

Single-Species Management: the Dusky Gopher Frog

The Dusky Gopher Frog



The dusky gopher frog's historic range is in the longleaf forests of the gulf coastal plain from Alabama to Mississippi and Louisiana. Now, they reside in habitat restricted to two counties in Mississippi. The dusky gopher frog occurs in isolated temporary wetlands and ponds within sandy upland habitats, often coinciding with



longleaf pine forests. The frog spends most of its life underground. In fact, it received its name because they have historically used gopher tortoise burrows as refuge (image left).

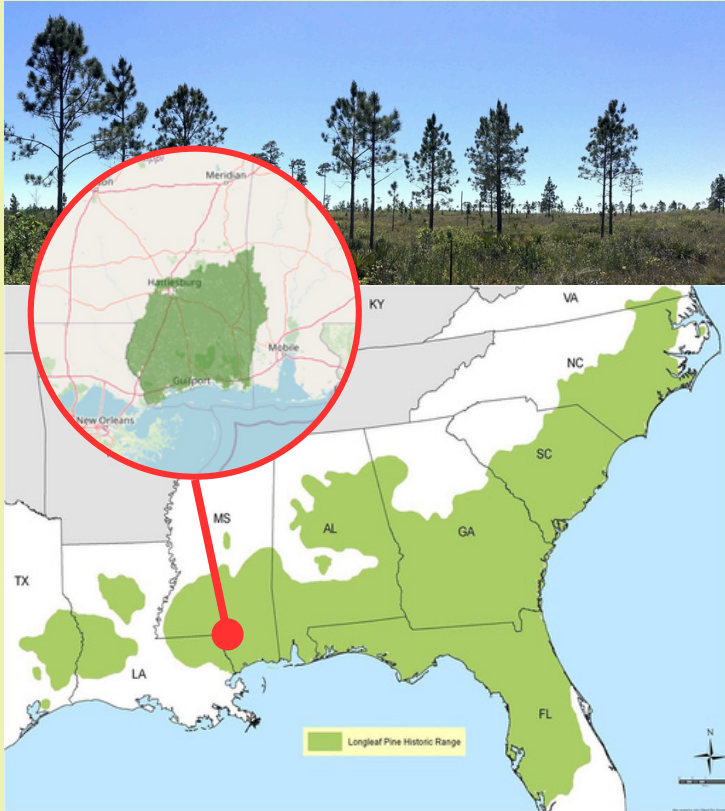
Focusing on managing single species, even those with small populations and specific locations, is important for several reasons.

Indicator Species: Certain species are considered "indicator species" because they are particularly sensitive to changes in their environment. Frogs, salamanders, and other amphibians often serve this role as they are links between aquatic and terrestrial systems and absorb water and oxygen directly through the skin. By monitoring and managing these species, we can gain valuable insights into the health of their habitats and the potential impacts of environmental changes on other species within the ecosystem.

Keystone Species: Some species have a disproportionately large impact on their ecosystems. These are known as "keystone species." Protecting and managing keystone species can have cascading positive effects on other species and the overall ecological integrity of an area.

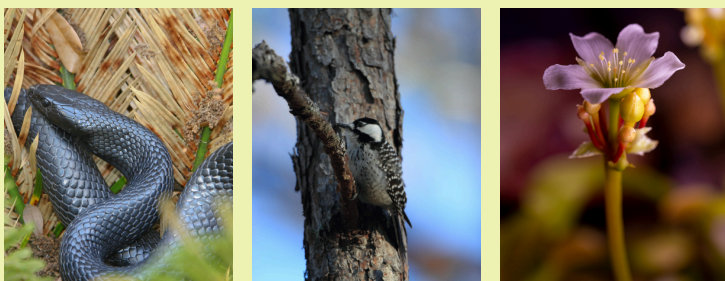
Endemism and Uniqueness: Species that occur only in specific locations, known as endemic species, often have specialized adaptations and unique genetic diversity. The **dusky gopher frog** is a species of frog endemic to longleaf pine forests of the Gulf Coastal Plain that has seen extreme population decline in the last several decades. Preserving these species is crucial for maintaining the ecological and evolutionary processes that have shaped those specific regions. Losing such species can lead to irreversible biodiversity loss.

The decline in suitable habitat for the dusky gopher frog has been the biggest threat to its survival. Loss of open-structured longleaf pine forests due to development, fire suppression, and incompatible timber harvesting severely impacted its range and survival.



Current range of the dusky gopher frog versus the historic range of longleaf pine.

The reduction in the acreage of longleaf has contributed to the decreased abundance of 191 taxa of associated vascular plants, and the listing of 30 species as threatened or endangered – including the dusky gopher frog.



Ethical and Cultural Values: Many species hold significant cultural and ethical value for human societies. They may have spiritual or symbolic meanings, provide important resources for local communities, or contribute to cultural traditions. Managing and conserving these species respects the cultural heritage and values associated with them.

Conservation of Biodiversity: Every species plays a unique role in its ecosystem, and each contributes to the overall biodiversity of our planet. By focusing on managing individual species, we can help preserve the delicate balance of ecosystems and ensure the survival of a wide range of species. Restoring the expanse of longleaf pine forests is important for the survival of the dusky gopher frog and can also benefit a suite of other species. Using practices like variable retention thinning and prescribed fire create open canopies and abundant ground vegetation will also positively impact other wildlife species such as the gopher tortoise, red cockaded woodpecker, and bobwhite quail.

While it is important to consider the broader ecosystem and conservation strategies that encompass multiple species and habitats, managing individual species helps address the specific needs, threats, and conservation requirements of those species. Through targeted management efforts, we can increase the chances of survival and long-term persistence of endemic species such as the dusky gopher frog, contributing to the overall health and resilience of our planet's ecosystems.