ADDRESSES: Comments and materials concerning this proposal should be sent to the Field Supervisor, Caribbean Field Office, U.S. Fish and Wildlife Service, P.O. Box 491, Boquerón, Puerto Rico 00622. Comments and materials received will be available for public inspection, by appointment, during normal business hours at this office, and at the Service's Southeast Regional Office, 1875 Century Boulevard, Atlanta, Georgia 30345.

FOR FURTHER INFORMATION CONTACT: Ms. Susan Silander at the Caribbean Field Office address (809/851–7297) or Mr. William C. Hunter at the Atlanta, Georgia, Regional Office address (404/331–3580).

#### SUPPLEMENTARY INFORMATION:

## Background

With over 400 described species. Eleutherodactylus is the largest vertebrate genus. Two major centers of species diversity occur: northwestern South America and the West Indies. Almost all species possess "t-shaped" terminal phalanges, probably an adaptation for climbing and reproductively, these frogs have direct development, allowing for reproduction away from water. In the West Indies, Eleutherodactylus species are a dominant amphibian group. No single species is naturally found on more than one of the four Greater Antilles, and most are restricted to small areas within an island (Hedges 1989). Seventeen species of this genus are known from Puerto Rico and collectively, they are commonly known as "coquis" (Rivero 1978, Moreno 1991).

The guajón (Eleutherodactylus cooki), also known commonly as "demon of Puerto Rico'' or "demonio de Puerto Rico," is a relatively large frog, approximately 8.5 centimeters (3.3 inches) in length. It is solid brown in color, although males and some females may have a yellow throat. In both sexes, the frogs have large, white-rimmed eyes, giving the species a specter or phantomlike appearance. It is characterized by having large truncate discs and by a peculiar, melodious and low voice which is completely different from any other species of Eleutherodactylus in Puerto Rico (Rivero 1978). Rivero (1978) states that its peculiar calling and phantom-like appearance made many local people fearful of the species, believing that the mere sight of an animal would be fatal.

The guajón, first collected in 1932, is known only from the Pandura range in southeastern Puerto Rico and west to Patillas/San Lorenzo where it lives in crevices and grottoes in and among

boulders. Such grottoes are commonly referred to as guajonales. It is from the grottoes or guajonales that the frog derives its name, the guajón. The species is apparently limited in distribution by the rock formation where it occurs (Rivero 1978, Joglar 1992). Joglar (1992) documented population fluctuations, apparently related to precipitation and temperature. Numbers are lowest during the winter months, during the period of least rainfall and lowest temperatures. The number of egg clutches and juveniles was greatest during the months of October and September. Eggs are laid on the humid faces of boulders within the grottoes and the clutches of up to 59 eggs are apparently guarded by the males (Rivero 1978).

During surveys conducted by Drewry (1986) and Joglar (1992), the guajón was found at its historical localities, all of which occur within the municipalities of Yabucoa and San Lorenzo. Little historical data are available on abundance, therefore, reductions in populations are difficult to document. Nevertheless, *E. cooki* is endemic to Puerto Rico, extremely restricted in geographical distribution and occurs only on privately-owned lands. Threats include fire, deforestation and earth movement for agricultural activities and rural development, road construction, including the construction of a major four lane highway, and the construction of a reservoir.

## Previous Federal Action

In the Service's notices of review for vertebrate candidates published in the Federal Register of December 30, 1982 (47 FR 58454), September 18, 1985 (50 FR 37958), January 6, 1989 (55 FR 17475) and November 21, 1991 (56 FR 58804), Eleutherodactylus cooki was included as a category 2 species. Category 2 species (now recognized as species of concern to the Service) are taxa for which there is information to indicate that listing may be appropriate, but for which there is insufficient data to support a listing proposal.

During a symposium/workshop on Puerto Rican reptiles and amphibians held in Puerto Rico in April of 1990, Moreno (1991) believed that the guajón was declining and in urgent need of a status survey. Status surveys conducted in 1991 and 1992 indicated that the guajón is extremely restricted in distribution and currently faces significant threats (Joglar 1992). The Service recently elevated the guajón to candidate status and is proposing it for threatened status.

Summary of Factors Affecting the Species

Section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act set forth the procedures for adding species to the Federal lists. A species may be determined to be endangered or threatened due to one or more of the five factors described in section 4(a)(1). These factors and their application to the guajón (*Eleutherodactylus cooki*) are as follows:

## A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

The guajón is only known from the municipalities of Yabucoa and San Lorenzo in the Pandura mountain range in the extreme southeastern corner of Puerto Rico. Deforestation and earth movement for agricultural and rural development have encroached upon known habitat of the species. Road construction and the associated cut and fill has eliminated habitat (Drewry 1986). A major four lane highway is currently proposed through the area, as is the construction of a major reservoir.

# B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Although not previously identified as a determinant factor in the decline of the guajón specifically, scientific collecting of related species of coqui in Puerto Rico has contributed to declines. In a survey of only seven museums in both Puerto Rico and the United States, numerous specimens of the web-footed coqui (E. karlschmidti) and the mottled coqui (E. eneidae) were located, with a total of 473 preserved individuals of the former and 325 of the latter species (Joglar 1992). Both of these related species' status are under evaluation by the Service because of their extreme rarity. Collection of *Eleutherodactylus* sp. for use in local art has also been documented, and such activities are currently being evaluated by the Commonwealth government for possible regulation.

# C. Disease or Predation

Disease has not been documented as a factor in the decline of this species. However, examination of both preserved and live specimens of the guajón revealed that the species is parasitized by the tick *Ornithodoros talaje*. Nevertheless, the effect of this parasite on the guajón has yet to be studied (Joglar 1992). Introduced species such as cats, rats and mongoose, active at night,