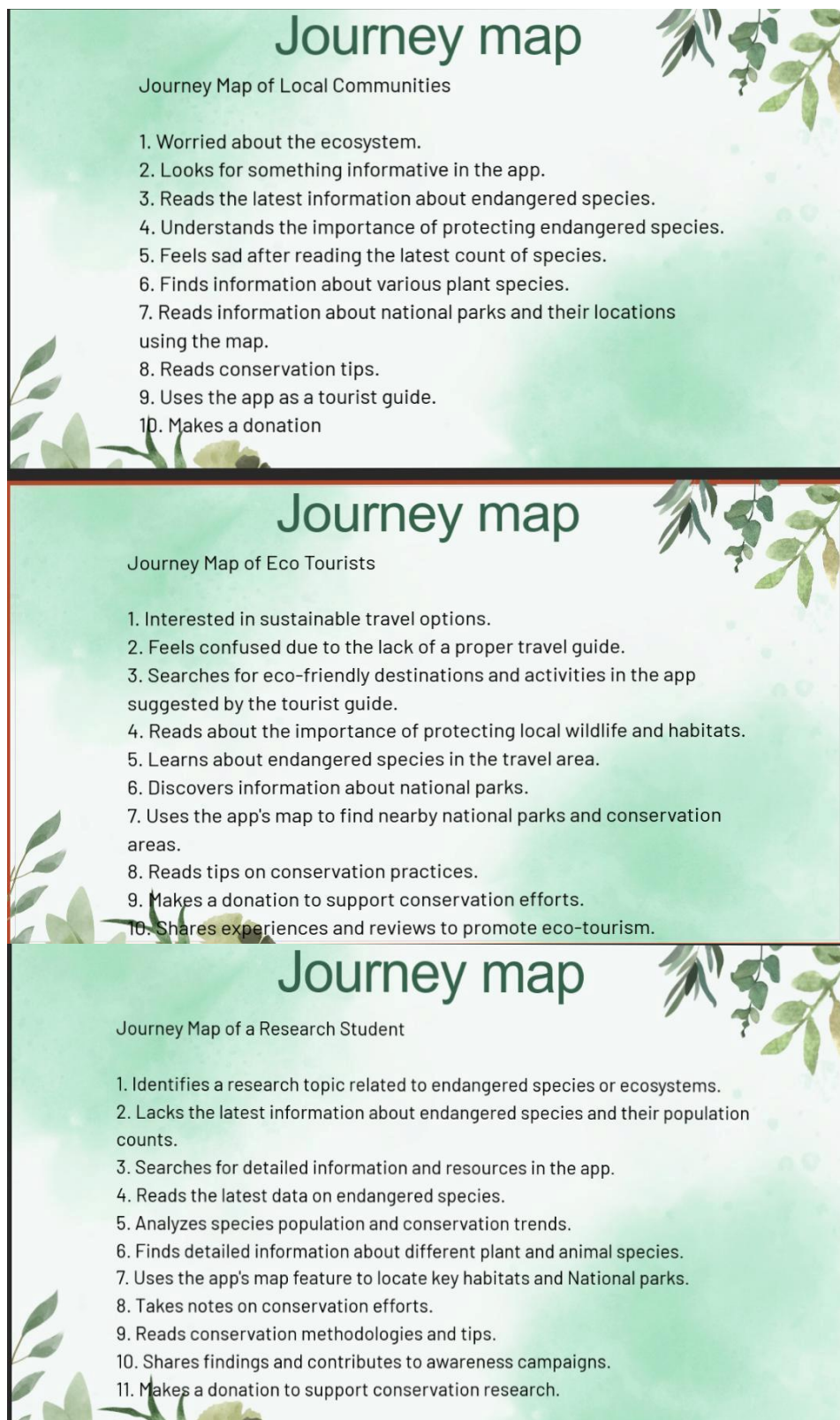
Construct a story while explaining the persona to your peers and document the insights ....

Aryan, an eco-tourist, who is quite close to nature and feels a connection with it. Aryan is concerned about environment and endangered animals, and want's to contribute for conservation of nature. He travels and tries to help the environment while learning about it, and sharing his knowledge with others. Understanding the importance of the nature, Aryan tries his best to protect environment as much as he can.



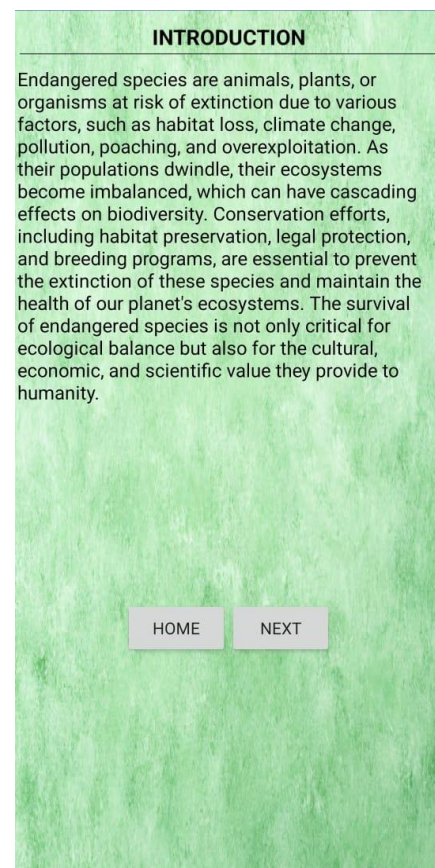
## 9. Journey map –

- A journey map tracks the events and emotions of end users before and during their interaction with an app or project. It shows their experience step by step, highlighting their feelings, challenges, and needs. This helps identify pain points and opportunities to improve the user experience for better engagement.





## 10. Prototype





### Importance of protecting endangered species

Endangered species are plants, animals, and other organisms that are at risk of extinction. The protection of these species involves a range of conservation efforts, including habitat preservation, breeding programs, legal protections, and awareness campaigns.

#### Why Protecting Endangered Species is Important

1. Biodiversity: Each species plays a specific role in an ecosystem, and losing even one species can disrupt the balance, affecting food chains, pollination, and natural processes.

2. Ecological balance: Endangered species help maintain the overall health and function of ecosystems. Their loss can lead to further declines in other species.

3. Human benefit: Many species provide direct benefits to humans, from food to medicine. Plants and animals offer resources like timber, and some species contribute to breakthroughs in pharmaceutical research.

BACK

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### The red giant squirrel



The Indian Giant Squirrel (*Ratufa indica*), also known locally as Shekhru, is a large and visually striking squirrel species found in the forests of India, including Maharashtra. This species is notable for its size, vibrant coloration, and role in the ecosystem.

The Indian Giant Squirrel is herbivorous and feeds on fruits, nuts, seeds, flowers, and tree bark. It may also eat insects and bird eggs occasionally. This species is endemic to India, with main sections of its distribution in the Western Ghats, Eastern Ghats and Satpura Range as far north as Madhya Pradesh.

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### Malabar Mahogany



Mahogany is a straight-grained, reddish-brown timber of three tropical hardwood species of the genus *Swietenia*, indigenous to the Americas[1] and part of the pantropical chinaberry family, *Meliaceae*. Mahogany is used commercially for a wide variety of goods, due to its coloring and durable nature. It is naturally found within the Americas, but has also been imported to plantations across Asia and Oceania. The mahogany trade may have begun as early as the 16th century and flourished in the 17th and 18th centuries. In certain countries, mahogany is considered an invasive species.

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### The Indian pangolin



The Indian pangolin (*Manis crassicaudata*), also called thick-tailed pangolin and scaly anteater, is a pangolin native to the Indian subcontinent. Like other pangolins, it has large, overlapping scales on its body which act as armour. The colour of its scales varies depending on the colour of the earth in its surroundings. It can also curl itself into a ball as self-defence against predators such as the tiger. It is an insectivore feeding on ants and termites, digging them out of mounds and logs using its long claws, which are as long as its forelimbs. It is nocturnal and rests in deep burrows during the day.


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forest rye



Palaquium species are mostly found in the Philippines and Borneo. In Borneo, many species are recorded in the Malaysian states of Sabah and Sarawak.


The leaves are typically spirally arranged and often clustered near twig ends. Flowers are mostly bisexual, though some unisexual instances are known. Fruits are one- or two-seeded with rare instances of several seeds. Palaquium habitats are coastal, lowland mixed dipterocarp, swamp, and montane forests. Some species, for example Palaquium gutta, are well known for producing gutta-percha latex

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Chandoli national park



It is a national park located in the Sangli district of Maharashtra. The park is home to a diverse range of wildlife, including tigers, leopards, sloth bears, gaur, wild boar, and pangolin. It is also home to a variety of birds, including eagles, vultures, owls, and woodpeckers



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Participating in Eco-Friendly Practices: Adopting eco-friendly habits like reducing plastic use, recycling, and minimizing pollution helps protect the natural environments that endangered species rely on.

Supporting Conservation Organizations: By donating to or working with organizations that focus on wildlife protection, citizens can help fund and promote conservation projects.

Reporting Illegal Activities: Citizens who notice poaching, illegal logging, or habitat destruction within a park should report it to authorities, as this directly impacts endangered animals.

Avoid Single-Use Plastics: Recommend using alternatives to single-use plastics, which can harm wildlife through ingestion or entanglement.

Support Sustainable Products: Encourage users to buy products certified as sustainable, such as FSC-certified wood or MSC-certified seafood, to avoid contributing to habitat loss and overfishing.

Make a Donation:

DONATE

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For more Information

for more information about endangered animal species refer: [https://en.wikipedia.org/wiki/List\\_of\\_endangered\\_animals\\_in\\_India](https://en.wikipedia.org/wiki/List_of_endangered_animals_in_India) <https://www.worldwildlife.org/species> <https://awionline.org/content/list-endangered-species>

For more information about endangered plants species refer: [https://en.m.wikipedia.org/wiki/List\\_of\\_endemic\\_and\\_threatened\\_plants\\_of\\_India](https://en.m.wikipedia.org/wiki/List_of_endemic_and_threatened_plants_of_India)

HOME

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## **11. Working and Usability of Model –**

- Our app is made to help people understand why it's important to protect endangered species. It is simple and easy to use, with clear sections that explain everything in an easy way. The “Introduction” section explains what endangered species are and why they are in danger of disappearing forever.
- The “Importance of Protection” part talks about why saving these species is important for keeping our planet healthy and balanced. In the “Animal Species” section, we show a list of animals that are at risk, so people can see which ones need help the most. The “Plant Species” section does the same for plants that are also in danger of disappearing.
- We also have a “Preservation Tips” section where we share simple things everyone can do to help. These are small actions like not littering, supporting wildlife organizations, or spreading awareness about the issue. This way, people can easily take part in saving the environment. A special feature of the app is the “Donate” option. This lets users give money to groups that work to protect endangered species and their homes. The donation helps support efforts to keep these animals and plants safe.
- The app's goal is to raise awareness and encourage people to take small steps to protect nature. It gives people the tools and knowledge they need to make a difference in saving endangered species and their habitats, all while being easy to understand and use.

## **Conclusion**

Our app is designed to help people understand the importance of protecting endangered species. It's easy to use and provides valuable information about why saving these animals and plants matters. The app includes a list of species that are at risk and simple tips anyone can follow to make a difference. By taking small actions, like using less plastic or planting trees, we can create a safer world for endangered species.

The app also offers a way to donate to organizations working hard to save these species and their habitats. Every small contribution can help make a big impact. Our goal is to inspire more people to care and take action, no matter how small it may seem.

By working together, we can ensure a future where these species thrive and the planet becomes a healthier, happier place for everyone. Protecting endangered species isn't just about saving them - it's about saving ourselves, too. Let's make a difference together.

This course and project have been a truly enlightening journey. With the invaluable guidance and support of Dr. Ajit Muzumdar Sir and Prof. Pravin Chokakkar Sir we learned to think creatively, design with empathy, and focus on real-world solutions. Their encouragement and expertise inspired us to turn ideas into meaningful action, shaping both our app and our approach to problem-solving.