

**Puerto Rican Nightjar or Guabairo
(*Caprimulgus noctitherus*)**

5-Year Status Review:

Summary and Evaluation



Photo by: Mike Morel (2014)

**U.S. Fish and Wildlife Service
Southeast Region
Caribbean Ecological Services Field Office
Mayagüez, Puerto Rico**

July 2023

5-Year Status Review
Puerto Rican Nightjar or Guabairo
(Caprimulgus noctitherus)

GENERAL INFORMATION

Current Classification: Endangered

Date of original listing: June 4, 1973 ([38 FR 14678](#))

Lead Field Office: Caribbean Ecological Service Field Office (CESFO), Mayagüez, Puerto Rico, José-Cruz-Burgos, jose_cruz-burgos@fws.gov.

Reviewers

Lead Regional Office: Carrie Straight, Southeast Region, Atlanta, GA (404) 679-7226.

Date of Original Listing: Puerto Rican whip-poor-will (*Caprimulgus noctitherus*), June 4, 1973 (38 FR 14678).

Species' Recovery Priority Number at start of 5-year review (48 FR 43098): 5C. This RPN indicates the species faces a high degree of threat and low recovery potential (RPN 5), as well as being in conflict with construction or other development projects or other forms of economic activity (applying the “C” designation).

Review History: Previous 5-year status reviews were signed on August 16, 2012, and December 22, 2017 (Service 2012 and 2017, respectively). Both status reviews recommended that the species remain listed as endangered.

Methodology used to complete the review: In accordance with section 4(c)(2) of the Endangered Species Act of 1973, as amended (Act), the purpose of a status review is to assess each threatened species or endangered species to determine whether its status has changed and if it should be classified differently or removed from the Lists of Threatened and Endangered Wildlife and Plants. The U.S. Fish and Wildlife Service (Service) evaluated the biology, habitat, and threats of Puerto Rican nightjar or guabairo (*Caprimulgus noctitherus*) to inform this status review. In conducting this 5-year status review, we relied on the best available information pertaining to historical and contemporary distributions, life history, genetics, habitats, and threats of this species.

FR Notice citation announcing the species is under active review

May 13, 2022 ([87 FR 29364](#)). We received one comment during the public comment period. The comment included information regarding new sightings of the species by Dr. Leanne Grieves. The information provided by Dr. Grieves is included in this document.

REVIEW ANALYSIS

Listed Entity

Taxonomy and nomenclature

An analysis of the genetics of this species, resulted in a change to the species' genus from *Caprimulgus* to *Antrostomus* (Han et al. 2010). This change was included in the 53rd supplement to the American Ornithologists' Union Check-list of North American Birds (Chesser et al. 2012) and the Integrated Taxonomic Information System (ITIS 2023). This new taxonomy is accepted by the Service and was included in a proposed rule to recognize the change (Service 2022). Until a final rule is published, we will continue to reference the species using the name as it was listed, *Caprimulgus noctitherus*.

Distinct Population Segment (DPS)

The Act defines species as including any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate wildlife. The Puerto Rican nightjar was not listed as a DPS, and we have no new information that would indicate the species should be listed as a DPS under the Service's 1996 DPS Policy.

Recovery Criteria

Recovery Plan

Name of plan: Recovery Plan for the Puerto Rican Whip-Poor-Will (*Caprimulgus noctitherus*), April 19, 1984 (Service 1984)

The Recovery Plan establishes that Puerto Rican nightjar could be considered for delisting when the following three criteria are met:

1. A population of 600 breeding pairs in Guánica forest, 400 breeding pairs in the Guayanilla-Tallaboa area, and 200 breeding pairs in Susúa forest are established.
2. Assurance of long-term protection of the essential habitat needed to sustain these populations.

None of the above delisting criteria have been met.

Biology and Life History

A detailed review of the species' biology, distribution, abundance, and its habitat can be found in the previous Puerto Rican nightjar 5-year status reviews (Service 2012, 2017). Below is a summary of our current knowledge of the species' distribution and abundance.

Species Distribution and Abundance

The first study on the abundance of the nightjar was conducted from 1969 to 1971 by Kepler and Kepler (1973). During the study, they reported records of nightjars in the Guánica Commonwealth Forest and the Susúa Commonwealth Forest. They estimated a total population

of 450-500 breeding pairs, most of which (80%) were thought to be restricted to the section of the Guánica Commonwealth Forest east of the Guánica Bay (Kepler and Kepler 1973). Vilella and Zwank (1993) conducted a more extensive study during 1985-1992 in more localities across southwest Puerto Rico. Nightjars were found in three main areas in the coastal dry and lower cordillera forests of southwestern Puerto Rico. These included Guánica-Ensenada, Susúa-Maricao, and Guayanilla-Peñuelas (Figure 1). They reported the first nightjar records in the Parguera Hills and Sierra Bermeja in southwest Puerto Rico and estimated a population of 1,400–2,000 male nightjars distributed across approximately 10,000 hectares. Historically, its distribution may have included the northern karst from where it was originally described, but currently it is mostly restricted to southern Puerto Rico from Cabo Rojo to Guayama (Reynard 1962, Vilella and Zwank 1993). For example, Vilella and González (2009) detected the presence of the species in the municipalities of Sabana Grande and Guayama. Their study also included searches in the historical karst forest habitat of the Island's north-central region; however, no relict populations were found. We have no new population estimates for the species at this time.

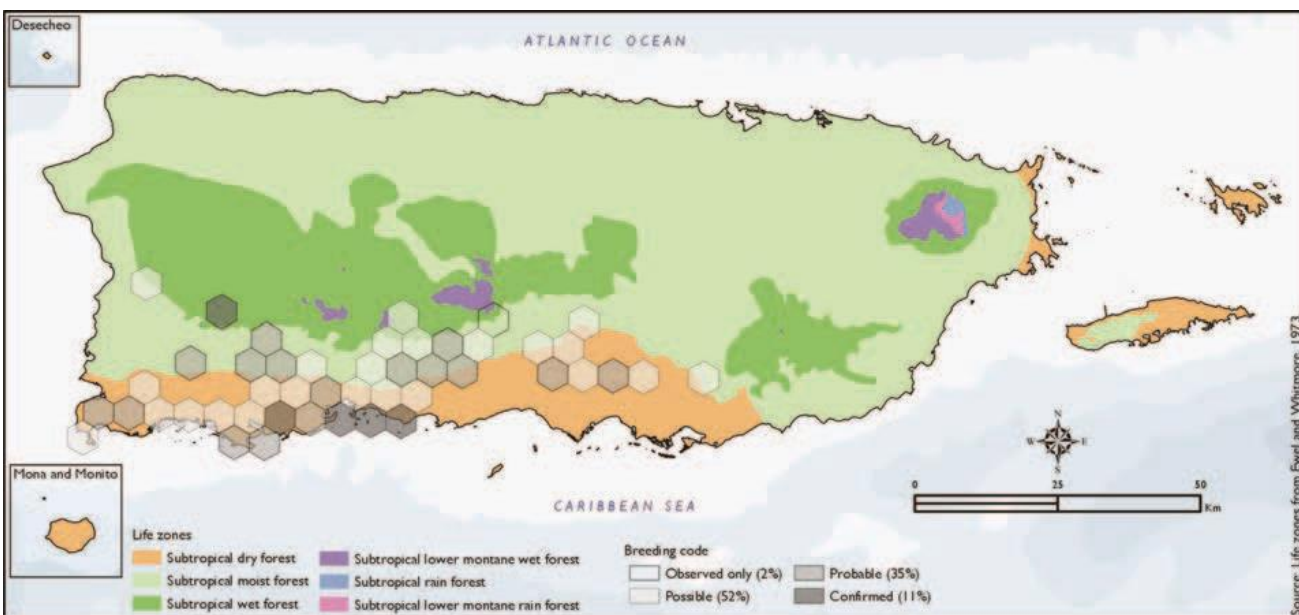


Figure 1. Main regions of coastal dry and lower cordillera forests of southwestern Puerto Rico where Puerto Rican nightjar has been detected. Darker hexagons indicate stronger evidence of breeding individuals (republished from Castro-Prieto et al. 2021).

Research on abundance suggests nightjars may be more numerous and widely distributed than previously reported (González 2010). On November 24, 2015, Service biologists Angel Colón-Santiago and Omar Monsegur conducted a site visit to the location of a proposed residential development in El Tuque in the municipality of Ponce and observed Puerto Rican nightjar individuals in various lots of the proposed development (Residential-Elderly Project; El Tuque, Ponce, FWS/R4/CESFO/72113-002). These observations confirmed the species' presence in the southern dry forest region of the municipality of Ponce (Figure 2).



Figure 2. Puerto Rican nightjar individual observed by Service biologists Angel Colón-Santiago and Omar Monsegur in the Residential-Elderly Project proposed project site.

Also, during November and December 2021, Grieves et al. (2023), detected the calls of one or two Puerto Rican nightjars at four locations within the Cabo Rojo National Wildlife Refuge (NWR), along with an adjacent private property known as Finca Altamira, while conducting surveys for smooth-billed anis (*Crotophaga ani*) (Figure 3). Grieves et al. (2023) were able to record visual observations as well as audio of the species during their surveys. Detailed information about these observations can be accessed as a Trip Report on eBird at the following link: <https://ebird.org/tripreport/111245>. The sites where these nightjars were detected are located in the south westernmost part of Puerto Rico, an area where breeding of the species was indicated as "probable" according to the Breeding Bird Atlas map (Castro-Prieto et al. 2021). This is the first published record of Puerto Rican nightjars in the Cabo Rojo NWR, confirming previous assumptions about their likely presence in the area.

Furthermore, on May 19, 2023, a contractor from the power company LUMA Energy made a significant report of a Puerto Rican nightjar and a nest containing two eggs at Guamani Ward in the municipality of Guayama (Figure 4). The Guamani Ward is situated to the east of all previously recorded occurrences of the species indicated in the Breeding Bird Atlas map shown in Figure 1. This sighting provides additional evidence supporting the statement that the species is likely more widely distributed in suitable habitats than previously understood.



Map source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, the GIS User Community, Esri Community Maps Contributors, Kadaster Netherlands, Here, Garmin, SafeGraph, INCREMENT P, METI/NASA, NPS, US Census Bureau

Figure 3: Locations where Puerto Rican Nightjars were heard and observed within the Cabo Rojo National Wildlife Refuge. Map provided by Grieves et al. (2023).

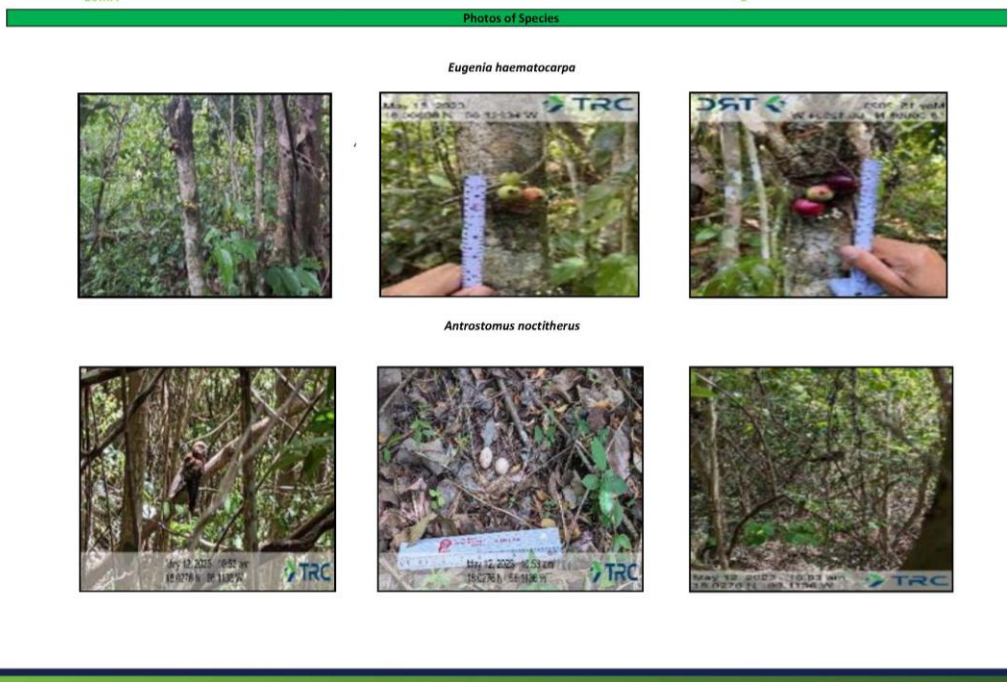


Figure 4: Endangered species sighted by LUMA Energy in the Guamani Ward, Guayama municipality. Photo provided by LUMA Energy.

Threats (Five-Factor Analysis) Summary

A detailed review of the species' threats can be found in the previous 5-year reviews for Puerto Rican Nightjar or guabairo (*Caprimulgus noctitherus*) (Service 2012, 2017). The status of a species is determined from an assessment of factors specified in section 4 (a)(1) of the Act, including:

Factor A (the present or threatened destruction, modification, or curtailment of its habitat or range).

Factor B (overutilization for commercial, recreational, scientific, or educational purposes).

Factor C (disease or predation).

Factor D (the inadequacy of existing regulatory mechanisms).

Factor E (other natural or manmade factors affecting its continued existence).

In the 2012 5-year status review, the Puerto Rican nightjar was considered threatened due to the present or potential destruction, modification, or reduction of its habitat or range (Factor A) and other natural or manmade factors that affect its continued existence (Factor E). We believe that these threats persist today. We have no evidence that overutilization (Factor B) or disease (Factor C) are impacting the species. However, predation (Factor C) may occur, particularly from non-native species such as feral cats (*Felis catus*), mongooses (*Herpestes javanicus*), rats (*Rattus sp.*), as well as native predators like the pearly-eyed thrasher (*Margarops fuscatus*) and short-eared owl (*Asio flammeus*) (Service 2012, 2017, and references therein). Non-native predators likely contribute to increased predation pressure on the species, although it is unclear if this predation significantly affects the species' viability.

A primary concern revolves around the promotion of tourism and residential development in the coastal municipalities of southwestern Puerto Rico. These activities are expected to have direct or indirect impacts on the dry coastal and lower montane forest habitats that the species depends on for nesting, foraging, and shelter (Factor A). For instance, land use pressures are evident in the areas surrounding the Guánica and Susúa Commonwealth Forests, and even within these protected reserves (Service 2012). The nightjar habitat on private lands in the periphery of the Susúa Commonwealth Forest continues to be disturbed due to road construction and residential development. Additionally, the absence of forest reserves in the Guayanilla-Peñuelas and El Tuque Ponce region has led to increased fragmentation and deforestation for residential purposes.

Recently, the Puerto Rico Electric Power Authority (PREPA) private operator, LUMA ENERGY, have been seeking Federal Emergency Management Agency (FEMA) disaster relief funds to reconstruct the Puerto Rico's power grid, which was severely damaged by Hurricanes Irma and María in 2017. Some of the power transmission lines pass through Puerto Rican nightjar habitat, including ecologically sensitive areas such as the Guánica Commonwealth Forest in southwest Puerto Rico and the southeast region of the Island.

While FEMA is currently working with the Service in a consultation process under Section 7 of the Act to address these actions and develop conservation measures to protect listed species, LUMA has been conducting non-federally funded maintenance work along powerline rights-of-

way. Unfortunately, this maintenance work has resulted in extensive vegetation clearing, including areas that serve as Puerto Rican nightjar habitat in the municipalities of Yauco, Guayanilla, Peñuelas, and Ponce (Service 2023). We believe that the vegetation clearing in these areas has the potential to impact the Puerto Rican nightjars, particularly during their breeding season. This example illustrates that even with the protections offered by the Act, regulatory mechanisms (Factor D) alone cannot fully safeguard the species from threats of habitat modification, especially in light of the need for emergency response related to hurricane damage.

Habitat modification disrupts demographic processes by physically separating and confining nightjar populations into smaller units of usable space. Also, it promotes ecological processes that may further degrade the quality of remaining forest habitats (Kupfer et al. 2006). For example, the edge effect of roadside habitats and clearings often extends into the surrounding forest, with a consequent decrease in habitat quality extending beyond the actual hard edge of the road (Amor and Stevens 1976; Vilella and Zwank 1993). All these activities involve the permanent alteration of the nightjar habitat. The sedentary nature of this species and its link to mature, the closed-canopy forest provides little room for what proponents may visualize as minor habitat alterations (Vilella 2008). It is estimated that only 14% of the lands which breeding is found for the species is protected habitat (Castro-Prieto et al. 2021). These unprotected lands will be especially vulnerable to habitat modification. Hence, we believe the continuing deforestation, fragmentation, and development of the nightjar's habitat is the single most limiting factor affecting the species.

Severe storms and hurricanes have generally not been considered a major threat to nightjar populations (Service 2012). Nightjars, being strict insectivores, are less likely to be directly impacted by hurricanes in terms of food resources (Wiley and Wunderle 1993). Insects have the ability to survive and recover quickly due to the persistence of larvae and pupae in sheltered retreats (Waide 1991). Additionally, as ground-nesting birds in dry forests, nightjars are not heavily dependent on arboreal structures (e.g., cavities, tree crowns, branches) for reproduction. While hurricanes can cause localized damage in areas with high stem density or tree cover in dry forests (Gao and Yu 2021), the nesting season of Puerto Rican nightjars typically occurs from May through July, with peak activity in May through mid-June (Kepler and Kepler 1973). Major hurricanes in Puerto Rico have historically occurred later in the summer and fall (e.g., August through October), minimizing direct impacts on nesting from hurricanes.

However, given the occurrence of significant hurricanes since the publication of the previous Puerto Rican nightjar 5-year status reviews, new studies, data, and research are needed to assess the current understanding of hurricane impacts on nightjar populations and the dry forests of Puerto Rico, especially considering the widening range of hurricanes resulting from climate change (Yamada et al. 2017).

Furthermore, it is important to consider other factors that negatively impact the nightjar population. For instance, the use of agrochemicals in agricultural lands adjacent to the nightjar's geographical distribution or within the forested edge can potentially reduce insect populations (Gunstone et al., 2021), which serve as a food source for the nightjar. However, the extent of these impacts on the nightjar or its food resources remains unknown, as there have been no studies conducted on this specific aspect. While the nightjar has not been observed traveling to

open agricultural lands for foraging, limited studies have assessed how the nightjars utilize edge habitats. For example, in the case of the Guánica Commonwealth Forest, nightjars have been observed feeding on insects attracted to artificial light sources (Vilella 1989). Based on this information, it is reasonable to believe that the threat magnitude from other natural or manmade factors to the species is relatively low.

Synthesis

The Puerto Rican nightjar is an endemic bird species that occurs in the coastal dry and lower montane forests primarily in southern and southwestern Puerto Rico. Since 2017, new sightings of nightjars have occurred in the municipalities of Ponce and Guayama, and in the Cabo Rojo National Wildlife Refuge. These new sightings support past suggestions that the species is more widespread than previously documented. The species continues to be threatened by physical damage caused by habitat fragmentation and modification, residential development and other natural and manmade factors affecting its continued existence. Only 14% of the lands where the species is project to breed are protected, indicating that the majority of the species' habitat is at risk from human caused changes. Because of ongoing threats and the uncertainty about the current condition of the species, we believe that the Puerto Rican nightjar continues to meet the definition of an endangered species.

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RESULTS / SIGNATURES

U.S. Fish and Wildlife Service

**5-Year Status Review Puerto Rican Nightjar or Guabairo
(*Caprimulgus noctitherus*)**

Status Recommendation

Based on this review, we recommend the following status for this species. A 5-year status review presents a recommendation of the species' status. Any change to the status requires a separate rulemaking process that includes public review and comment, as defined in the Act.

Downlist to Threatened

Delist:

The species is extinct

The species does not meet the definition of an endangered or threatened species

The listed entity does not meet the statutory definition of a species

No change needed; species remains listed as endangered

Review conducted by Angel Colón-Santiago, Caribbean Ecological Service Field Office

FIELD OFFICE APPROVAL*

Field Supervisor, Caribbean Ecological Service Field Office, Fish and Wildlife Service

Approved _____

* Since 2014, Southeast Region Field Supervisors have been delegated authority to approve 5-year reviews that do not recommend a status change.