U.S. Fish and Wildlife Service-Endangered Species Act Emergency Section 7 Consultation Best Management Practices (BMPs) for Federally Listed Species in Relation to PREPAs Transmission Lines Restoration Project in Puerto Rico due to Hurricanes Maria

On November 6, 2017, we received an emergency consultation request regarding Puerto Rico's Electric Power Authority (PREPA) transmission lines island-wide project to restore the capacity and reliability of the electric system in Puerto Rico after the passage of Hurricane Maria. We received the project's description, maps (PDF) and Google Earth (KMZ) files that illustrate the path of the transmission lines and location of the transmission towers.

PROJECT DESCRIPTION

According to information received, the work will be conducted along existing PREPA right of ways (ROWs), which go mostly through areas that have been developed and previously impacted. The information received also specifies the following:

- FEMA is funding the repair work through contract mechanisms managed by the U.S. Army Corps of Engineers.
- ROWs do not contain any environmentally sensitive areas and that there are no known protected wildlife or endangered species (see further below regarding these statements).
- Work related to the repair of buried lines will cause no significant damage from erosion, deforestation, or sedimentation. Measures such as silt fences will be strategically placed as appropriate to minimize impacts at the time of the excavations.
- As a measure of protection and prevention of storm water sewers, hay bales would be used as necessary.
- Soil that is removed for the installation of towers and poles will be reused. Soil from excavations will be compacted to prevent erosion from rainfall.
- The project will intersect many perennial and intermittent rivers and creeks. The aerial lines do not affect the water bodies. Where rivers are crossed helicopters and cranes will be used for installation.
- Machinery to be used in the project includes: pickups, truck hauling, excavators, compressors, pumps, trucks (pre-mixed concrete), crane type cherry-picker, compactors, tending of asphalt and truck tanks.
- Non-hazardous solid waste generated during the project will be debris of wood, paper, pieces of concrete, pieces of rod, pieces of wire, surplus land and waste of the brigades, such as: paper, cardboard, plastic glasses, etc.
- Vegetative material from clearing and grubbing, as well as debris from broken poles/towers will be placed in the ROWs for PREPA to manage.
- PREPA's plan is to store any non-hazardous solid wastes in containers, then dispose them properly at an approved landfill.
- At no time during construction and operation of the project, toxic or hazardous waste will be generated.

Based on the project nature and scope, the Service believes it has the potential to affect some federally listed species and their habitats. For example, some of the transmission lines and towers are located within environmentally sensitive areas such as State forests (e.g. Maricao, Gúanica and Río Abajo State Forests, etc.), other mature forests found throughout the island, and through two federally designated critical habitats units for the coquí guajón frog. In addition,

since some of the federally listed species habitats were most likely damaged by the hurricane, some species may have dispersed from their usual habitats in search for food and shelter.

Here we provide a number of conservation measures to avoid and minimize possible adverse effects to the following listed species that could be encountered in some of the areas within and contiguous to PREPAs ROWs, transmission lines and towers. In addition, we recommend the use of a qualified biological monitor(s) to implement the conservation measures for each site.

Animals: Puerto Rican boa (*Epicrates inornatus*), Virgin Islands tree boa (*Epicrates monensis granti*), Coquí guajón (*Eleutherodactylus cooki*), Puerto Rican parrot (*Amazona vittata vittata*), Puerto Rican sharp-shinned hawk (*Accipiter striatus venator*), Puerto Rican broad-winged hawk (*Buteo platypterus brunnescens*), Puerto Rican plain pigeon (*Patagioenas inornata wetmorei*), Elfin-woods warbler (*Setophaga angelae*), Puerto Rican nightjar (*Caprimulgus noctitherus*).

Plants: *Auerodendron pauciflorum* (no common name), *Daphnopsis helleriana* (no common name), *Schoepfia arenaria* (no common name), *Mitracarpus polycladus* (no common name), *Mitracarpus maxwelliae* (no common name), *Varronia rupicola* (no common name), Diablito de tres cuernos (*Buxus vahlii*) *Eugenia woodburyana* (no common name), Bariaco (*Trichilia triacantha*), Palo de rosa (*Ottoschulzia rhodoxylon), Catesbaea melanocarpa* (no common name), *Callicarpa ampla* (no common name), Chupacalos (*Pleodendron macranthum*), Palo de jazmín (*Styrax portoricensis*), Palo de Ramón (*Banara vanderbiltii*), *Cordia bellonis* (no common name), Higüero de Sierra (*Crescentia portoricensis*), Cobana Negra (*Stahlia monsperma*), Matabuey (*Goetzea elegans*), Uvillo (*Eugenia haematocarpa*), St. Thomas prickly ash (*Zanthoxylum thomasianum*), Ausú (*Myrcia paganii*).

SPECIES INFO AND CONSERVATION MEASURES

A. Snakes:

- Both the endangered PR boa and the endangered VI boa may be encountered while conducting the proposed activities because they area known to use open forest areas and forest edges for basking, and debris piles for shelter and for finding food. Both species are more active at night and are also known to seek shelter within vehicles, heavy machinery compartments (e.g., engine), housing and buildings, and used tires.

- The PR boa and the VI boa are non-venomous snakes and pose no life threating danger to human beings. Although they are considered generally docile, some individuals might try to bite if disturbed or during capture and handling. Due to the habitat destruction caused by the hurricanes, these snakes might be moving more frequently and traveling longer distances in search for food and shelter.

- The PR boa has a widespread distribution across Puerto Rico and may also be found in the Island of Vieques.

- The VI boa has a more limited distribution in northeast Puerto Rico, with a known range that includes the municipalities of Ceiba, Fajardo, Humacao, Luquillo, Río Grande, and Culebra Island.

- We recommend the implementation of the following conservation measures to avoid or minimize detrimental effects from the proposed activities on these two species:

  i. Inform all personnel about the potential presence of the PR boa and the VI boa in some of the areas where the proposed work will be conducted.
  ii. Make personnel with expertise on the identification and handling of snakes available to respond to sightings and as necessary handle boas found at project sites.
  iii. Measures should be established to minimize boa casualties by heavy machinery or motor vehicles being used for these activities. Therefore, any heavy machinery left on site outdoor (staging) needs to be thoroughly inspected each morning before works starts to ensure that no boas are sheltered within engine compartments or other areas of the equipment. If boas are found within vehicles or equipment, notify experienced personnel immediately for proper handling and relocation of the animal (see below).
  iv. Measures should be established to minimize boa casualties that may be sheltering in debris piles as a result of these activities. Prior to moving, disposing or shredding, debris piles should be carefully inspected for the presence of boas.
  v. If a boa is found alive, work should stop until the animal is moved out of harm. Boas that are found alive should be safely captured and put in cloth bags and securely tied. Cloth bags with boas should be safely stored in a cool place out of direct sunlight and extreme heat until relocation.
  vi. Live boas should be safely relocated at least 1 km away from the activity site within forested habitat.
  vii. If a boa is found dead it can be buried in an appropriate site after documentation (see below).
  viii. For all boa sightings (dead or alive), record the time and date of the sighting, and the specific location where it was found. Records of all boa sightings should be included in a monthly report and a final report of the project. Live boa data should also include a photo of the animal, relocation site GPS coordinate, and the time and date of the relocation.
  ix. All boa sightings and relocation reports should be sent to the USFWS contact person listed below.

B. Coquí guajón

- This threatened species is only known to occur in the municipalities of Yabucoa, San Lorenzo, Patillas, Humacao, Las Piedras, Juncos, and Maunabo.

- The coquí guajón utilizes large to small caves and holes formed by different sized granite boulders or crevices within rocky streams. The habitat formed by the large granite boulders are commonly known as *guajonales*. The species also has been detected using culverts and adjacent to aqueduct stations. Projects that occur upstream or upland where the species occurs may also impact its habitat further below. As water is a very important component of the species' habitat, any stream, creek, or similar body of water with the habitat characteristics indicated above may harbor the species.

- According to the information provided, PREPAs 38kv transmission line passes through the coqui's guajón designated critical habitats Panduras (Unit 8) in Yabucoa and Talante (Unit 9) in Maunabo. Proposed work should avoid adversely affecting these areas to the

maximum extent possible. If impacts to these or any other critical habitat units are unavoidable, please document with before and after photographs, GPS location and the specific activity and damage that took place.

- At least one critical habitat unit has been designated within private lands in the municipalities of Yabucoa, San Lorenzo, Patillas, Humacao, Las Piedras, Juncos, and Maunabo. Please, find attached the GIS shapefiles of the designated critical habitats for the coqui guajon. You may also review the following document that describes and illustrates all of the 17 designated critical habitats for these species. (https://www.gpo.gov/fdsys/pkg/FR-2007-10-23/pdf/07-5056.pdf#page=2).

- If the species is sighted or heard calling within any of the ROWs, transmission lines or towers, please keep a record of the site where it was detected. This frog is more active after nightfall, but is also known to call during the day from within its shelter. You may find more information on this species including a recording of its call here: http://www.proyectocoqui.org/portfolio/coqui-guajon/#.Wd4qovlSzIU

- If the species is detected in an area that will be impacted by any of the proposed activities, try to relocated all possible individuals to the nearest similar habitat that will not be impacted.

C. Birds:

- Puerto Rican parrot: currently there are two wild populations of PR parrots, one at El Yunque National Forest, and the other at the Río Abajo State Forest.

- Puerto Rican sharp-shinned hawk: presently the geographic distribution of this species appears to be centered along the more central portions of the Cordillera Central of Puerto Rico, with a higher presence within private lands. This area includes the Guilarte, Toro Negro, and Maricao State Forests, Tres Picachos, La Olimpia Forest, and the surrounding private lands of this region. The species also has been reported in the municipalities of San Germán, Orocovis, Adjuntas, Jayuya, Juana Diaz, Utuado, Ponce, and Peñuelas, and in the karst region of the municipalities of Arecibo and Manatí.

- Puerto Rican broad-winged hawk: documented within and outside the boundaries of the Río Abajo State Forest, along the Tanamá River valley, Toro Negro and Guilarte State Forests, and the northern karst region of Puerto Rico. Also, it occurs in eastern Puerto Rico in the Carite State Forest, and El Yunque National Forest.

- Puerto Rican plain pigeon: the PR plain pigeon has been documented in the municipalities of Cidra, Aguas Buenas, Aibonito, Caguas, Cayey, and Comerío in east-central Puerto Rico. Additional sightings of the species have been recently recorded in the municipalities Corozal, Morovis, and Orocovis.

- Elfin-woods warbler: this species is currently found at El Yunque National Forest, and the Maricao State Forest and adjacent private lands.

- Puerto Rican nightjar: this species is currently found at the Guánica Commonwealth Forest, Susúa Commonwealth Forest, southern portions of the Maricao Commonwealth Forest, and the forested dry limestone hill between Ponce and Guayanilla. The species is also known form the hill adjacent to Parguera and Boquerón.

We do not anticipate adverse effects of the proposed actions on the bird species indicated above because breeding season for most birds ends by September. Hence breeding would not be interrupted. Nonetheless, breeding for some of these species would initiate as early as February. Therefore, if reconstruction activities related to this project will extend beyond February, we recommend surveying the areas where these birds might be found (see description above) in search for nesting activity and inform our office of any findings for further technical assistance.

Furthermore, the habitat of the above mentioned species most likely was damaged by the hurricane, forcing them to wander around in search for food and shelter. Thus, we recommend that if any of the species is observed perching close to working sites, activities should stop until the birds move away from the area.

D. Plants: The Service has identified priority areas that harbor suitable habitat or known populations for federally listed species. The following summarize the transmission lines constructed within important habitats where the proposed activities may potentially impact threatened or endangered species.

- **Line 36200:** Lower slopes south of El Yunque National Forest between the municipalities of Naguabo, Las Piedras, Juncos, and Canovanas. This area harbors suitable habitat for the endangered *Eugenia haematocarpa, Pleodendron macranthum, Styrax portoricensis* and *Callicarpa ampla.*

- **Line 36300:** Mountain range at Sierra de Pandura between the municipalities of Yabucoa, Maunabo, and Patillas. These areas harbor suitable habitat for the endangered *Eugenia haematocarpa* and *Styrax portoricensis*.

- **Lines 36900, 37000, and 51300:** Dry limestone hills between the municipalities of Peñuelas and Ponce. These forested hills harbor habitat and known populations of *Catesbaea melanocarpa, Ottoschulzia rhodoxylon, Trichilia triacantha, Eugenia woodburyana, Buxus vahlii* and *Varronia rupicola.* This habitat is particularly important for *Varronia rupicola*. The power lines run adjacent to this species' designated critical habitat. Please, find attached the GIS shapefiles of the designated critical habitat for *Varronia rupicola*.

- **Line 37100:** Dry limestone hills between the municipalities of Peñuelas, Guayanilla, Yauco and Guánica. These forested hills harbor habitat and known populations of the endangered *Ottoschulzia rhodoxylon, Catesbaea melanocarpa, Trichilia triacantha, Eugenia woodburyana, Buxus vahlii, Mitracarpus polycladus, Mitracarpus maxwelliae* and *Varronia rupicola.* In this area the power lines and the access roads run across known populations of *Mitracarpus maxwelliae, Trichilia triacantha* and *Varronia*

rupicola. The Service has evidence of previous impacts to these species by maintenance of power lines. These hills include designated critical habitat for *Varronia rupicola*.

- **Line 37300 and 50400:** Dry limestone hills between the municipalities of Guayanilla and Yauco. These forested hills harbor habitat and known populations of *Ottoschulzia rhodoxylon, Catesbaea melanocarpa, Trichilia triacantha, Eugenia woodburyana, Buxus vahlii* and *Varronia rupicola.* In this area the power lines and the access roads run across known populations of *Ottoschulzia rhodoxylon* and *Trichilia triacantha*. The Service has previous evidence about impacts to these species by maintenance of power lines.

- **Line 37400:** Mogotes along the municipalities of Manati, Vega Alta, Vega Baja, and Toa Baja -The forested areas along the mogotes harbor habitat and populations of *Ottoschulzia rhodoxylon, Daphnopsis helleriana, Banara varnderbiltii, Buxus vahlii* and *Schoepfia arenaria*. The area known as *Mogotes de Nevares* and *Cruce de la Virgencita* are important for these species.

- **Line 37800:** Mountain range between the municipalities of Guayama and Cayey. These areas harbor suitable habitat for the endangered *Eugenia haematocarpa* and *Zanthoxylum thomasianum*. This line runs by a property known as *Las Robledas*, a conservation area managed by Para La Naturaleza (Puerto Rico Conservation Trust). *Las Robledas* is a known site of a healthy and viable population of the endangered *Eugenia haematocarpa*.

- **Line 41500:** Mogotes between the municipalities of Dorado, Toa Baja and Toa Alta – The forested mogotes harbors habitat and known populations of *Ottoschulzia rhodoxylon, Daphnopsis helleriana, Banara varnderbiltii, Buxus vahlii* and *Schoepfia arenaria*. The area known as *Cruce de la Virgencita* is important for these species based on the abundance of endangered species. Populations of *Ottoschulzia rhodoxylon* and *Banara varnderbiltii* occur within the power lines Right of Way in this area.

- **Line 50100**: Mogotes between the municipalities of Arecibo, Barceloneta, Florida, and Manati. These mogotes harbor suitable habitat and known populations of *Ottoschulzia rhodoxylon, Daphnopsis helleriana, Cordia bellonis* and *Myrcia paganii*.

- **Line 50200:** Mogotes between the municipalities of Manati, Vega Baja, Vega Alta and Ciales. These mogotes harbor suitable habitat and known populations of *Ottoschulzia rhodoxylon, Daphnopsis helleriana, Cordia bellonis* and *Myrcia paganii*. The Ciales area is particularly important for *Cordia bellonis* and *Ottoschulzia rhodoxylon*.

- **Line 50200:** Dry limestone hills between the municipalities of Guayanilla and Peñuelas. These forested hills harbor habitat for *Catesbaea melanocarpa, Ottoschulzia rhodoxylon, Trichilia triacantha, Eugenia woodburyana, Buxus vahlii* and *Varronia rupicola.* This habitat is particularly important for *Varronia rupicola*. The power lines runs adjacent to the species designated critical habitat.

- **Lines 50300 and 50600:** Dry limestone hills between the municipalities of Guayanilla and Peñuelas. These forested hills harbor habitat for *Ottoschulzia rhodoxylon, Catesbaea*

melanocarpa, Trichilia triacantha, Eugenia woodburyana, Buxus vahlii and *Varronia rupicola.* In this area the power lines and the access roads run across known populations of *Buxus vahlii, Ottoschulzia rhodoxylon* and *Trichilia triacantha*. The Service has evidence of previous impacts to these species by maintenance of power lines. These hills include designated critical habitat for *Varronia rupicola*.

- **Line 50400:** Forested hills over serpentine soils along southern slopes and boundaries of the Maricao and Susúa Commonwealth Forest. These forested hills harbor habitat and known populations of *Ottoschulzia rhodoxylon, Eugenia woodburyana, Crescentia portoricensis* and *Cordia bellonis.*

- **Line 50500:** Dry limestone hills between the municipalities of Aguadilla and Isabela. These forested hills harbor habitat for *Aurodendron pauciflorum, Eugenia haematocarpa, Goetzea elegans, Ottoschulzia rhodoxylon, Buxus vahlii, Myrcia paganii, Daphnopsis helleriana* (no common name), *Schoepfia arenaria* and *Zanthoxylum thomasianum.*

- **Line 50700:** Mountain range between the municipalities of Guayama, Arroyo and Patillas. These areas harbor suitable habitat for the endangered *Eugenia haematocarpa, Eugenia woodburyana* and *Styrax portoricensis*.

- **Line 50900 and 51000:** Mountain range between the municipalities of Guayama and Cayey. These areas harbor suitable habitat for the endangered *Eugenia haematocarpa* and *Zanthoxylum thomasianum*.

For the areas indicated above where listed plants may be present, we recommend limiting operation activities only to the previously impacted area along access roads to transmission lines and towers. Also, we recommend avoid impacting additional forested habitat to the maximum extent possible. Although these habitats may have suffered impacts from the hurricane, it, along with the plants found there, may recover with time. Also, avoid pushing or dumping debris or fill material into forested areas along the access roads, particularly while using heavy machinery.

The Service further recommends coordination with the managers of Commonwealth Forests while working on lines within or adjacent to the boundaries of these forests (i.e., Guánica, Susúa and Maricao). The Service also requests a report from PREPA indicating the areas where additional habitat (outside existing ROWs) results impacted by the proposed activities (e.g., building or replacement of towers, land stabilization or removal of damaged infrastructure from forested habitat). This information is important to coordinate the implementation of recovery actions and address the impacts to species.

If you have any question, please contact José A. Cruz Burgos, Endangered Species Program Coordinator, at 787-510-5206 or jose_cruz-burgos@fws.gov.