

Background

Gopher frogs (*Rana capito*) are nearly endemic to the once-vast longleaf pine-wiregrass ecosystem of the Southeastern U.S. coastal plain. Largely due to the drastic loss of this ecosystem, as well as to the embedded isolated wetlands necessary for breeding and larval development, Gopher Frog populations have significantly declined throughout their range. Listed as “rare” in Georgia, extant populations in the state are known from only six sites. Because of the highly fragmented landscape throughout the Gopher Frog’s historic range, it is very unlikely that the species will recolonize restored lands without the help of repatriation efforts.

Project Objective

We aim to establish self-sustaining and manageable populations of Gopher Frogs on lands within their historic range that are currently devoid of the species but have restored, suitable habitat.

Methods

Portions of several Gopher Frog egg masses from at least two donor sites will be collected each breeding season (typically January-March) and transferred to Atlanta Botanical Garden’s (ABG) conservation greenhouse facility.



Each egg mass portion will be separated into different enclosures (all in quarantine and isolated from other species) and, following hatching, tadpoles will be maintained on a diet of balanced fish food, greens, and algae. Water will be frequently changed to maintain good water quality. Ideally, tadpoles will be, ideally, reared to Gosner Stage 38 (well-developed hind limbs) or greater.



The hind limbs of tadpoles and any metamorphs produced will be injected with visible elastomer, using a different color or different rear leg each year so that returning adults in future years can be traced back to their release year.



Tadpoles and metamorphs will then be released into a pond determined to be suitable breeding habitat surrounded by appropriate upland habitat, but demonstrated to be unoccupied by a native Gopher Frog population. After five consecutive years of releases, the pond will be monitored for adult Gopher Frog breeding migrations by encircling the pond with a pitfall trap-equipped drift fence.

Donor Sites

Known and productive Gopher Frog breeding ponds on Ichauway Plantation (IP) in Baker County, GA and Fall Line Sandhills Natural Area (FLSNA) in Taylor County, GA will be the source for donor eggs. Both sites, as well as the recipient site, are within an area bordered to the east by the Flint River and to the west by the Chattahoochee River. There are no obvious barriers to genetic movement within this area and thus we believe the donor sites will be providing genetically-similar Gopher Frogs to what may have occurred at the recipient site historically.

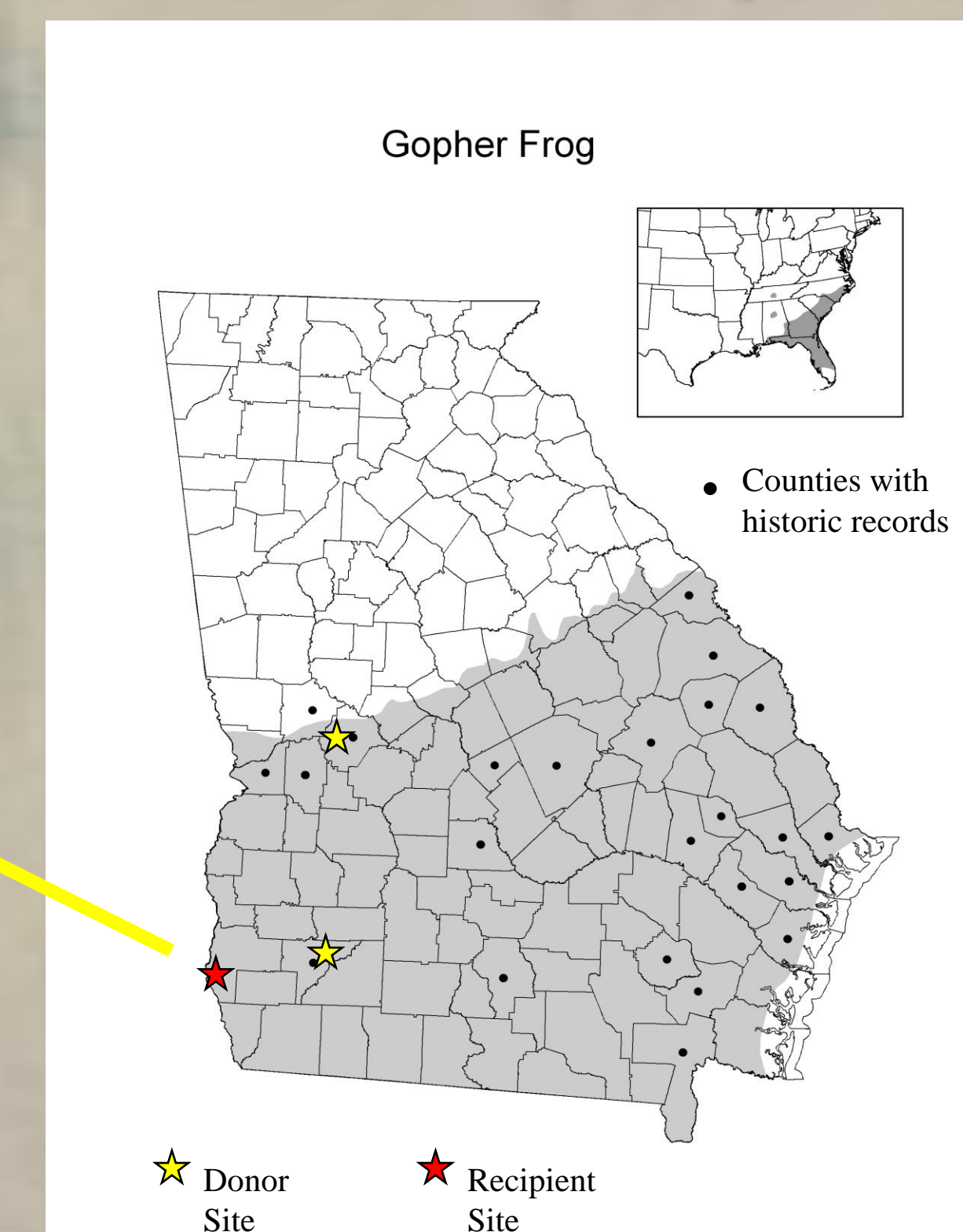


Donor pond at FLSNA

Gopher Frog (*Rana capito*) Restoration in Georgia

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Recipient pond

Pilot Recipient Site

The Nature Conservancy’s Williams Bluffs Preserve, a 1,980 acre tract located near Blakely in Early County, GA, will serve as the sole recipient site for the first five years of releases. Historically, the majority of uplands at this site were made up of longleaf-pine wiregrass communities, but during the era of King Cotton the landscape was transformed into agricultural fields that likely eliminated much of the native wildlife, possibly including Gopher Frogs. Since then, restoration efforts have resulted in a return to the historical natural conditions, albeit with a much younger forest. Embedded within the uplands are five limesink, ephemeral wetlands ideal for pond-breeding amphibians. Extensive visual surveys for amphibian egg masses, dip-netting surveys for larvae, and aural surveys using automated frog-loggers have revealed a diversity of species commonly associated with Gopher Frogs, but Gopher Frogs themselves were not detected. Because the habitats seem ideal for Gopher Frogs, and the site is protected in perpetuity and actively managed using prescribed fire, we believe it is an ideal site for a repatriation effort.

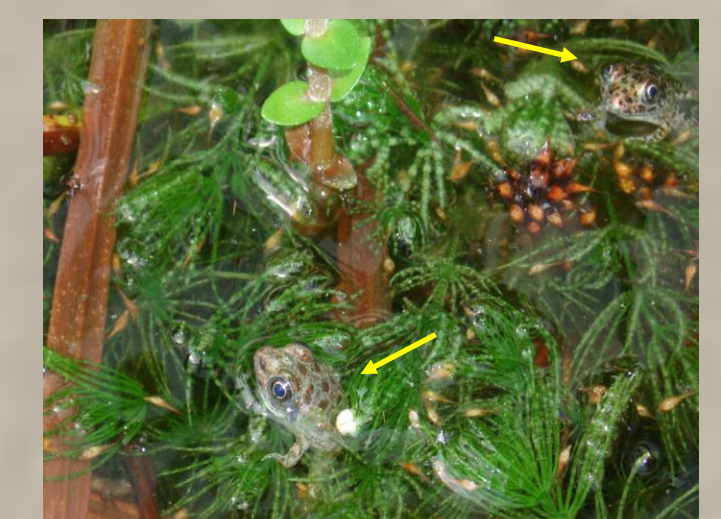
Frog-logger deployed at recipient site



Activities To-Date

2007

A portion of one Gopher Frog egg mass was collected on IP in February and transferred to ABG for rearing. Due to a water quality issue that has since been resolved, nearly half of resulting tadpoles died. The remainder amounted to 68 tadpoles and four metamorphs at the time of release. Extreme drought conditions led to early dry-down of the recipient pond forcing us to adlib by sinking a 300 gallon tank in the ground adjacent to the pond basin. The make-shift pond was filled with water and aquatic vegetation from a nearby impoundment, and a layer of sand from the excavation. Prior to the release of the tadpoles and metamorphs two months later on 16 August 2007, the tank was surrounded by leafy limbs for cover and both a battery-powered electrical fence and deer-netting for protection from meso-mammalian and avian predators. All legged-tadpoles and metamorphs were injected with red elastomer in their right thighs, then released.



2008

Portions of seven Gopher Frog egg masses (five from FLSNA and two from IP) were collected in February and transferred to ABG for rearing. Although an unwelcome Great Blue Heron discovered and ate many of the tadpoles at ABG (problem since rectified), 154 late-stage tadpoles and 30 metamorphs, injected with red elastomer in their left thighs, were released in two batches in the recipient pond (nearly full-pool thanks to T.S. Faye), 11 August 2008 and 11 September 2008. PBS’ Nature series filmed this release as part of an upcoming Spring 2009 episode on amphibian declines.



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