

Chapter 13 Synthesis

The Biodiversity Count

Quantifying the Enormous
Diversity of Life on Earth

The Known World



> 1.5 MILLION

According to the IUCN (2004), slightly more than 1.5 million plant and animal species have been formally described and named.

The Tropical Gap

Species inventories are far more complete in temperate countries than in tropical ones. The vast majority of undiscovered life is waiting in the tropics.

The Prokaryote Problem

This estimate completely excludes prokaryotes (microbes). Conventional taxonomic methods are unsuitable for them. If biochemical or molecular criteria were used, microbial diversity alone might run into the millions.

The Robert May Estimate



1.5M (KNOWN)

~ 7,000,000 SPECIES



While extreme estimates range from 20 to 50 million, Robert May provides a more conservative, scientifically sound estimate placing global species diversity at about 7 million.

How did he calculate this?

Biologists exhaustively studied the temperate-to-tropical species richness ratio of insects, and statistically extrapolated this ratio to other plant and animal groups to generate a gross estimate.

WARNING

Nature's biological library is burning. A large fraction of these species faces the threat of extinction before we can even discover and catalogue them.

Animals vs. Plants

Breaking down the 1.5 million known species.



ANIMALS

> **70%**

More than 70% of all recorded species on Earth are animals.

PLANTS

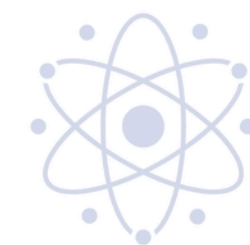
< **22%**

Plants (including algae, fungi, bryophytes, gymnosperms, and angiosperms) comprise no more than 22% of the total recorded species.



You've Learned the Theory. Let's Test Them Now.

$$E=mc^2$$



Turn theory into marks with **unlimited MCQs, smart analysis, and focused revision.**

Practice Now



At prep.topall.app

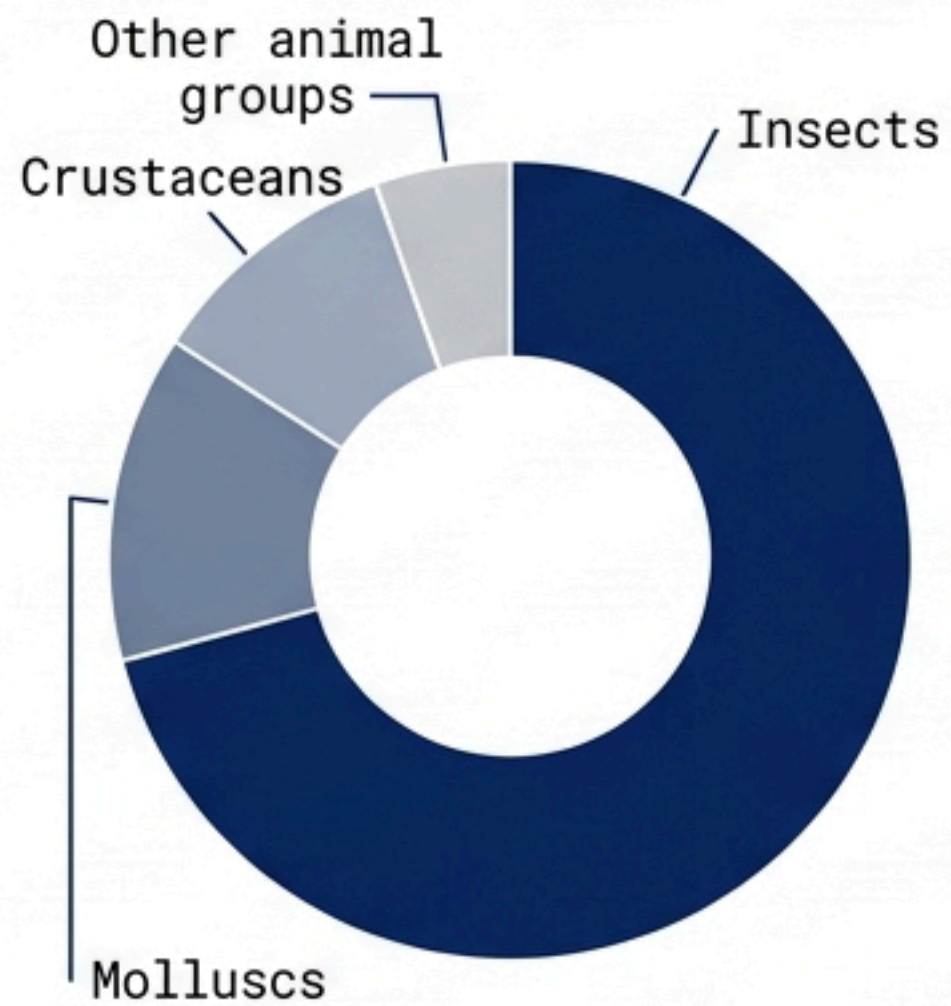
Key Highlights

- » Free Study Material, Videos & Infographics
- » Push Your Limits with Level-Based Challenges
- » Climb the Leaderboard Among Fellow Aspirants
- » Practice Unlimited MCQs for NEET & JEE
- » Get Clear Explanations, Not Just Marks
- » Track Your Performance Smarter

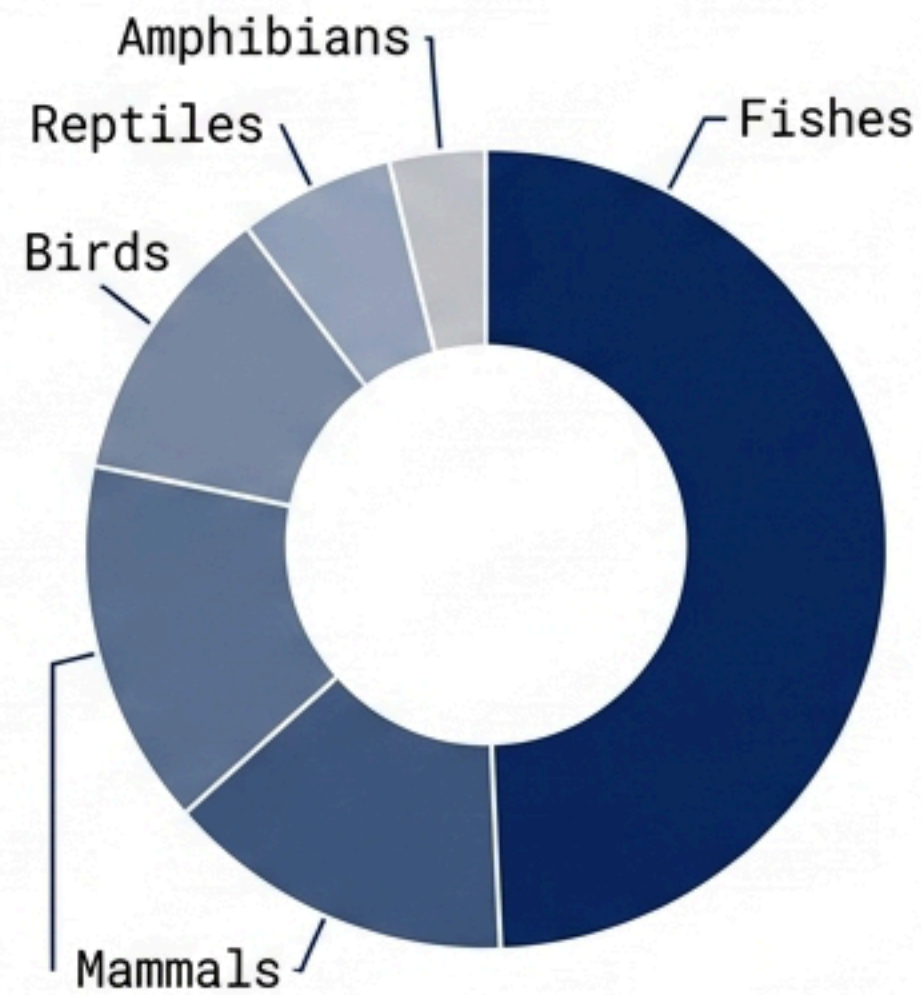


Proportionate Number of Species in Major Taxa

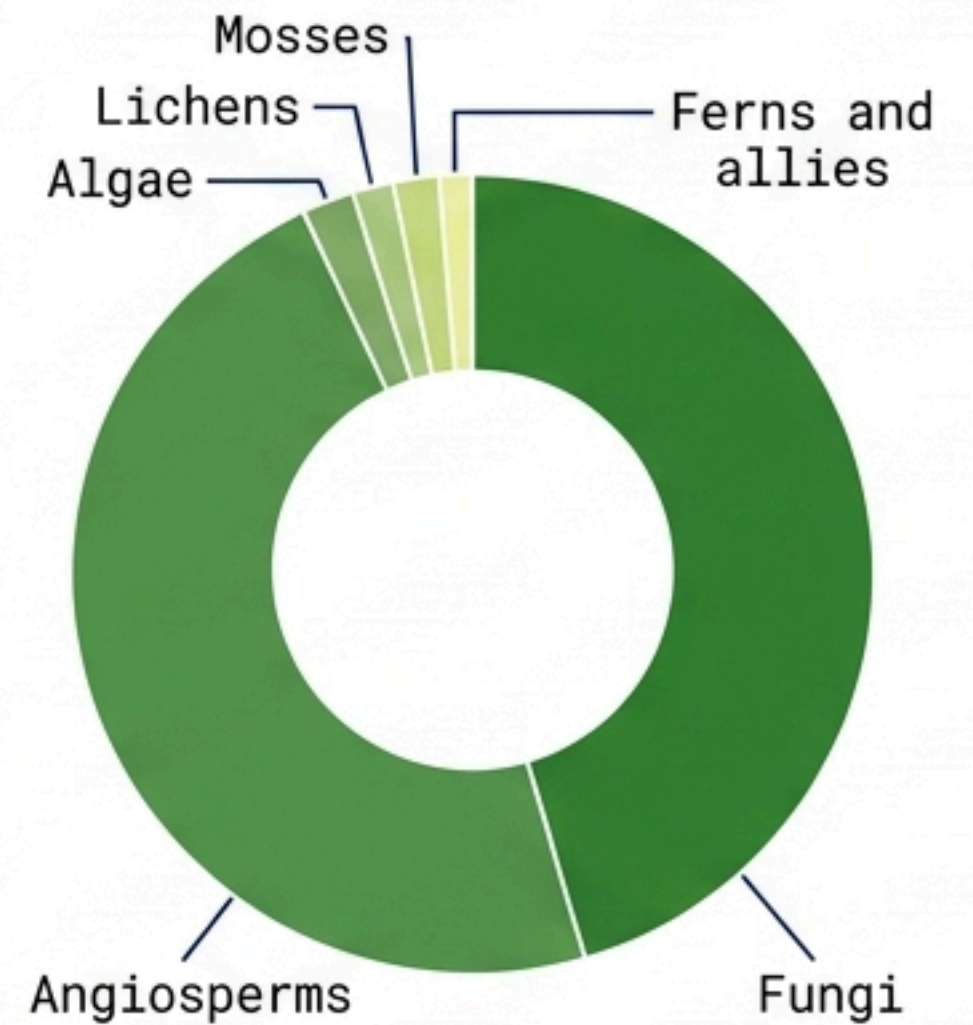
INVERTEBRATES



VERTEBRATES

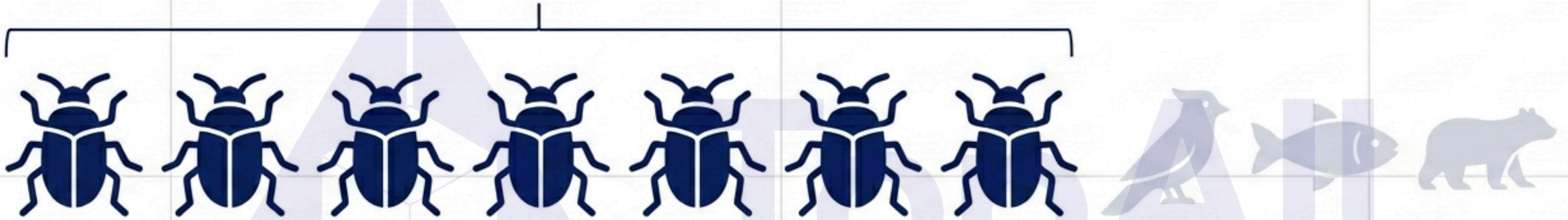


PLANTS



The Rule of Insects

7 / 10



Among animals, insects are the most species-rich taxonomic group.
Out of every 10 animals on this planet, 7 are insects.

This enormous diversification poses one of the greatest questions in evolutionary biology: **Why are there so many insects?**

The Hidden Giants: The Fungi Anomaly



FUNGI SPECIES



FISHES + AMPHIBIANS + REPTILES + MAMMALS



FISHES



AMPHIBIANS



REPTILES



MAMMALS

Fungi represent a massive, often overlooked branch of biodiversity. Though grouped with plants in traditional broad estimates, the number of fungi species in the world eclipses the combined total of all vertebrate species.

India: A Mega-Diversity Country

This disproportionate share makes India one of the 12 mega-diversity countries of the world, with nearly 45,000 species of plants and twice as many animals officially recorded.



2.4%

of the world's land area.

8.1%

of global species diversity.

Applying May's Estimate

If we accept that only 22% of total species are recorded so far, India likely harbors more than 100,000 plant species and 300,000 animal species that are yet to be discovered and described.



You've Learned the Theory. Now Let's Test It.

Reading notes gets you knowledge.

Practicing MCQs gets you marks.

That's exactly what TopAll Pro is built for.

Try TopAll Pro Now

What TopAll Pro Does Differently

-  **Stuck? Snap it. Solve it. — Doubts AI**
Photo → step-by-step solution in seconds, 24/7
-  **Your AI Coach finds your blind spots**
Concept-level weakness detection — not just chapter-level
-  **4.5 Lakh+ questions. Never run out.**
13× more content than any other prep app in India
-  **Build your own test in 60 seconds**
Pick a chapter, set difficulty — AI does the rest instantly.
-  **AI Recommendation that helps you improve**
AI Recommendation Analysis your Tests and tell you where you need to improve.



Practice the moment you finish studying
Jump in while the concept is still fresh in your head

4.5L+
MCQs

1.5L+
Students

AI Powered
In-Depth Analysis