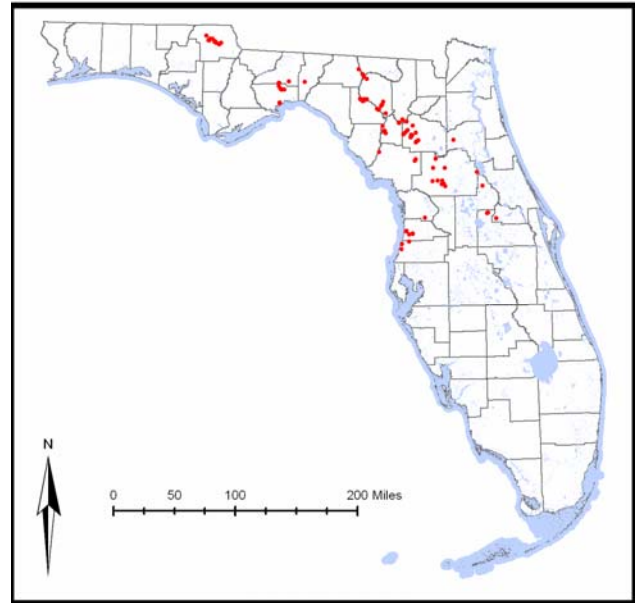


Aquatic Cave



Some habitat distributions or locations may be misrepresented on this map due to size, resolution and insufficient data sources.

Status

Current condition: Poor and declining.

According to the best available GIS information at this time (see Appendix D. GIS Data Tables), 84 Aquatic Caves are included here. This represents only a fraction of all caves that have been identified. Of the mapped aquatic caves, 29% (24) are in existing conservation or managed areas, 5% (4) are within lands covered by Florida Forever projects, 1% (1) are in SHCA-identified lands, and the remaining 65% (55) of Aquatic Caves are within other private lands.

Habitat Description

FNAI type: Aquatic Cave

Aquatic Caves are cavities below the surface of the ground that contain permanent standing water and range from shallow pools to completely inundated caverns. Caves develop in areas of karst topography, as water moves through underlying limestone, dissolving it and creating fissures and caverns. Due to the rise and fall of water levels, many Aquatic Caves have alternately been terrestrial caves. Some Aquatic Caves occur in conjunction with springs. Caves have stable internal environments with temperature, humidity, and water conditions remaining fairly constant. Cave waters are usually clear, and deep water often appears blue. The water may take on a brown stain if decaying plant matter is carried in with rainwater; in some areas the water may have a milky

appearance because fine limestone silt is present. The chemical makeup of the water in caves is dependent on the source; most waters in aquatic caves have a high mineral content. Many Aquatic Cave systems have species that are specifically adapted to and endemic in that system, and are therefore at greater risk from even minute changes in the habitat.

Associated Species of Greatest Conservation Need

Mammals

- | | |
|---------------------------------|---------------------|
| • <i>Myotis austroriparius</i> | Southeastern Bat |
| • <i>Myotis grisescens</i> | Gray Bat |
| • <i>Eptesicus fuscus</i> | Big Brown Bat |
| • <i>Pipistrellus subflavus</i> | Eastern Pipistrelle |

Amphibians

- | | |
|--------------------------------|--------------------------|
| • <i>Haideotriton wallacei</i> | Georgia Blind Salamander |
|--------------------------------|--------------------------|

Invertebrates

- | | |
|--|--|
| • <i>Villosa amygdala</i> | Florida Rainbow |
| • <i>Crangonyx grandimanus</i> | Florida Cave Amphipod |
| • <i>Crangonyx hobbsi</i> | Hobbs' Cave Amphipod |
| • <i>Cambarus cryptodytes</i> | Dougherty Plain (Apalachicola) Cave Crayfish |
| • <i>Procambarus acherontis</i> | Orlando (Palm Springs) Cave Crayfish |
| • <i>Procambarus attiguus</i> | Silver Glen Springs (Cave) Crayfish |
| • <i>Procambarus delicatus</i> | Big-cheeked Cave Crayfish |
| • <i>Procambarus erythropus</i> | Santa Fe (Sim's Sink) Cave Crayfish |
| • <i>Procambarus franzi</i> | Orange Lake Cave Crayfish |
| • <i>Procambarus horsti</i> | Big Blue Spring Cave Crayfish |
| • <i>Procambarus leitheuseri</i> | Coastal Lowland Cave Crayfish |
| • <i>Procambarus lucifugus alachua</i> | Alachua Light-fleeing Cave Crayfish |
| • <i>Procambarus lucifugus lucifugus</i> | Withlacoochee Light-fleeing Cave Crayfish |
| • <i>Procambarus milleri</i> | Miami Cave Crayfish |
| • <i>Procambarus morrisi</i> | Putnam County Cave Crayfish |
| • <i>Procambarus orcinus</i> | Woodville (Karst) Cave Crayfish |
| • <i>Procambarus pallidus</i> | Pallid Cave Crayfish |
| • <i>Troglocambarus maclanei</i> | North Florida Spider Cave Crayfish |
| • <i>Palaemonetes cummingsi</i> | Squirrel Chimney Cave Shrimp |
| • <i>Caecidotea hobbsi</i> | Florida Cave Isopod |
| • <i>Caecidotea sp. 1</i> | Rock Springs Cave Isopod |
| • <i>Caecidotea sp. 8</i> | Econfina Springs Cave Isopod |
| • <i>Remasellus parvus</i> | Swimming Little Florida Cave Isopod |

Conservation Threats

Threats to the Aquatic Cave habitat that were also identified for multiple other habitats are addressed in the Chapter Multiple Habitat Threats and Conservation Actions. These threats include:

- Incompatible recreational activities
- Incompatible resource extraction–mining/drilling

Threats specific to Aquatic Caves also included mining activities causing destruction of critical, irreplaceable habitat. Habitat-specific incompatible recreation includes gating cave entrances and filling in cave openings to prevent trespass from unauthorized recreation. Caves support unique/irreplaceable species and those with very unique adaptations that may be sensitive to small increases in levels of contaminants, shifts in dissolved oxygen, temperature, or food webs.

The following stresses and sources of stress threaten this habitat:

Stresses		Habitat Stress Rank
A	Habitat destruction or conversion	Medium
B	Habitat degradation/disturbance	Medium
C	Altered species composition/dominance	Medium
D	Altered hydrologic regime	Medium
E	Keystone species missing or lacking in abundance	Medium
F	Erosion/sedimentation	Low
G	Altered water quality or surface water or aquifer: contaminants	Low
H	Altered community structure	Low

The sources of stress, or threats, were used to generate conservation actions.

Sources of Stress		Habitat Source Rank	Related Stresses (see above)
1	Incompatible recreational activities	Medium	A
2	Incompatible resource extraction: mining/drilling	Medium	A
3	Solid waste	Low	A
Statewide Threat Rank of Habitat		Medium	

Conservation Actions

Actions to abate the threats to Aquatic Caves that were also identified as statewide threats (Incompatible recreational activities, Incompatible resource extraction–mining/drilling) are in the Chapter Multiple Habitat Threats and Conservation Actions.

Several of the actions developed for statewide threats were only applicable to Aquatic Cave and a few other habitats (i.e., Calcareous Stream, Cypress Swamp, Freshwater Marsh and Wet Prairie, Natural Lake, Reservoir/Managed Lake, Seepage/Steephead Stream, Softwater Stream, Spring and Spring Run, Terrestrial Cave, and Coastal Tidal River or Stream) and are listed below. These actions are intended to prevent harm to cave and other ecosystems influenced by groundwater by developing numeric nutrient criteria specific to cave systems and to prevent physical destruction or degradation of cave habitat from recreational activities (e.g., diving) and facilitate movement of bats and other species through upgrading or retrofitting cave entrances and infrastructure for access.

Incompatible Recreational Activities

Overall Rank	Land/Water/Species Management	Feasibility	Benefits	Cost
M	Discourage hard-gating or filling of cave or sink entrances and provide incentives (e.g., liability limitations where appropriate management procedures have been taken), cost-sharing, or design advice to secure cave entrances with bat-friendly gates.	H	M	M
M	Upgrade access infrastructure (e.g., boardwalks, planking) to aquatic caves to eliminate sediment disturbance by divers and spelunkers.	H	M	M

Incompatible Resource Extraction: Mining/Drilling

Overall Rank	Economic and Other Incentives	Feasibility	Benefits	Cost
M	Create incentives to avoid loss of, and impacts to, SHCAs and sensitive habitats from mining, particularly wet and dry prairie, scrub, and bat caves.	H	M	H