

PhyloGenome Extinction Edition

The Crowdsourcing, Open Access Card Game about Conservation Genomics

Introduction

Biodiversity loss is accelerating, with extinction rates far exceeding natural levels (De Vos *et al.*, 2015). The IUCN Red List is a vital tool for identifying and classifying species at risk. Protecting them however, also requires understanding their genetic health.

Conservation genomics reveals key data on genetic diversity and population viability, especially critical for small or isolated populations. However, this field remains poorly understood by the general public. *PhyloGenome Extinction Edition* uses **engaging gameplay** to communicate how genomics helps **protect endangered species**.

- How can a card game explain conservation genomics?
- Can gameplay raise awareness about endangered species and genetic diversity?
- Is it possible to teach complex science in a fun and accessible way?

Methodology

1

RESEARCHING

Literature review from scientific databases (PubMed, Nature Portfolio). Key search terms: conservation genomics, genetic diversity, endangered species.

A **dataset** from Schmidt *et al.* (2023) provided genetic diversity data (He values) for a wide range of IUCN-assessed species.



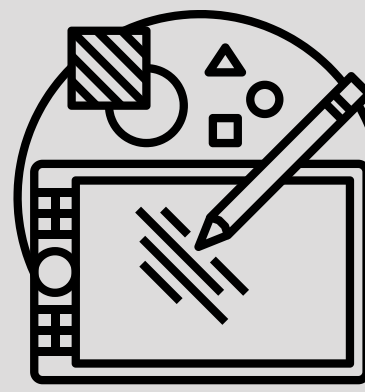
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DESIGNING

Game structured around two pillars: IUCN **Red List** categories (IUCN, 2025) and **genetic diversity**.

Four simplified categories: **CR**, **EN**, **VU**, and **LC**.

Species, event, and conservation progress cards, combining scientific accuracy with playability and clear visual design.



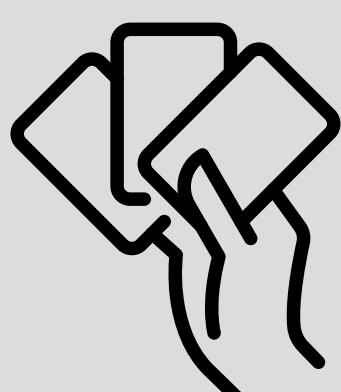
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PRODUCING

54 cards created: 30 Species, 18 Event, 4 Progress and 2 Informative cards.

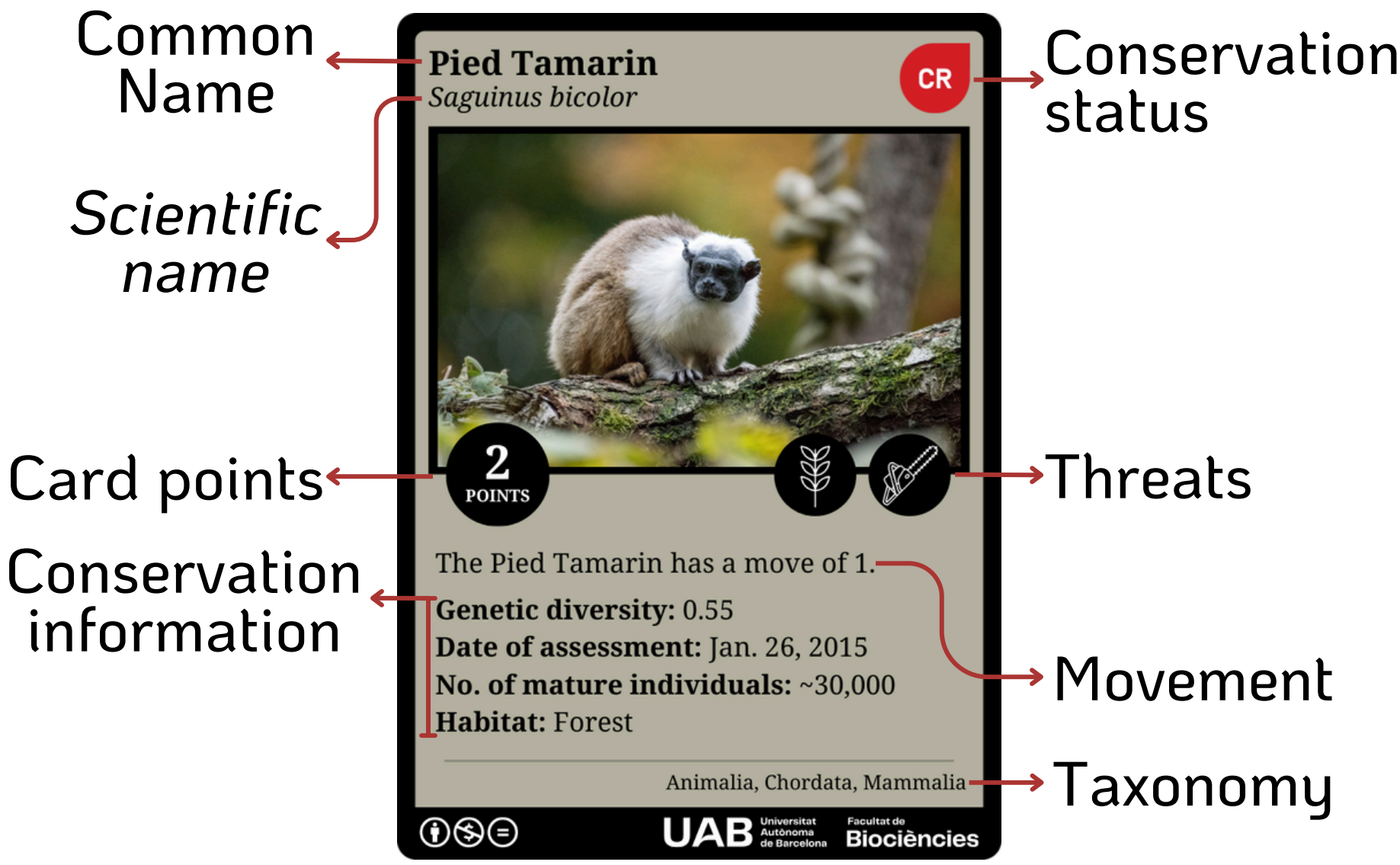
Custom icons, card backs, a rulebook, and a game box designed.

The **Website** (see QR below) provides free access to all game materials and promotes educational use in schools, science festivals.

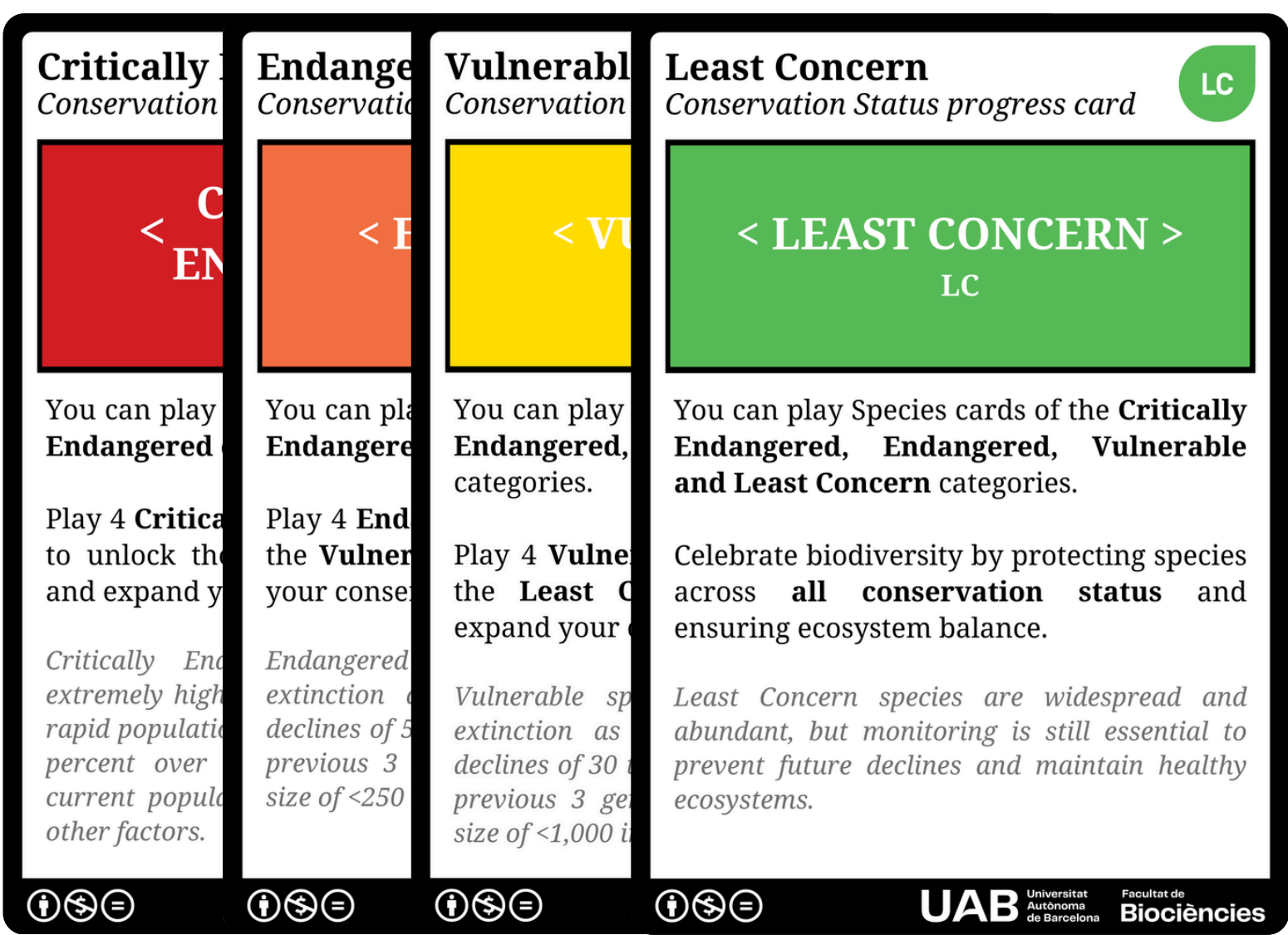


Game Materials

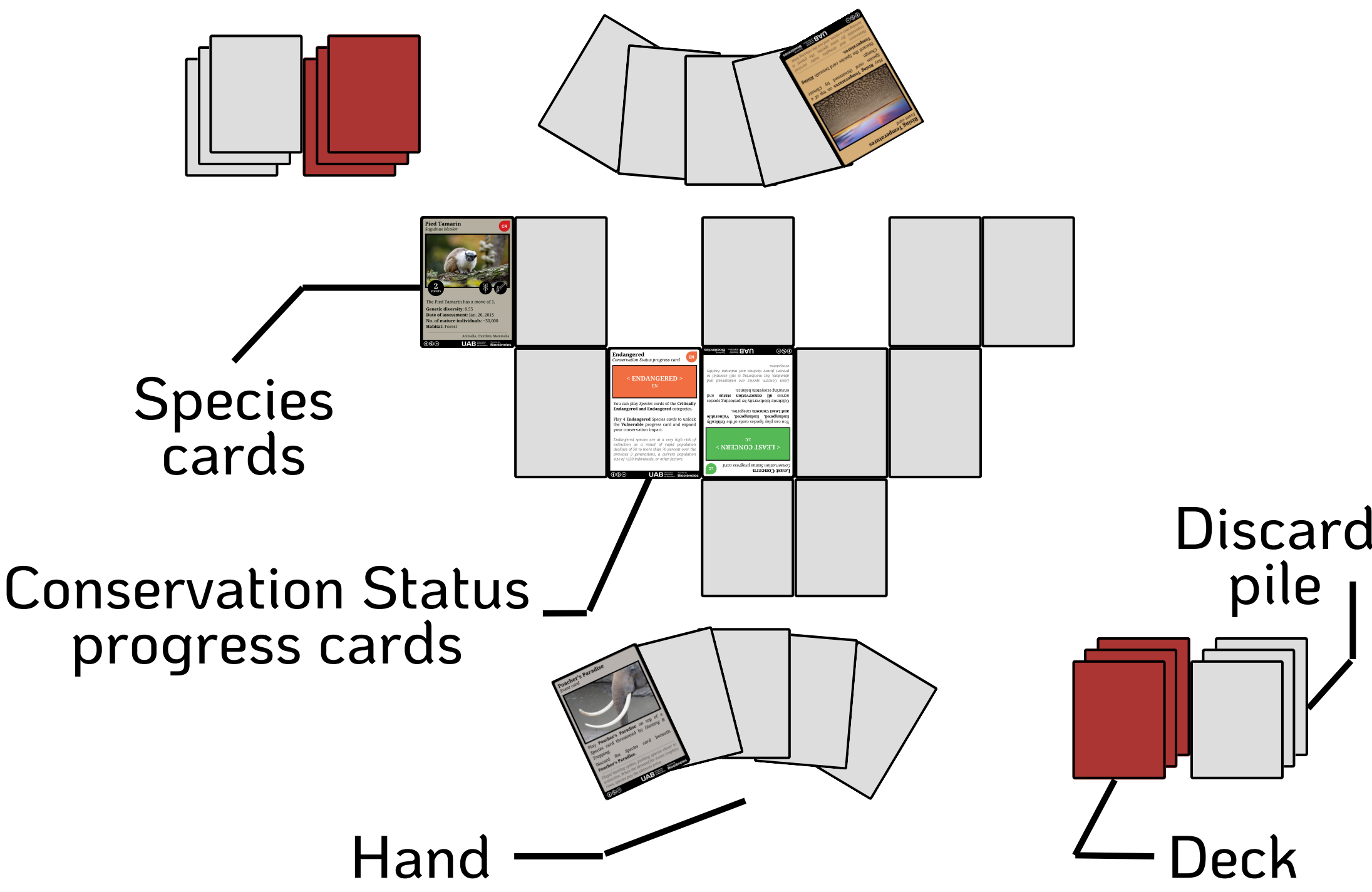
30 Species cards!



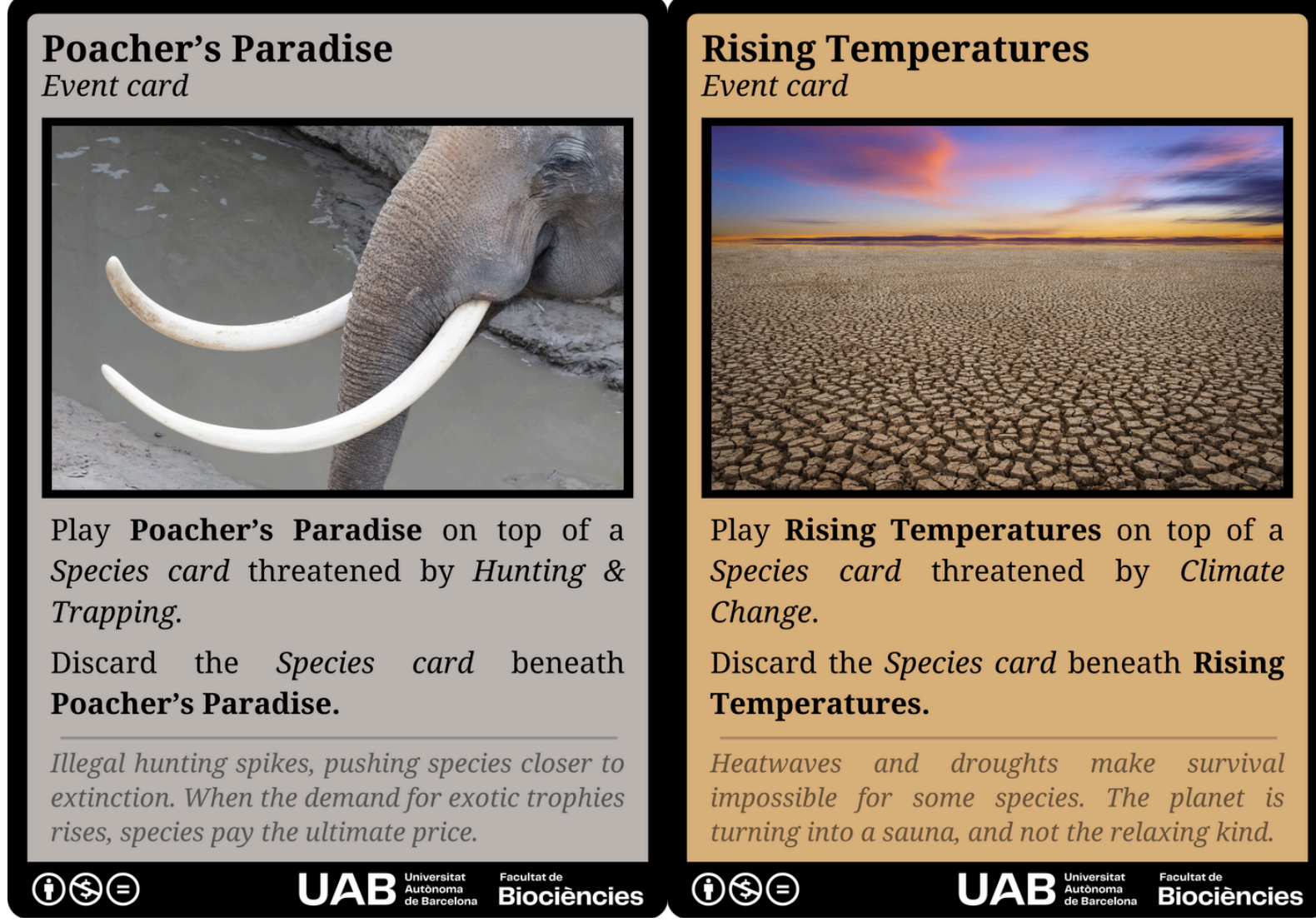
4 Progress cards!



How to Play



18 Event cards!



Scan this QR and access all *PhyloGenome Extinction Edition* content!



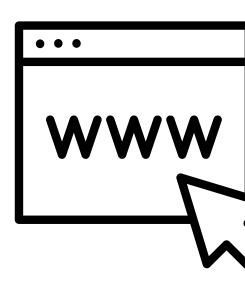
Social, Educational & Science Communication Interest

- Addresses the **communication gap** between academic genomic research and public understanding.
- **Translates complex topics** like conservation genomics into an accessible card game format.
- Highlights the importance of **IUCN Red List categories** and **genetic diversity** in species survival.
- Uses **real-world species and threats** to increase relevance and impact.
- Supports and Promotes the **UN Sustainable Development Goals** (UN, 2024) :
 - SDG 13 – Climate Action
 - SDG 14 – Life Below Water
 - SDG 15 – Life on Land
- Engages non-specialist audiences, especially **students**, through simplified and interactive content.
- Encourages **independent learning** and **curiosity** about conservation science.
- Demonstrates how **gamified tools can foster public interest** in scientific topics and environmental issues.

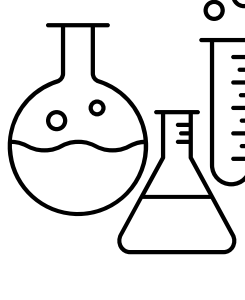
Outreach Actions



Playtesting: Informal sessions to improve clarity and gameplay based on feedback.



Website Launch: All game materials freely available online.



Science Festival: Presented the game at the **18th Festa de la Ciència in Barcelona**.

Scope of Application

High school classrooms to teach genetics and conservation.

Science festivals and **museums** as an interactive learning tool.

Private settings and Informal education

12+

2

30'



De Vos *et al.* (2015). Estimating the normal background rate of species extinction. *Conservation Biology*, **29**(2), 452–462.
International Union for Conservation of Nature (IUCN). (2025). The IUCN Red List of Threatened Species (Version 2025-1).
Schmidt *et al.* (2023). Genetic diversity and IUCN Red List status. *Conservation Biology*, **37**(4), e14064.
United Nations Department of Economic and Social Affairs (UN DESA). (2024). The Sustainable Development Goals Report 2024 – June 2024.



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