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Monotypic: Evolution and adaptations of the world's most distinctive species

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Monotypic:

Evolution and Adaptations of the World's Most Distinctive Species

a BFA Thesis and Honors Capstone Exhibition by Emerson Harman, Rowan University

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Introduction

Monotypic: Evolution and Adaptations of the World's Most Distinctive Species is a BFA and Honors Capstone exhibition focused on introducing the public to the unique qualities of plants and animals that are the sole extant representative of their taxonomic family or higher classification. The exhibition is centered around the use of illustrative infographics to effectively deliver scientific information in an engaging manner to a wide audience. *Monotypic* explores the individual evolutionary adaptations that make each of these lineages so distinct from any of their living relatives while also touching on the interactions with their environments, relationships with other species, and the conservation concerns related to the species' survival.

The organisms highlighted in this exhibition display a range of taxonomic variety, geographic location, conservation status, and public prominence. While most monofamiliial species are relatively unknown to the general population, some species, such as the ginkgo tree or platypus, have been made popular through cultivation or popular media, respectively. Lack of knowledge, understanding, or awareness is a prominent issue in species conservation. By focusing the exhibition on primarily lesser-known species, many of which are also in need of conservation action, the work aims to intrigue and educate the general public in order to inspire further discussion and action.

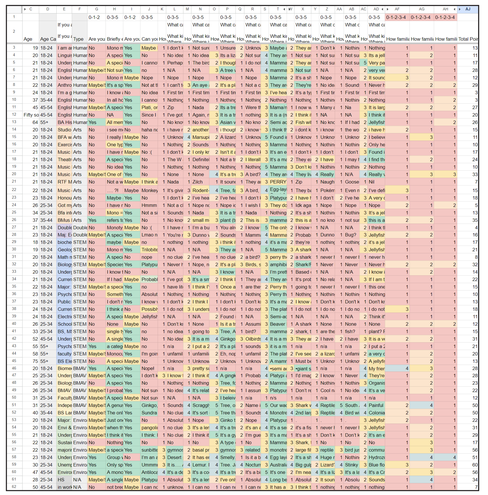
Viewers are encouraged to be active participants in the show through a variety of interactive elements embedded within the pieces. This includes receiving an exhibition booklet, which provides abbreviated information about each species with resources to learn more, as well as augmented reality elements connected with select illustrations to highlight specific features. Integrating novel media into printed illustrations allows viewers to become more engaged with the work while enhancing their experience with the work.

Upon visiting the exhibit, visitors will leave with an understanding of what monospecificity is, some examples of monotypic species, the adaptations that make these organisms distinct, and how human activity affects their populations. This knowledge will inspire viewers' enthusiasm to be more cognizant of the natural world and foster a community of concerned constituents of the Earth.

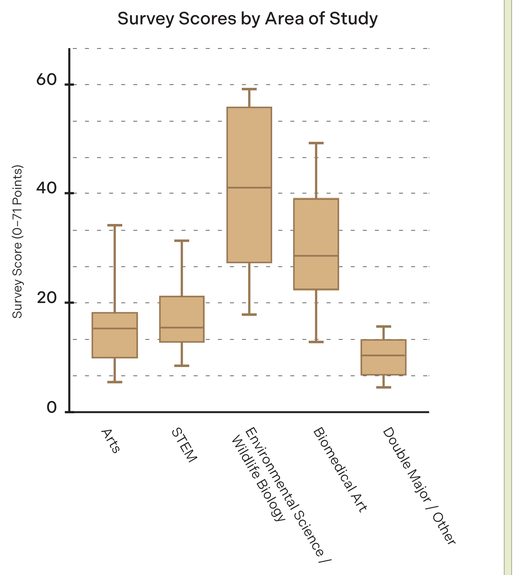
Methods

Monotypic is a research-informed visual exhibition, combining digital illustration, 3D modeling, 3D animation, Augmented Reality (AR), and grpahic design. The software used includes Adobe Photoshop, Adobe Illustrator, Adobe InDesign, Adobe AfterEffects, Adobe Substance Painter, Autodesk 3D Studio Max, and Onirix Studio.

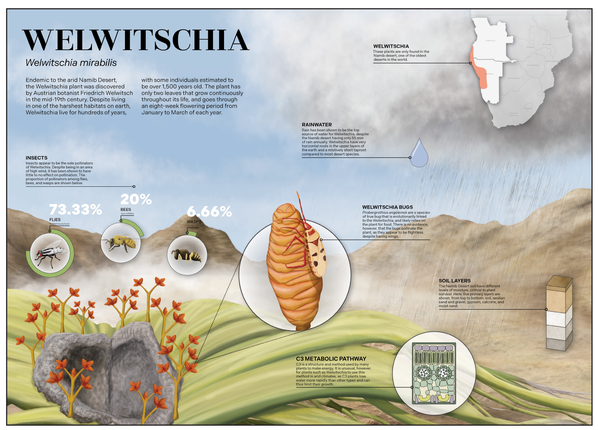
In order to understand the impact the work, a Google Forms survey was created to see the general population's baseline knowledge of monotypic species and associated concepts. The results were organized and coded by level of knowledge, as shown below. Final scores were calculated for each individual and compared across age range and area of study.



Results



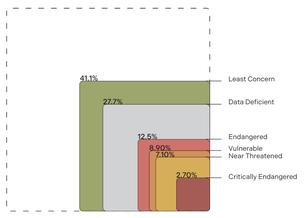
62 people participated in the survey, with relatively even distribution among areas of study. Age range had no correlation to score on the survey.



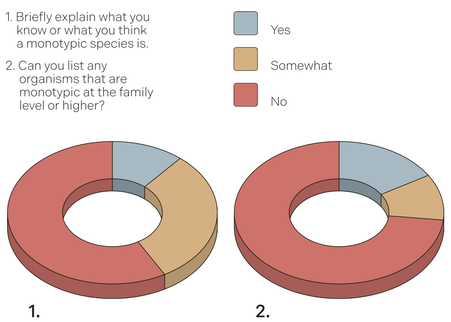
Welwitschia

Results

Proportion of researched monotypic species across IUCN conservation statuses.



1. Briefly explain what you know or what you think a monotypic species is.
2. Can you list any organisms that are monotypic at the family level or higher?



Conclusion

Monotypic will conclude in a public exhibition at the Cape May Point Science Center in Cape May, New Jersey on May 3, 2024. The public is invited to view the artwork for the month of May. The final exhibition includes eight infographics, one 3D animation, one AR visualization, one exhibition booklet, and an educational game.

Outside of species shown in popular media, such as the platypus, monotypic plants and animals are relatively unknown to the general public. This show increases awareness of unique plants and animals, many of which are in a state of conservation concern, and will hopefully inspire further learning.

Acknowledgements

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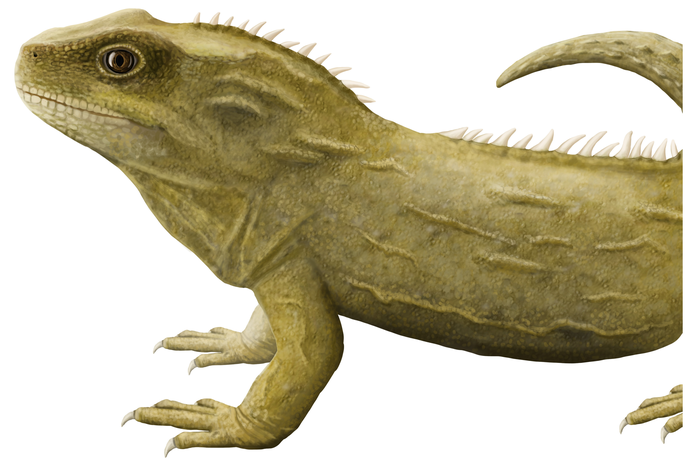

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