# PROJECT

# SUMMARISING AND ANALYSING RESEARCH PAPERS

**LEARNER NAME:** **RITTIKA SAMANTA**

**LEARNER EMAIL:** [rittikasamanta03@gmail.com](mailto:rittikasamanta03@gmail.com)

**TOPIC:** **ENVIRONMENTAL SCIENCES-Summarizing and Analyzing Research on the Impact Of Climate Change On Biodiversity**

**RESEARCH PAPER:** Pecl, GT, Miguel B. Araújo, Johann D. Bell, Julia L. Blanchard, Timothy C. Bonebrake, I‐Ching Chen, Timothy D. Clark, et al. 2017. “Biodiversity Redistribution under Climate Change: Impacts on Ecosystems and Human Well-Being,” March.

**AVAILABLE AT :- Click on the links below**

[**RESEARCH PAPER CITATION**](https://oa.mg/work/10.1126/science.aai9214#:~:text=Pecl%2C%20GT%2C%20Miguel%20B.%20Ara%C3%BAjo%2C%20Johann%20D.%20Bell%2C%20Julia%20L.%20Blanchard%2C%20Timothy%20C.%20Bonebrake%2C%20I%E2%80%90Ching%20Chen%2C%20Timothy%20D.%20Clark%2C%20et%20al.%202017.%20%E2%80%9CBiodiversity%20Redistribution%20under%20Climate%20Change%3A%20Impacts%20on%20Ecosystems%20and%20Human%20Well%2DBeing%2C%E2%80%9D%20March.%20https%3A//doi.org/10.1126/science.aai9214)

[**FULL RESEARCH PAPER VIEW**](https://doi.org/10.1126/science.aai9214)

### INITIAL PROMPT

**Description:** From [https://doi.org/10.1126/science.aai9214], Summarize within 100 words the paper "Biodiversity redistribution under climate change: Impacts on ecosystems and human well-being"

**Generated Summary:**

The paper "Biodiversity Redistribution under Climate Change: Impacts on Ecosystems and Human Well-being" explores how climate change drives shift in species distributions and the consequent effects on ecosystems and human societies. It finds that as temperatures rise, species migrate toward cooler areas, leading to altered community compositions and potential disruptions in ecosystem functions. These changes impact ecosystem services crucial for human well-being, such as water purification and crop pollination. The study underscores the need for adaptive management strategies to mitigate the effects of biodiversity loss and ensure the continued provision of vital ecosystem services.

### ITERATION 1

**Description:** Generate a summary within 100 words from [https://doi.org/10.1126/science.aai9214] giving special preference to the impact of climate change on biodiversity

**Generated Summary:**

The study "Climate Change and Biodiversity: Implications for the Future" discusses the significant impacts of climate change on global biodiversity. It highlights how rising temperatures, shifting precipitation patterns, and increasing frequency of extreme weather events disrupt ecosystems and species distributions. The study emphasizes that these changes can lead to habitat loss, altered species interactions, and increased extinction risks. The authors stress the urgency of implementing conservation strategies and adaptive management practices to mitigate these effects and preserve biodiversity. The research underscores that climate change poses a profound threat to ecosystems and the services they provide, requiring immediate and coordinated action.

### ITERATION 2

**Description:** Giving special emphasis on the Impact of Climate Change on Biodiversity from [https://doi.org/10.1126/science.aai9214] list down in points the major changes in biodiversity on overall species within 100 words

**Generated Summary:**

From the study "Climate Change and Biodiversity" (DOI: 10.1126/science.aai9214), the major changes in biodiversity due to climate change include:

1. Shifts in Species Ranges: Many species are moving towards higher latitudes or elevations in response to rising temperatures, disrupting existing ecosystems.

2. Increased Extinction Risks: Elevated temperatures and habitat changes increase the risk of extinction for many species, particularly those with limited ranges or specialized habitat requirements.

3. Altered Species Interactions: Changes in the timing and location of species interactions (e.g., predator-prey relationships) can destabilize ecosystems.

4. Disruption of Ecosystem Services: The alteration of species and ecosystems impacts essential services such as pollination, water purification, and soil fertility.

5. Invasive Species: Warmer temperatures and altered conditions can facilitate the spread of invasive species, which can outcompete native species and disrupt local biodiversity.

### FINAL PROMPT

**Description:** Summarize in points within 100 words the consequences impacting biodiversity due to climate change and the future possibilities of surviving biodiversity on earth from [https://doi.org/10.1126/science.aai9214]

**Generated Summary:**

Consequences impacting biodiversity due to climate change include:

1. Range Shifts: Species moving to higher latitudes or elevations, disrupting existing ecosystems.

2. Phenological Changes: Altered timing of biological events leading to mismatches in species interactions.

3. Increased Extinctions: Higher extinction risks for species with limited ranges or specialized needs.

4. Altered Interactions: Disruptions in predator-prey relationships and other interactions.

5. Habitat Loss: Degradation and loss of critical habitats.

For future biodiversity survival:

1. Conservation Efforts: Urgent need for adaptive management and protected areas.

2. Mitigation Strategies: Addressing climate change through global action to stabilize conditions.

3. Restoration Projects: Rehabilitating degraded habitats to support resilient ecosystems.

### INSIGHTS AND APPLICATIONS

**KEY INSIGHTS:**

The research paper "Climate Change and Biodiversity" highlights several critical impacts of climate change on global biodiversity. Key insights include:

1. Species Range Shifts: Many species are moving towards higher latitudes or elevations in response to warming temperatures, which disrupts existing ecosystems and can lead to novel species interactions.

2. Phenological Changes: Climate change is altering the timing of biological events, such as migration and breeding, leading to mismatches between species and their environments or resources.

3. Increased Extinction Risks: Species with narrow habitat ranges or specific ecological requirements face heightened risks of extinction due to habitat loss and environmental changes.

4. Ecosystem Disruptions: Changes in species interactions and ecosystem dynamics are destabilizing ecological processes and services.

5. Habitat Loss and Degradation: Climate-induced changes contribute to significant habitat loss, further threatening biodiversity.

The paper underscores the need for urgent and coordinated conservation strategies to address these challenges and protect biodiversity.

**POTENTIAL APPLICATIONS:**

The findings from "Climate Change and Biodiversity" suggest several key applications and implications:

1. Adaptive Conservation Strategies: Develop dynamic conservation plans that accommodate shifting species ranges and changing ecological interactions to protect diverse habitats.

2. Habitat Management: Prioritize the protection and restoration of critical habitats to support species migration and resilience.

3. Ecosystem Restoration: Focus on rehabilitating degraded ecosystems to enhance their ability to adapt and support biodiversity.

4. Enhanced Monitoring: Implement comprehensive monitoring programs to track species movements, phenological changes, and ecosystem impacts, informing adaptive management.

5. Climate Policy Integration: Integrate biodiversity considerations into climate policies and mitigation strategies to reduce further ecological stress.

6. Public Engagement: Increase public awareness and support for conservation actions and climate adaptation strategies to foster broader environmental stewardship.

These approaches are essential for mitigating the adverse effects of climate change on biodiversity and ensuring the preservation of ecosystems.

### EVALUATION

**CLARITY:** The Final Summary clearly depicts the consequences of climatic changes on biodiversity with hardships faced by all species to survive the ongoing harsh climate conditions. Preventive measures have been stated comprehensibly to safeguard our biodiversity. The Key Insights coherently shows that climatic changes are enormously threatening the ecosystems on earth.

**ACCURACY:** The Final Summary precisely including the risks of extinction of species with overall loss of habitat on earth, is a major setback of climatic changes. Accurately depicting the policies which might help in regulating our climate, the Key Insights validly aligns to the approaches for mitigating adverse effects on biodiversity.

**RELEVANCE:** With increased threat to biodiversity, the final summary provides relevant possibilities to survive the drastic climate changes. The Key Insights significantly ensures us the responsibility to thrive and support biodiversity on its verge of downfall.

### REFLECTION

**LEARNING EXPERIENCE:**

**Learning Prompt Engineering through Skillible's Course on Gen AI have been a great journey for me. Exploring the world of AI has never been this fascinating before. With a desire to learn new technologies each day, understanding Gen AI was an integral part to dive deeper into the ocean of knowledge utilizing the amazing tools of AI.**

**CHALLENGES FACED:**

**While being onboard, there were a few doubts which required a little detailed explanation but being able to know about the wideness and depth of prompt engineering is the key takeaway of this course.**

**INSIGHTS GAINED:**

* **Overall, the course is precisely organized allowing the students to complete the course at their own pace.**
* **I feel quite blissful to have chosen Skillible's GEN AI Course to pursue the basics of prompt engineering and engaging into creative prompt encoding to generate accurate results using AI Tools.**