

Recovery Outline for the Rim Rock Crowned Snake (*Tantilla oolitica*)



Figure 1: Rim rock crowned snake beside a quarter for size comparison. Photo Credit: Kristen Hines

Species Common Name: Rim rock crowned snake

Species Scientific Name: *Tantilla oolitica*

ESA Listing Status: E; August 20, 2026; 91 FR 45697

Lead Region: Southeast Region; Atlanta, Georgia

Cooperating Region(s): N/A

Lead Office: Florida Ecological Services Field Office; 352-448-9151

Cooperating Office(s): N/A

Lead Contact: Samantha Hermann

Species Range: Florida

PURPOSE AND DISCLAIMER

The recovery outline is a succinct document that presents a preliminary recovery strategy and actions to direct a newly listed species' recovery efforts until a recovery plan is completed. Recommendations in the recovery outline are non-binding and are intended to guide (not require) regulatory (e.g., section 7 consultations and section 10 permitting) and conservation actions to be implemented by the Service and our external partners.

This document lays out a preliminary course of action for the survival and recovery of the rim rock crowned snake. Formal public participation for recovery planning will be invited upon the release of the draft recovery plan. However, we will consider any new information or comments

that members of the public offer in response to this outline during the recovery planning process. For more information on Federal recovery efforts for the rim rock crowned snake, or to provide additional comments, interested parties may contact the lead field office for this species at the above telephone number.

1. BACKGROUND

Successful recovery will require collaboration among the U.S. Fish and Wildlife Service (Service), federal and state agencies, Tribes, nongovernment organizations, and the public. This outline summarizes the species needs and identifies preliminary actions that can support conservation efforts while the species recovery plan is developed.

The final rule listing the rim rock crowned snake (*Tantilla oolitica*) was published in the Federal Register on July 21, 2026, with an effective date of August 20, 2026 (91 FR 45697). The following sections include a summary of biology, life history, and ecology of the species. A complete discussion of the species' morphology, taxonomy, distribution, phenology, reproduction, life span, demographic trends, and habitat needs can be found in the Species Status Assessment for the rim rock crowned snake (Service 2023). An electronic copy of the assessment report is available on the ECOS species webpage- <https://ecos.fws.gov/ecp/species/1497>

Important Information Gaps and Treatment of Uncertainties

We have identified several areas where we have little or no information on the rim rock crowned snake. Additional data in the following areas may provide information to better understand and improve the species' resiliency, redundancy, and representation efforts:

- Population structure, demographics, and long-term trends.
- Lifespan, survivorship by age class, growth rates, and age at sexual maturity.
- Reproductive biology (clutch size, frequency, success rates, nesting microhabitat).
- Environmental factors influencing population density, including diet and habitat conditions.
- Spatial ecology (occupancy, home ranges, dispersal, and connectivity).
- Species response to environmental stressors such as saltwater inundation, shifting rainfall and temperature patterns, and storm events.

Although several uncertainties are expected to influence the rim rock crowned snake recovery, the following issues strongly contribute to recovery uncertainty:

- The biotic and abiotic processes influencing population viability (recruitment, survivorship, persistence) and how these processes differ across the range.
- Lack of long-term management and survey efforts that are key to sustaining optimal habitat suitability and population monitoring that informs recovery efforts.

Limiting Ecological Traits

Due to the relative rarity of this species and its cryptic nature, many aspects of the life history of this species as well as information on population status and trends are poorly known. The

reproduction, longevity, and diet of the rim rock crowned snake are unknown, but with the assumption it is similar to the closely related (taxonomically), *T. cornata*, it probably matures at 2 years old and may live to be at least 5 years old in the wild (Todd et al. 2008, p. 392). Warmer temperatures and the longer growing season in south Florida, the rim rock crowned snake may reach sexual maturity at an earlier age. There may be three eggs in a clutch, and they may be able to produce two clutches annually (Ernst and Ernst 2003, pp. 353–355). There is no information as to whether eggs or juvenile rim rock crowned snakes require different habitat than adults. If like *T. cornata*, young resemble adults in coloration.

Based on limited information, suitable habitat for rim rock crowned snake consists of pine rocklands and rockland hammock. The species is a mostly fossorial (underground) species that inhabits shallow soil over limestone formations. It has been found in rotten stumps and under anthropogenic surface detritus, fallen logs, and rocks (Duellman and Schwarz 1958, p. 306; Rochford et al. 2010, p. 99; Yirka et al. 2010, p. 386; FWC 2011, p. 3; Hines 2011, p. 353). These snakes are vulnerable to desiccation, so they usually occupy moist microhabitats (Powell et al. 2016, pp. 395–400). Refugia in pine rocklands and rockland hammock are provided by holes and crevices in the limestone, piles of rock rubble, pockets of organic matter accumulating in solution holes and shallow depressions in the limestone (Enge et al. 2003, pp. 27–28).

Threats

The rim rock crowned snake populations are affected by a variety of factors including habitat alteration through development, fire suppression, rise in sea level, saltwater intrusion, shifts in seasonal patterns of rainfall and temperature, and storm events. To a lesser degree, the species also faces threats from disease, invasive species, and predation. Habitat alterations are the most significant threat as any remaining suitable habitat for the rim rock crowned snake is extremely vulnerable to development if left unprotected. In addition, fire suppression has had considerable negative impacts on pine rocklands communities. The condition of some extant pine rocklands has declined and become degraded because of inadequate management or because they are isolated and confined by surrounding development that restricts the use of prescribed fire which is the primary management tool for this habitat. Without fire, the habitat is susceptible to nuisance species that alter the macro and micro habitats the snakes depend upon. The rise in sea level and saltwater intrusion can directly impact the habitat availability for the species. Over time, vegetation succession will result in mangrove dominance on the remaining land and more expansive estuaries across much of southern Florida. The multitude and severity of threats impacting the rim rock crowned snake are at both the individual and population level. The severity of threats may also be exacerbated by the rim rock crowned snake's limited distribution and small population size.

Current Biological Status

Overview

The rim rock crowned snake (*Tantilla oolitica*) is in the family Colubridae, part of the black-headed, crowned, and flat-headed snake genus: *Tantilla*, with seventy-six currently recognized species ranging from the southern United States to northern Argentina (Powell et al. 2016, pp. 395–400). The species is related closest to the southeastern crowned snake (*T. coronata*)

taxonomically, although geographically closer to the Florida crowned snake (*T. relicta*; Ernst and Ernst 2003, pp. 353–355). Rim rock crowned snake has been historically found in the Lower Florida Keys, in particular Key West and Big Pine Key; the Upper Florida Keys; and the southeastern Florida peninsula within Miami-Dade County, in a variety of locations. Within this limited range, the rim rock crowned snake is found in pine rocklands and rockland hammock, which consist of a limestone substrate and outcroppings.

3 Rs: For the purposes of the SSA, we assessed the rim rock crowned snake's condition across the known range of the species (Service 2023).

Resiliency: resiliency is the ability to withstand stochastic disturbances and is measured by fecundity, survival, abundance of suitable habitat, and population size. Generally, larger areas of suitable habitat support greater resiliency than smaller areas. In addition, resiliency is reflected by the quality of the above referenced factors, as well as genetic diversity, population abundance and demography.

Due to the cryptic nature of the rim rock crowned snake and very limited research, there is virtually no information concerning the population structure and demographics exhibited by this species. In addition, no information exists on the abundance (number of individuals) or growth rate of these populations. Therefore, the health and resiliency of these populations is uncertain. That said, persistence of populations at historical locations suggests the presence of some resilient populations.

Redundancy: Redundancy describes the ability of a species to withstand catastrophic events. Multiple populations across a landscape minimizes the potential loss of the species from catastrophic events. Redundancy is often characterized by having multiple, resilient populations distributed within the species' ecological settings and across the species' range. Distributed populations offer better redundancy than if the populations all occur in very close proximity.

Because of this species limited geographic range, similar threats are experienced with similar timing and intensity across its range. For example, the entire species may be vulnerable to the effects of a hurricane passing over southern Florida. Despite a level of redundancy provided by the discrete populations and individuals found dispersed across Miami-Dade County and the Florida Keys, the rim rock crowned snake has low redundancy because of its small endemic range.

Representation: Representation describes the ability of a species to adapt to changing environmental conditions and is measured by the breadth of genetic or environmental diversity within and among populations. Representation gauges the probability that a species is capable of adapting to environmental change. Hence, it is the evolutionary capacity or flexibility of the species. Representation is the range of variation found in the species, and this variation (called adaptive diversity) is the source of the species' adaptive capabilities.

To date, no genetic analyses have been conducted on the rim rock crowned snake, so the genetic and environmental diversity of this species is unknown. Consequently, it's unclear if there are morphological or behavioral differences between different populations.

The rim rock crowned snake occurs across a narrow geographic and ecological range. Consequently, there is no variation in habitat types across distance or elevation as there is for other wider-ranging and more abundant species. The amount of suitable habitat is limited and patchily distributed throughout Miami-Dade County and the Florida Keys. The species has not been found to occur across different ecosystems and if it disperses further from the limestone rock ridge in southeastern peninsular Florida. Thus, the rim rock crowned snake currently has and historically has had a naturally low level of representation.

Conservation Actions to Date

Most conservation actions for the species have occurred indirectly through Section 7 consultation and conservation of habitat through other listed species found within the pine rocklands and rockland hammocks. The rim rock crowned snake has been state threatened since 2019 and offered the state protections (Florida Administrative Register 2019). Targeted survey efforts for the species are necessary to document basic life-history information to inform population viability analyses and estimate population trends over time to prioritize conservation actions.

2. PRELIMINARY RECOVERY PROGRAM

Recovery Priority Number: 5C

Rationale: The rim rock crowned snake is assigned a recovery priority number of 5, indicating that the species faces a high degree of threat and has a low recovery potential. The degree of threat is considered high because of the multitude and complexity of the threats across the species range including development, fire suppression, increasing sea levels, saltwater intrusion, shifts in seasonal patterns of rainfall and temperatures, and storm impacts. These threats combined with the limited distributional range of the species amplify the impacts of the threats to the species as a whole. There is a low potential for recovery as the threats affecting the species occur at a severity and scale (landscape-level) that is difficult to reduce, remove, or mitigate to the level that will meaningfully contribute to species' recovery. Local habitat and conservation actions may benefit populations but would not necessarily mitigate wide population impacts. Captive breeding efforts to augment wild populations, or other intensive management actions, may be feasible if deemed necessary in the future.

Preliminary Recovery Strategy

The ultimate goal of the recovery efforts is to ensure the long-term viability of the rim rock crowned snake in the wild by implementing conservation actions that result in sufficiently large populations that are self-sustaining and that occur across the species' range, such that protections afforded by the Endangered Species Act are no longer required. Due to the cryptic nature of the species, we rely on a target geographic distribution and the strong correlation to habitat availability and quality to maintain viable populations into the future. The interim recovery actions include the development and implementation of a rim rock crowned snake monitoring plan. The Service will work with partners to establish monitoring and reporting protocols to obtain a better understanding of population demographics and provide insight into life-history characteristics (e.g., reproduction, survivorship) and habitat needs and conditions that will better our understanding of what recovery for the species looks like. New and continued partnerships

with County, State, Federal, and non-governmental agencies will be needed to protect habitat integrity and quality of pine rocklands and rockland hammocks, as well as encourage and support community-based stewardship planning and actions. Recovery actions (not in priority order) may include:

Preliminary Recovery Actions

- Develop monitoring plan to evaluate rim rock crowned snake populations and habitat quality throughout its range.
- Partner with the state and local governments to protect suitable habitat in perpetuity, focusing on those adjacent to freshwater sources and providing habitat connectivity.
 - Work with Monroe County Land Authority to prioritize acquisition of conservation land in suitable rim rock crowned snake habitats.
 - Work with Miami Dade County's Department of Environmental Resources Management to support their acquisition of pine rockland habitats.
- Work on the data gaps that impact recovery potential.
 - a) Use the best available genetic techniques to assess effective population sizes, inbreeding depression, and connectivity of suitable habitat.
- Facilitate improved habitat quality across the species range.
 - Create best management practices and conservation measures to implement during the environmental review process.
 - Reduce soil compaction during the rainy season when the snakes are likely most active.
 - Leave leaf and woody debris in place as microhabitat and refugia.
 - Remove and control nonnative species that negatively impact the habitat.
 - Establish and support a fire regime that improves the habitat quality.
- Minimize habitat destruction
 - Avoid development and fire breaks in and around intact pine rocklands.
 - Work with Monroe County Conservation Land Stewardship Program to prioritize and emphasize implementation of BMPs.
 - Work with Miami Dade County to prioritize and support their land protection programs such as Environmentally Endangered Lands program and the Natural Forest Communities ordinance in areas of suitable rim rock crowned snake habitats.
- Implement Service-approved captive propagation and reintroduction plans, if necessary, to supplement current populations or establish populations in areas of extirpation within the suitable habitat of the species.
 - Monitor supplemented and reintroduced individuals to determine efficacy of augmentation and reintroduction efforts.
- Develop educational materials about the rim rock crowned snake and its habitat.
 - post signage at appropriate pine rockland habitats to inform the public and generate public support for recovery actions.
 - Partner with outreach initiatives that support pine rockland habitats and the species within them.

3. RECOVERY PRE-PLANNING CONSIDERATIONS

We will prepare a Recovery Plan for the rim rock crowned snake informed by the Species Status Assessment report (Service 2023) and the best scientific data available. The Recovery Plan will include objective and measurable criteria that, when met, will ensure the conservation of the species. Recovery criteria will address all meaningful threats to the species and estimate the time and cost to achieve recovery. The Florida Ecological Services Field Office will lead the recovery planning effort.

Service policy states that a draft recovery plan will be completed within 18 months and a final plan available within two and half years of listing. A completed draft Recovery Plan is expected to be available by February 2027, and the final Recovery Plan is expected to be available by February 2028.

During the recovery planning process, we will seek input, comments, and review from multiple stakeholders in Florida, including State conservation agencies, species experts, research universities, and conservation organizations.

Signed: **BRADLY POTTER** Digitally signed by BRADLY POTTER
Date: 2026.09.28 12:24:59 -04'00'

Date: _____

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