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Department of Biological and Ecological Engineering

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Invaders of Paradise: Overview of Invasive Species Challenges faced in Puerto Rico

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Background Information

Non-native Species: A species living outside its native distributional range, but not inherently harmful and may not impact their new environment.

Invasive Species: A subset of non-native species that spread rapidly in a new environment, causing significant harm to the ecosystem. Often outcompeting native species and leading to environmental degradation.

Islands are isolated land masses that frequently exhibit simplified ecological systems, often with small population sizes, low reproductive rates, and a lack of predator defenses. These attributes make island ecosystems more susceptible than mainland ecosystems to human-related impacts, such as the introduction and establishment of non-native species. This poster examines several key invasive species, their impacts on Puerto Rico, ongoing mitigation efforts, and the lessons these situations provide for global biodiversity conservation.

About the Author

I am a 4th year ecological engineering student from Los Angeles California. This is my second time going on the trip to Puerto Rico as I absolutely fell in love with the island, its people, and its welcoming culture on the first trip. I have been involved in multiple labs on campus and am passionate about women's health issues, bioremediation practices, and love to fish and golf in my free time.

Species Impact on the Island's Ecosystem

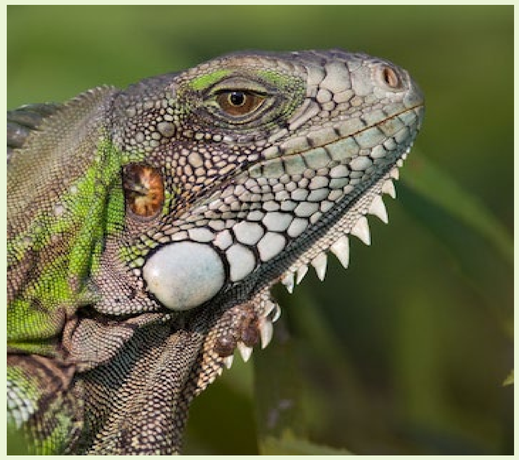

Image 1: Pictured is the invasive Green Iguana, not to be confused with the critically endangered Mona ground iguana which is endemic to the island.

- **Cane Toad (**Rhinella marina): Introduced in the 1920s to manage pests in sugarcane fields, the cane toad's toxic skin has devastated native predators, such as the coqui frog, which lack resistance to the toad's poison. This is a stark example of the dangers associated with introducing non-native species.
- **Green Iguana** (Iguana iguana): These iguanas cause significant damage to structural vegetation and compete with native endemic iguana species for resources, highlighting the ecological risks associated with the exotic pet trade.
- **Giant African Land Snail** (Achatina fulica): These snails consume over 500 types of plants and can carry the rat lungworm, a parasite that may cause meningitis in humans. They also damage plaster and stucco in buildings, serving as a stark example of the dangers of exotic animal trade.
- **Kudzu Vine** (Pueraria montana**)**: The most impactful of all the species discussed, Kudzu was brought to Puerto Rico by Spanish settlers to feed cattle and stabilize soil, it has since become a major invasive problem in the El Yunque Rainforest. It smothers native plants by rapidly overgrowing them, blocking sunlight, and depleting nutrients in the soil, which alters the forest's structure and reduces biodiversity drastically.

Why should you care?

As an island community, Puerto Rico serves as a critical case study in global biodiversity conservation. The rapid spread and significant impact of invasive species here mirror potential threats elsewhere, highlighting the importance of vigilance and proactive management. Understanding and addressing these issues in Puerto Rico can provide valuable lessons for other regions facing similar challenges, emphasizing the global interconnectedness of environmental health.

Image 2: Pictured is the invasive kudzu vine, also known as "mile-a-minute" and "the vine that ate the South," this creeping, climbing perennial vine terrorizes native plants all over the southeastern United States and is making its way into the Midwest, Northeast and even Oregon!

What can be done?

Efforts to mitigate the impact of invasive species include enhancing biosecurity measures to prevent further introductions, supporting research and development of control methods, and engaging local communities in eradication initiatives. Public education campaigns can increase awareness and participation in conservation efforts. Additionally, international cooperation is crucial in managing the spread of these species across borders.

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