Short-Tailed Snake

Lampropeltis extenuata

Photograph by Kevin Enge, FWC.

Species Overview

Status: Listed as state Threatened on Florida's Endangered and Threatened Species List

Current Protections

- 68A-27.003(2)(a), F.A.C., No person shall take, possess, or sell any threatened species included in this subsection or parts thereof or their nests or eggs except as authorized by Commission rule or by permit from the Commission or when such conduct is authorized in a management plan as defined in this chapter and approved by the Commission, or as authorized in Commission-approved guidelines.
- 68A-27.001(4), F.A.C., Take – to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. The term "harm" in the definition of take means an act which actually kills or injures fish or wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. The term "harass" in the definition of take means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering.

Cryptic Species

Cryptic species are those that may be difficult to detect due to behavior, habitat, or physical features even when using standardized survey techniques in occupied habitat. Interpretation of when harm or harassment may occur is difficult without a clear understanding of essential behavioral patterns of the species or habitat features that may support those behavioral patterns. The documented difficulties in detecting cryptic species and the lack of a reliable detection methodology leads to different considerations for take due to harm.

- The policy on permitting standards for incidental take of cryptic species in Florida's Imperiled Species Management Plan (ISMP) identifies the short-tailed snake (also known as the short-tailed kingsnake) as a cryptic species. Due to low detectability, little is known about the range-wide distribution or life history of short-tailed snakes.
- Permitting standards for the short-tailed snake will focus on cooperation and acquiring information with the understanding that as information is gained, permitting standards may change.
- For short-tailed snakes, information on distribution and habitat use may constitute a scientific benefit. Even if surveys are conducted, detection is difficult because of the fossorial (adapted to burrow and spend time underground) nature of this animal; therefore, surveys for short-tailed snakes are not recommended. Thorough and intensive surveys are needed to determine short-tailed snake presence and should be performed in coordination with the Florida Fish and Wildlife Conservation Commission (FWC).

Biological Background

This section describes the biological background for this species and provides context for the following sections. It focuses on the habitats that support essential behaviors for the short-tailed snake, threats faced by the species, and what constitutes significant disruption of essential behaviors.

Short-tailed snakes (*Lampropeltis extenuata*), also known as short-tailed kingsnakes, were formerly taxonomically classified as *Stilosoma extenuatum*. These slender snakes are endemic to peninsular Florida.

Short-tailed snakes have a silvery base dorsal coloration with up to 80 dark-to-black blotches on the top and sides of the body. There may be secondary orangish-brown to yellow blotching interspacing the primary dark patches. Scales are smooth and the anal plate is undivided (Conant and Collins 1998). Adults vary in length from 31 to 51 cm (12 to 20 in), and the record length for the species is 65 cm (29.5 in). Neonates and young snakes resemble adults. The species is named due to its notably short tail (the portion of the body occurring after the vent) that is less than 10% of the total body length (Campbell and Moler 1992, Ernst and Ernst 2003). Short-tailed snakes are colored and patterned somewhat like southern hog-nosed snakes (*Heterodon simus*) and pygmy rattlesnakes (*Sistrurus miliarius*), and they have some of the same defensive behaviors (Enge et al. 2015).

Short-tailed snakes are fossorial and burrow in sandy soils. They are most often found on the central Florida ridges west of the St. Johns River, but their range extends westward to the Gulf Coast (see map). Historically, these snakes have been found on the soil surface beneath fallen logs, sphagnum mosses (*Sphagnum* spp.), and anthropogenic debris. One snake was observed entering a gopher tortoise (*Gopherus polyphemus*) burrow (Florida Natural Areas Inventory Element Occurrence Record 34112). This species appears to spend some amount of time near the soil surface and has been dug up by gardeners, farmers, and builders (Van Duyn 1939, Highton 1956, Woolfenden 1962, Enge 2019). Short-tailed snakes appear to be most active near the surface from March through April and October through November (Campbell and Moler 1992). Florida crowned snakes *(Tantilla relicta*) appear to be their primary prey item, but the species eats other small smooth-scaled snakes (Carr 1934, Mushinsky 1984, Campbell and Moler 1992, Rossi and Rossi 1993, Godley et al. 2008). Known predators of short-tailed snakes include harlequin coral snakes (*Micrurus fulvius*), domestic cats (*Felis catus*), and dogs (*Canis lupus*). Other animals that consume snakes probably also eat short-tailed snakes, including invasive predators like red imported fire ants (*Solenopsis invicta;* Mount 1981). Data gaps for this snake are numerous and include much of this species' life history, habitat requirements, and population size and trends (FWC 2013).

The protection of short-tailed snakes is challenging because so little is known about the species. The apparent rarity of this species in conjunction with lack of biological information renders their biological status uncertain, although known population parameters render this species' designation as state Threatened. Nothing is known about this species' movement patterns. As sightings are rare, and effective surveys are not yet feasible, conservation actions focus on habitat acquisition, preservation, and management. Sightings may be improbable even if the animal is present. Therefore, scientific knowledge, including potential habitat models and data sets, should be used when permitting decisions are being made. More information may be found in A Species Action Plan for the Short-Tailed Snake (FWC 2013) and the Short-tailed Snake Biological Status Review Report (FWC 2011) .

Habitat Features that Support Essential Behavioral Patterns

Short-tailed snakes are typically found in well-drained sandy soils within longleaf pine-turkey oak sandhill, scrub, and xeric hammock habitat that contains natural groundcover (Van Duyn 1939, Carr 1940, Campbell and Moler 1992). Habitat models for the short-tailed snake identified that over 60% of suitable habitat within the species' range occurred in three Florida counties: Citrus, Hernando, and Marion (Enge et al. 2016). This species can occur in low-density development if suitable habitat is present. Although nothing is known regarding the species' breeding season, detection of individuals peaks in the spring and fall and may represent a period where animals are searching for mates or potential nesting areas. Populations of short-tailed snakes may be influenced by the density of Florida crowned snakes (Enge et al. 2016), their preferred prey item.

Threats

Specific threats to the short-tailed snake are difficult to ascertain due to a lack of species information, however, habitat loss due to development and conversion is a known primary threat (FWC 2013, Gibbons 2017). Currently, about 57% of the species' potential habitat is owned by private entities and is at potential

risk of development (FWC 2013). Other known threats include habitat alteration due to residential and commercial development and incompatible silviculture, agriculture, and mining practices (Enge 2019). Incompatible practices include frequently modifying the soil surface layer by disking, roller-chopping, or excessively compacting soils, which may cause direct take of the species or render the habitat unsuitable. These activities create disjunct patches of quality habitat that isolate populations and reduce gene flow.

Short-tailed snakes may persist in sub-optimal habitat such as lightly developed sandhill or unburned habitat undergoing ecological succession, however, the long-term viability of these populations is unknown. Most urbanized areas do not support viable populations of this species (FWC 2013). Short-tailed snake habitat is fire-dependent and proper fire management is important for ecosystem maintenance.

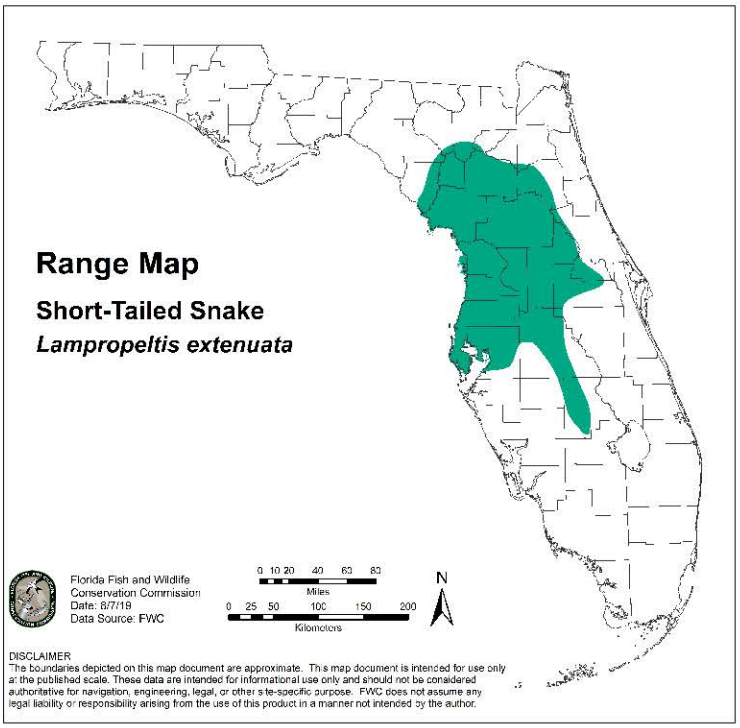
Snake fungal disease (SFD) is an emergent threat to wild snakes and has been documented in at least 10 states including Florida (Sleeman 2013, Glorioso 2016). Snake fungal disease may contribute to drastic reductions in wild snake populations, such as in New Hampshire where SFD may have been a factor in the 50% decline of an imperiled population of timber rattlesnakes (*Crotalus horridus;* Clark et al. 2010, Sleeman 2013). Because little is known about SFD, and because short-tailed snakes are hard to monitor, any effects of SFD on this species may be difficult to quantify. Providing any snakes that are found dead to FWC will help monitor for this disease (see Scientific Benefit under Mitigation).

Potential to Significantly Impair Essential Behavioral Patterns

Loss of suitable short-tailed snake habitat or potential habitat is the primary threat to this species. Habitat degradation due to fragmentation or improper management can impair the essential behavioral patterns of short-tailed snakes. Intensive silvicultural site preparation and land-clearing activities such as stump removal, subsurface root raking, and soil compaction from heavy equipment, also have the potential to cause incidental take of this species.

Distribution and Survey Methodology

The range map (right) represents the principal geographic range of the short-tailed snake, including interspersed areas of unoccupied habitat. This map is for informational purposes only and not for regulatory use.



Counties: Alachua, Citrus, Clay, Columbia, Dixie, Gilchrist, Hardee, Hernando, Highlands, Hillsborough, Lafayette, Lake, Levy, Marion, Orange, Osceola, Pasco, Pinellas, Polk, Putnam, Seminole, Sumter, Suwannee.

Recommended Survey Methodology

Surveys are not required. However, any surveys performed during the project planning phase should be conducted in coordination with FWC. Because this is a cryptic species, surveys conducted in accordance with the methodology described below may not detect the species. Any activity that requires handling a short-tailed snake in any capacity requires a permit. Opportunistic encounters that require identification of an animal

without handling may fail to determine species presence, as the short-tailed snake may be confused with other species (e.g., southern hog-nosed snake or pygmy rattlesnake; Figure 1). The objective of most surveys is to document the occurrence of the short-tailed snake; thus, if the species is detected in an initial survey, there is no need to continue surveys (unless surveys are being conducted as a component of Scientific Benefit).

- Short-tailed snakes are cryptic and fossorial; thus, traditional methods such as road-cruising surveys and opportunistic visual encounter surveys, even during the species' active seasons (March through April and October through November), are typically not effective.
- Long-term site monitoring using appropriate drift fence arrays for large snakes may be able to document short-tailed snakes. Short-tailed snakes have historically been captured in pitfall traps (e.g., buried 5-gallon buckets), or funnel-based traps with small mesh size (e.g., aluminum window screen). Brief surveys using temporary drift fence arrays may not be effective at documenting this species (Enge et al. 2016). A scientific collecting permit is needed for all trapping efforts. Examples and methodology guidance for long-term monitoring and appropriate trap design may be found in Burgdorf et al. (2005) and in Enge (2001). The methodology may require modification to target smaller bodied snakes.
- If short-tailed snakes are detected on site, the applicant should coordinate with FWC. If trapping long-term, traps should be checked every 2-3 days at a minimum. For best results, multiple traps should be deployed within a site.
- Bycatch should be anticipated when using drift fence traps that target snakes. Other potential snake species that may be captured include federally-Threatened eastern indigo snakes (*Drymarchon couperi*), state-Threatened Florida pine snakes (*Pituophis melanoleucus mugitus*), and numerous species of venomous snakes. Therefore, drift fence operators should be trained and permitted to release these species.

Figure 1. Short-tailed snakes (top) can resemble pygmy rattlesnakes (middle) and southern hog-nosed snakes (bottom). Photographs by Kevin Enge and Bradley O'Hanlon, FWC.

A geographic information system (GIS) review of recent (post-2000) short-tailed snake sightings and potential habitat models may aid in determining the presence of this species. Because the short-tailed snake is a cryptic species, GIS and/or crowd-sourced databases may not have complete occurrence data and should not be taken as evidence of absence when there are no documented occurrences near a project. Existing GIS data

and potential habitat models may be available upon request from FWC.

Recommended Conservation Practices

Recommended Conservation Practices are general measures that could benefit the species but are not required. No FWC permit is required to conduct these activities.

- Maintain the size and quality of upland habitats such as sandhills, scrub, xeric hammock, scrubby flatwoods, and longleaf pine (*Pinus palustris*) forests.
- Design projects to minimize loss of upland habitats that contain well-drained soils by minimizing the size of the project footprint, where possible.
- Establish conservation easements that maximize the conservation of upland habitat.
- If road construction is necessary, use unimproved dirt roads to the maximum extent possible. Guidelines for minimizing erosion and runoff from roadways can be found in the State of Florida Best Management Practices (BMPs) for stormwater runoff and within the Florida Department of Agriculture and Consumer Services (FDACS) silviculture BMPs.
- Develop a prescribed fire regime that promotes forests with an open canopy layer and diverse ground cover. Encourage regimes that maintain natural fire frequency, intensity, and seasonality appropriate for the target natural community.
- Avoid habitat management procedures that would compact or disturb soil, such as using roller choppers or roller drums, in suitable habitat except as needed for habitat restoration.
- Report short-tailed snake observations to the FWC Rare Snake Registry.

Measures to Avoid Take

Avoidance Measures that Eliminate the Need for FWC Take Permitting

This section describes all measures that would avoid the need for an applicant to apply for an FWC take permit.

- Avoid impacts to uplands habitats within the range of the short-tailed snake. Specifically, avoid fragmentation of uplands, as well as topsoil removal and compaction within suitable uplands habitats.

Examples of Activities Not Expected to Cause Take

This is not an exhaustive list of exempt actions. Please contact FWC if you are concerned that you could potentially cause take.

- Activities that occur in areas that do not provide short-tailed snake habitat due to size, disturbance, or other condition.
- Ongoing activities that occur as part of routine silvicultural or agricultural practices, excluding conversion of otherwise suitable habitats to silviculture or agriculture.
- Collecting location data and photographing a short-tailed snake, while allowing the snake to escape unharmed. This information should be provided to FWC (see Contact Information).
- Construction of minor structures such as sheds, equipment pads, fences, wood poles, and unpaved trails that occupy limited portions of an undisturbed area.
- Low impact and temporary activities such as debris management, tree removal and planting, grazing, and other activities that do not result in permanent alteration of soils.

Florida Forestry Wildlife BMPs and Florida Agricultural Wildlife BMPs

- These best management practices do not include the short-tailed snake, and thus do not apply.

Other Authorizations for Take

- As described in Rule 68A-27.007(2)(c), F.A.C., land management activities (e.g., prescribed fire, mechanical removal of invasive species, and herbicide application) that benefit wildlife and are consistent with FWC Management Plans are authorized and do not require a permit authorizing incidental take.
- Vegetation removal or trimming in the linear right of way for power restoration. This applies only in cases where there is an immediate danger to the public's health and/or safety (including imminent or existing power outages that threaten public safety, or in direct response to an official declaration of a state of emergency by the Governor of Florida or a local government entity), and only to non-routine removal or trimming of vegetation within the linear right of way, in accordance with a vegetation management plan that meets applicable federal and state standards. If conducted under these circumstances, no FWC take permit is required.

Coordination with Other State and Federal Agencies

The FWC participates in other state and federal regulatory programs as a review agency. During review, FWC identifies and recommends measures to address fish and wildlife resources to be incorporated into other agencies' regulatory processes. As stated in A Species Action Plan for the Short-Tailed Snake (FWC 2013) for the short-tailed snake, FWC will coordinate with federal agencies to promote land acquisition projects to acquire and/or protect landscapes important to the species. The FWC will coordinate with the United States Fish and Wildlife Service on Candidate Conservation Agreements with Assurances (CCAA) that may benefit the short-tailed snake. These CCAAs may provide incentives for landowners to implement management activities that benefit the species on private lands.

FWC provides recommendations for addressing potential impacts to state-listed species in permits issued by other agencies. If permits issued by other agencies adequately address all the requirements for issuing a state-Threatened species take permit, FWC will consider those regulatory processes to fulfill the requirements of Chapter 68A-27, F.A.C., with no additional application process. This may be accomplished by issuing a concurrent take permit from FWC, by a memorandum of understanding with the cooperating agency, or by a programmatic permit issued by another agency. These permits would be issued based on the understanding that the implementation of project commitments will satisfy the requirements of Rules 68A-27.003 and 68A-27.007, F.A.C.

Review of Land and Water Conversion Projects with State Listed Species Conditions for Avoidance, Minimization, and Mitigation of Take

- FWC staff, in coordination with other state agencies, provides comments to federal agencies on federal actions such as projects initiated by a federal agency or permits being approved by a federal agency.
- FWC staff works with landowners, local jurisdictions, and state agencies such as the Department of Economic Opportunity on large-scale land-use decisions, including long-term planning projects like sector plans, projects in Areas of Critical State Concern, and large-scale comprehensive plan amendments.
- FWC staff coordinates with state agencies such as the Florida Department of Environmental Protection (FDEP) and the five Water Management Districts on the Environmental Resource Permitting (ERP) program, which regulates or comments on activities such as dredging and filling in wetlands, flood protection, stormwater management, site grading, building dams and reservoirs, waste facilities, power plant development, power and natural gas transmission projects, mining, oil and natural gas drilling projects, port facility expansion projects, some navigational dredging projects, some docking facilities, and single-family developments such as for homes, boat ramps, and artificial reefs.
- FWC staff provides technical assistance during early review of proposed projects.

FWC Permitting: Incidental Take

As defined in Rule 68A-27.001, F.A.C., *incidental take* is take that is incidental to, and not the purpose of, carrying out an otherwise lawful activity. Activities that result in impacts to short-tailed snakes can require an Incidental Take Permit from FWC (see Recommended Conservation Practices for actions that do not require a permit). Permits may be issued when there is a scientific or conservation benefit to the species and only upon showing by the applicant that the permitted activity will not have a negative impact on the survival potential of the species. Scientific benefit, conservation benefit, and negative impacts are evaluated by considering the factors listed in Rule 68A-27.007(2)(b), F.A.C. These conditions are usually accomplished through a combination of avoiding take when practicable, minimizing take that will occur, and mitigating for the permitted take. This section describes the minimization measures and mitigation options available as part of the Incidental Take Permit process for take of this species. This is not an exhaustive list of options.

Minimization Measure Options

The options below may reduce or minimize take of the species and lessen the mitigation necessary to provide a conservation or scientific benefit. All options below assume that the avoidance measures described above are not possible and that some level of take may occur. FWC does not recommend short-tailed snake surveys unless as a component of scientific benefit.

Seasonal, Temporal, and Buffer Measures

- Little is known about short-tailed snake breeding or movement patterns. These snakes appear to be most active from March to April and October to November, which may correlate with breeding, and minimization of disturbance activities during this time may reduce take of the species.

Design Modification

- Minimize loss and disturbance of suitable large tracts of uplands such as sandhills, scrub, xeric hammock, scrubby flatwoods, and longleaf pine forests.
- Minimize fragmentation of habitat within suitable large tracts of land (i.e., maintain connectivity among upland habitats). Avoid fragmenting patches of habitat within the species' range.
- Design projects that minimize soil disturbance within high-quality habitat. This may include spreading slash timber evenly across a site or flat planting of trees.
- Design projects that will not affect prescribed fire regimes nor the ability to use prescribed fire in adjacent habitat. This may require review of smoke models and incorporation of a prescribed fire management plan in home owner associations (HOA) planning documents.
- In subdivision developments, encourage retention of natural ground cover instead of sod.

Method Modification

- When activities must occur within habitat occupied by the short-tailed snake, refer to the Seasonal and Temporal Restrictions above to minimize take.
- Provide identification information to project personnel and direct workers to avoid directly crushing the short-tailed snake and other cryptic species found in similar habitats.
- Allow animals observed during construction activities to move safely away from an area by ceasing activity until the animal has moved away. All sightings should be immediately reported to FWC and accompanied by GPS coordinates and photographs for species verification.
- Limited relocation is an option to avoid direct mortality of individual short-tailed snakes detected at a project site and should be considered when applying for an Incidental Take Permit. Handling of snakes, or take via harassment (i.e., non-lethal relocation) may occur when short-tailed snakes are relocated and their original habitat modified. Limited relocation allows for individual short-tailed snakes to be moved away from immediate development activities rather than allowing the animal to remain at risk of take. If applicants wish to pursue this option,

guidance for the limited relocation option will be included as an Incidental Take Permit condition.

Mitigation Options

Mitigation is scalable depending on the impact with mitigation options for significant impairment or disruption of essential behavioral patterns constituting take. For example, sharing sightings information for projects occurring in known occupied habitat would not be appropriate alone and should be combined with other mitigation options to achieve a net conservation benefit. In most cases, mitigation can be satisfied by meeting the conditions for scientific benefit for this species. Potential options for mitigation are described below.

Scientific Benefit

This section describes research and monitoring activities that provide scientific benefit, per Rule 68A-27.007, F.A.C. Conducting or funding these activities can be the sole form of mitigation for a project. Because the short-tailed snake is a cryptic species and limited information is available, the options provided below may change in response to new information. Projects that hope to improve existing survey methodology for the short-tailed snake would need to be conducted in consultation with FWC.

- Scientific studies following established survey methods and projects to fill data gaps related to information on species reproduction (including clutch time, breeding season, nest location, and nest predators), habitat requirements in different natural communities, diet and refuge use, impact of habitat fragmentation and patch size on population demographic parameters (i.e., productivity, survivorship, and mortality rates) are encouraged to better understand the species' life history. All scientific studies should be coordinated with FWC.
- Observation information may rise to the level of scientific benefit. Live and dead observations should be reported to the FWC and should include latitude, longitude, habitat characteristics, and photographs (required for verification purposes) by email to Imperiled@MyFWC.com.
- Provide any specimens discovered to FWC for location vouchers, snake fungal disease screening, and future genetics work. Arrangements for the transport or shipping of vouchers may be arranged by contacting Imperiled@MyFWC.com.

Habitat

- Habitat acquisition may be a mitigation option. Maintaining connectivity of contiguous upland habitats is preferred. Coordination with FWC's Landowner Assistance Program (LAP) and other partner programs will help promote management of upland habitats on private lands. Easements and/or land use agreements that establish connectivity for upland habitats are desirable.
- Upland habitat restoration options could include application of prescribed fire, hardwood reduction in overgrown habitats, pine thinning, and decreasing habitat fragmentation.
- Removal and treatment of non-native invasive plant species and replacement with native plant species may be a mitigation option

Funding

- No funding option has been identified at this time. However, funding options as part of mitigation will be considered on a case-by-case basis.

Information

- Very little is known about short-tailed snake nesting ecology. If short-tailed snakes are verified to occur on site and snake eggs are encountered, please contact FWC's Regional Conservation Biologist.

Programmatic Options

- FWC's Landowner Assistance Program is a voluntary program that can facilitate financial and technical assistance to landowners who implement conservation plans. This program would allow FWC opportunities to gather information on private lands slated for resource management. FWC provides assistance in evaluating management practices and in creating suitable avoidance, minimization, and mitigation options for specific properties.

Multispecies Options

- The short-tailed snake's range overlaps that of several other species that live in sandhill and upland habitats. Measures that will benefit the short-tailed snake, particularly those focused on maintaining appropriate habitat, will also benefit those other species.
- State- and federally-listed species, including species listed in Florida's ISMP, that have overlapping ranges and habitat preferences with the short-tailed snake include but are not limited to: red-cockaded woodpecker (*Picoides borealis*), eastern indigo snake (*Drymarchon couperi*), Florida scrub-jay (*Aphelocoma corulescens*), Florida pine snake (*Pituophis melanoleucus*), southeastern American kestrel (*Falco sparverius paulus*), gopher tortoise (*Gopherus polyphemus*), Florida mouse (*Podomys floridanus*), and gopher frog (*Lithobates capito*). Actions that benefit these species may have direct benefit to short-tailed snakes.

FWC Permitting: Intentional Take

Intentional take is not incidental to otherwise lawful activities. Per Rule 68A-27, F.A.C., intentional take is prohibited and requires a permit. For state-Threatened species, intentional take permits may only be considered for scientific or conservation purposes (defined as activities that further the conservation or survival of the species taken). Permits are issued for state-Threatened species following guidance in Rule 68A-27.007(2)(a), F.A.C.

Risks to Property or People

Intentional Take for Human Safety

- There are no known circumstances for which short-tailed snake may be taken for human safety.

Aversive Conditioning

- Not applicable for the short-tailed snake.

Permits Issued for Harassment

- Not applicable for the short-tailed snake.

Scientific Collecting and Conservation Permits

Scientific collecting permits may be issued for the short-tailed snake using guidance found in Rule 68A-27.007(2)(a), F.A.C. Activities requiring a permit include any research that involves capturing, handling, or marking wildlife; conducting biological sampling; or other research that may cause take.

A scientific collecting permit will not be issued for the sole purpose of removing a snake from the wild to use as an educational or outreach animal. Animals used for outreach may occasionally be available from rehabbers, or via scenarios where relocation is not an option. Short-tailed snakes originating from the wild with a scientific collecting permit used for educational and outreach purposes should be used for a minimum of 12 educational engagements equating to a minimum of 48-hours of contact time per year. Owners of snakes used for educational and outreach must have a Class III Exhibition License and follow all caging requirements (68A-6.004, F.A.C.).

Considerations for Issuing a Scientific Collecting Permit

1) Is the purpose adequate to justify removing the individuals (if the project requires this)?

- Permits will be issued if the identified project is consistent with the goal of the Species Action Plan (i.e., improvement in status that leads to removal from Florida's Endangered and Threatened Species List) or addresses an identified data gap important for the conservation of the species.

2) Will there be a direct or indirect effect of issuing the permit on the wild population?
3) Will the permit conflict with programs intended to enhance survival of species?
4) Will the purpose of the permit reduce the likelihood of extinction?
    - Projects consistent with the goal of the Species Action Plan or that fill identified data gaps in species life history or management may reduce the likelihood of extinction. Applications should clearly explain how the proposed research will provide a scientific or conservation purpose for the species.
5) Have the opinions or views of other scientists or other persons or organizations having expertise concerning the species been sought?
6) Is applicant expertise sufficient?
    - Applicants must have prior documented experience with this or similar species; applicants should have met all conditions of previously issued permits; and applicants should have a letter of reference that supports their ability to handle the species.

Relevant to all Scientific Collecting Permits for Short-tailed Snakes

- Visual encounter surveys and opportunistic encounters that do not involve touching short-tailed snakes or altering microhabitat (e.g., flipping logs) do not require a permit.
- Any activity that requires trapping or handling of short-tailed snakes will need a permit. This includes taking a scale or tail clip for genetic analyses.
- Applications must include a proposal that clearly states the objectives and scope of work of the project, including a justification of how the project will result in a conservation benefit to the species. The proposal also must include a thorough description of the project's methods, timeframe, and final disposition of all individuals. Permit amendment and renewal applications must be "stand alone" (i.e., include all relevant information on objectives and methods).
- Permits may be issued to display a specimen if the specimen was obtained via a rehabilitation facility or was encountered dead.
- Permits may be issued for captive possession (removal from the wild) if the individual is deemed non-releasable.
- Capturing and handling protocols, and a justification of methods, must be included in the permit application and should identify measures to lessen stress for captured snakes.
- Methodologies for any surgical procedures should be clearly spelled out, including measures taken to reduce stress and injury to the animal. Surgical procedures should be performed by a qualified veterinarian.
- Methodologies for any collection of tissues, such as blood and scale clips, should be clearly spelled out, including measures taken to reduce stress and injury to the animal.
- Disposition involving captive possession for any period must include a full explanation of whether the facility has appropriate resources for accomplishing the project objectives and for maintaining the animals in a safe and humane manner.
- Any mortality of short-tailed snakes should be reported immediately to FWC at the contact information below. FWC will provide guidance on proper disposition of specimens.
- Geographical or visual data gathered must be provided to FWC in the specified format.
- A final report should be provided to FWC in the format specified in the permit conditions.

Additional Information

Information on Economic Assessment of this guideline can be found at http://myfwc.com/wildlifehabitats/imperiled/management-plans/.

Contact

For more species-specific information or related permitting questions, contact FWC at (850) 921-5990, WildlifePermits@myfwc.com or Imperiled@myfwc.com. For regional information, visit http://myfwc.com/contact/.

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