



Canebrake Rattlesnake Mitigation

DWR Internal Protocols

Wildlife Information and Environmental Services

Purpose: This document is to guide DWR staff in the development of mitigation recommendations for projects that may impact the State Endangered Canebrake Rattlesnakes and/or their habitats. DWR's mitigation recommendations will be developed using the procedures included within and DWR will provide those recommendations to permitting agencies during typical project and permit review processes.

Taxonomy: Canebrake (=Timber) Rattlesnake [*Crotalus horridus* (Coastal Plain population)] Based on genetic analysis, the Canebrake Rattlesnake is no longer considered a subspecies of the timber rattlesnake. However there are morphological and ecological differences between the Coastal Plain and mountain populations. Because of these differences, the Department recognizes the Coastal Plain population as a unique population.



Characteristics: In Virginia, this large, venomous snake reaches a maximum length of about 182 cm. (72 inches). It is the only species of rattlesnake native to southeastern Virginia. The body color is usually pinkish, gray, yellow or light brown with brown to black chevrons and a black tail. A rust-colored mid-dorsal stripe is usually present as is a yellow-gold to brown stripe from the eye to the back of the jaw.

Food habits: This species feeds primarily on gray squirrels and typically only feeds once or twice per year. This snake also may capture and eat other rodents, rabbits and birds.

Range and Status: In Virginia, the Canebrake Rattlesnake primarily occurs on the lower York- James Peninsula and east of the Suffolk Escarpment. The southeastern Virginia population is designated as *State Endangered*.

Preferred Habitat: Canebrake Rattlesnakes prefer mature hardwood forests, mixed hardwood- pine forests, cane thickets, and in the ridges and glades of swampy areas. Areas with numerous logs, significant leaf litter and humus also provide suitable habitat. This species overwinters in the bases of hollow trees and stumps, and in the underground tunnels resulting from stump and root decomposition. . This species has also been known to occupy disturbed areas, such as farm fields and cut-overs.

Reproduction: Canebrake Rattlesnakes mature at 4-6 years of age and reproduce every 2-3 years. Mating occurs primarily in late summer and litters of 7-18 young are born the following August or September.

Permit Review Process

JPA Review (project with stream/wetland impacts):

For project sites in York County, Hampton, and Newport News, only those projects located within the boundaries of the designated Canebrake Rattlesnake Peninsula Core Habitat Area (see attached map) should be evaluated for the potential of Canebrake Rattlesnakes to occur onsite.

For projects south of the James River (i.e., Suffolk, Chesapeake, and Virginia Beach), projects impacting blocks of habitat 50 acres or more in size (i.e., suitable habitat being impacted on the project site is greater or equal to 50 acres or the impacted habitat on the project site plus contiguous habitat equals 50 acres or more) should be evaluated for potential Canebrake Rattlesnake occurrence.

If a proposed project being reviewed falls within the known range of the Canebrake Rattlesnake (using parameters described above) and is within 3.2 kilometers (2 miles) of a documented occurrence of the species, the following mitigation recommendation guidance should be followed in the absence of performing a survey on site (i.e., applicant prefers to assume presence). This guidance also may apply in situations where the applicant has had a habitat assessment performed and we have reviewed that assessment.

- A. Recommend additional compensation for wetland impacts at a ratio from 1:1 to 3:1. This range of compensation ratios should be used when some combination of the following descriptors applies to the site/review:
 - the project area (not only water impact area) is relatively small (<10 acres in total);
 - the area is contiguous with other areas of suitable habitat, but there is some impediment to movement between the project site and other areas of suitable habitat (roads, water bodies, etc.) or contiguous habitat does not surround the project site
 - the Canebrake Rattlesnake documentation is old (>20 years) and/or located greater than 1 mile from the project site;
 - the habitat is suitable, but not ideal

- B. Recommend additional compensation for wetland impacts at a ratio from 4:1 to 6:1. This range of compensation ratios should be used when some combination of the following descriptors applies to the site/review:
 - the project area (not only water impact area) is of medium size (10-25 acres in total);
 - the project site is contiguous to other areas of suitable habitat with movement corridors between them, but perhaps not on all sides;
 - the Canebrake Rattlesnake documentation is recent (<20 years) and/or is located within 1 mile of the project site;
 - the habitat appears to be suitable and of good quality leading one to believe that although there are no survey records for the site, it is highly likely the species would be found there

- C. Recommend additional compensation for wetland impacts at a ratio from 7:1 to 10:1. This range of compensation ratios should be used when some combination of the following descriptors applies to the site/review:
 - a. the project area (not only water impact area) is large (>25 acres in total);
 - b. the impact area is contiguous with other areas of suitable habitat – especially if these

- areas are already preserved/protected/public lands;
- c. the Canebrake Rattlesnake documentation is recent and within 0.5 mile of the project area (in the contiguous habitat areas) and/or we have survey records for the project area itself that document the existence of Canebrake Rattlesnakes onsite.
the habitat is considered of high quality

Other project reviews:

If the project does not fall under any water impact permitting requirements, rather than recommend mitigation ratios based on wetland/stream impacts, it is more appropriate to recommend that areas of like habitat be preserved to compensate for lost habitat. Projects impacting habitat blocks of less than one acre do not require mitigation.

Mitigation Options (in order of preference)

- A. Preservation of suitable habitat adjacent to already preserved, occupied habitat. Preservation should be in perpetuity through a third party conservation easement/agreement. Such agreement should preserve the land in its current state or an enhanced state. No building/timbering/trail development should be allowed in such areas, unless first reviewed by our agency to address possible impacts upon canebrake rattlesnakes or the overall health of the preservation area. Future vegetation management of the site should be to the benefit of Canebrake Rattlesnakes. Contacts for canebrake rattlesnake habitat mitigation at sites located within Chesapeake: Davis Environmental Consulting, Inc. at 757-456-9331; Mike Lane, SWB Associates, at 757-641-4292 or lanewmike@gmail.com; Resource Environmental Solutions, Dover Farm, at vacreditsales@res.us.
- B. Purchase of credits at a wetland mitigation bank that falls within the natural range of Canebrake Rattlesnakes and is known to include suitable habitat for the species. This should include the purchase of a combination of upland and wetland credits, if available. Banks known to support canebrake rattlesnakes include: Lewis Farm and Edge Farm mitigation banks (Great Dismal Swamp Restoration Bank – 757-487-3441); and Dover Farm Mitigation Bank (RES, vacreditsales@res.us).
- C. We recommend in lieu payment into the Aquatic Resources Trust Fund.

Species Surveys

Because this species is highly cryptic, making detection very difficult even for the mostly highly trained biologist, we do not consider species surveys a viable option for determining presence or absence of Canebrake Rattlesnakes at any particular project site.

Contact Information

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Canebrake Rattlesnake Peninsula Core Habitat Area

