



# Wildlife and Habitat Risk Map for Utility-Scale Land-Based Wind Energy Projects



## Explanation Of Colors

■ **Black (Federally-owned lands):** Development of wind energy projects on these lands would require federal authorization. A wind project developer would need to coordinate with federal land managers to determine the potential risk to species or habitats and any needed authorizations for projects proposed on or near these lands.

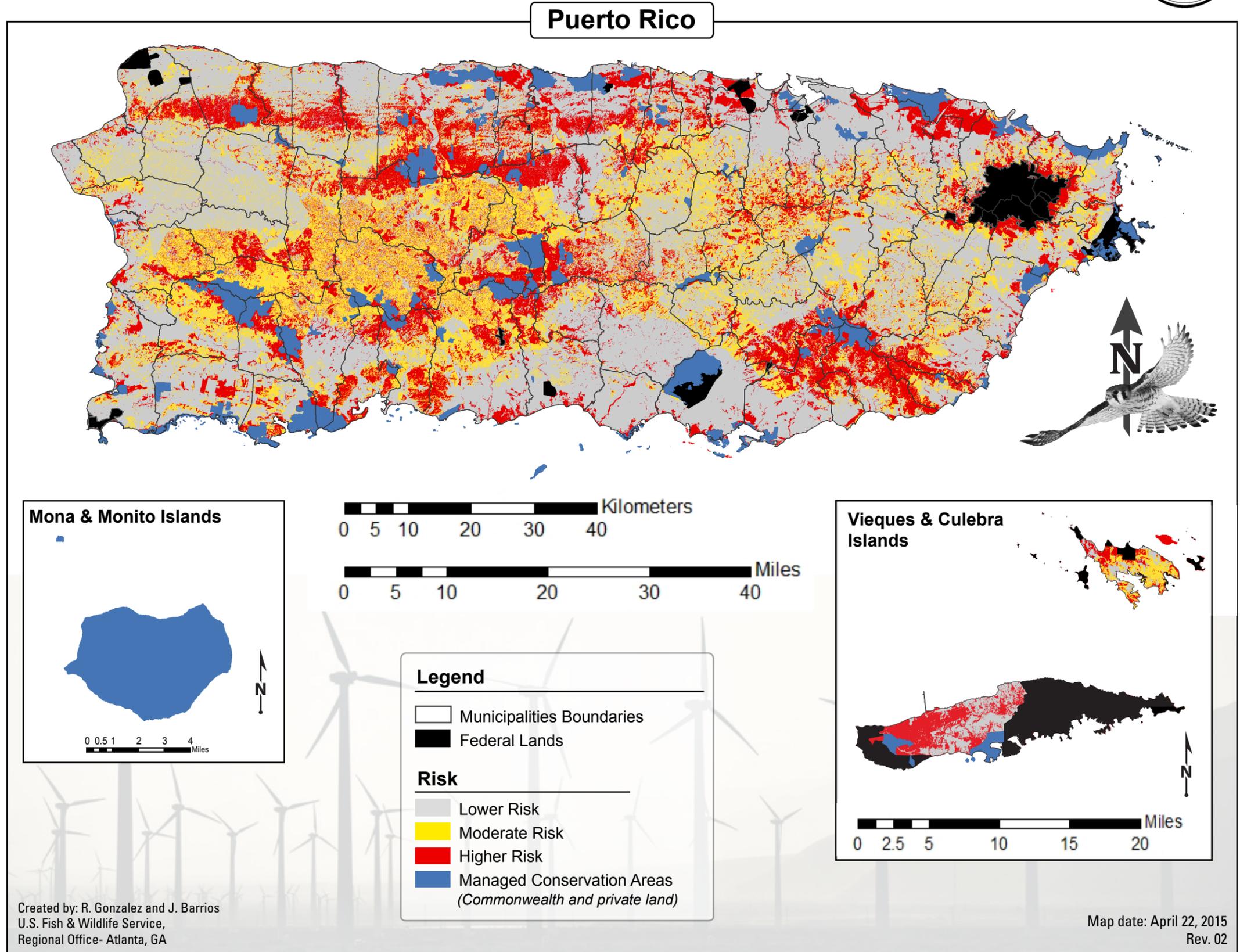
■ **Gray (Lower Risk):** Areas assigned a lower environmental risk associated with proposed wind energy projects. Tier 1 and 2 evaluations should be conducted to ensure that no known species of concern or sensitive habitats will be impacted by the proposed project. If Tier 1 or 2 evaluations reveal potential impacts to sensitive habitats or species of concern, further evaluations and studies may be needed. Areas include 0-1 possible trust species habitat.

■ **Yellow (Moderate Risk):** Areas assigned a moderate environmental risk associated with proposed wind energy projects. Tier 1- 4 evaluations will likely be needed to adequately characterize the potential impacts of the project. Areas include 2-3 possible trust species habitat.

■ **Red (High Risk):** Areas assigned the highest environmental risk associated with proposed wind energy projects. The Service has data indicating sensitive habitats or species of concern that would likely be adversely impacted by a proposed project. Tier 1-4 evaluations are recommended in these areas. Areas include 0-1 possible trust species habitat. Areas include 4 or more possible trust species habitat.

■ **Blue (Managed Conservation Area):** Managed conservation areas, administered by Commonwealth or other entities. A wind project developer is encouraged to coordinate with government, non-governmental, or private landowners early in the evaluation process (i.e. Tier 1 or 2 of the Service's 2012 Land-Based Wind Energy Guidelines) to determine the potential risk to species or habitats from a proposed wind project proposed near these lands. Tier 1-4 evaluations are recommended in these areas.

*Note: Tier 5 studies may be recommended for any project if the anticipated levels of take are exceeded, to verify that mitigation measures were successful, or to answer a research question.*





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### How to Read This Map

This map project, produced by the U.S. Fish and Wildlife Service (Service) in collaboration with Puerto Rico Department of Natural and Environmental Resources, provides general information on the potential risk to species of concern and sensitive habitats from proposed wind energy projects in Puerto Rico. The map is intended to assist wind energy developers with appropriate siting of proposed wind energy projects that are subject to the Service's 2012 Land-Based Wind Energy Guidelines, particularly during the Tier 1 (Preliminary Site Evaluation) and Tier 2 (Site Characterization) stages of site evaluation. It is intended to be used as a general guidance, and should not be used for final decision-making. According to the Land-Based Wind Energy Guidelines, environmental risks include direct impacts (e.g. collisions with turbines and associated infrastructure, loss or degradation of habitat from turbines and infrastructure, fragmentation of habitat, displacement or behavioral changes), and indirect impacts (e.g. increased predator populations). The colors on the map and the assigned risk values represent the Service's estimation of the relative environmental risk to species of concern and sensitive habitats within an area. Regardless of the environmental risk value associated with a particular area, wind energy project developers should coordinate with the Service and other appropriate Federal and state agencies, and follow the Land-Based Wind Energy Guidelines to inform the siting and development of any proposed wind energy project.

The boundaries of various layers on the map do not necessarily reflect the mobility of a species of concern, or the potential for interaction with a wind project. In all cases, Tier 1 and 2 studies are recommended, to ensure that no known species of concern or sensitive habitats will be impacted by the proposed project. If Tier 1 or 2 evaluations reveal potential impacts to sensitive habitats or species of concern, further evaluations and studies may be needed.

For the purpose of this project, we used the following data layers from the USGS Puerto Rico GAP analysis: protected areas database (2012), animal threatened/endangered species (2008), and land-cover (2008).

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NOTE: Tier 5 studies may be recommended for any project if the anticipated levels of take are exceeded, to verify that mitigation measures were successful, or to answer a research question.

### Disclaimer

*The Service's objective of assessing wildlife and habitat risk is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery and may not be suitable for other purposes or uses. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the layers boundaries or classification established through image analysis. Boundaries or other mapped features may have changed since the date of the imagery and/or field work. There may be differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.*

*Federal, state, and local regulatory agencies with jurisdiction over the risk areas may define and describe risk in a different manner than that used in this map. There is no attempt, in either the design or products of this map, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to managed areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities. **It is the user responsibility to verify any information derived from this map before making any decisions or taking any actions based on the information depicted on this map.***