

# Southeast Conservation Blueprint Summary

for Puerto Rico

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Created 11/20/2025

## Table of Contents

|  |    |
|--|----|
| <a href="#">About the Southeast Blueprint</a>  | 3  |
| <a href="#">Southeast Blueprint Priorities</a> | 4  |
| <a href="#">Hubs and Corridors</a>             | 6  |
| <a href="#">Indicator Summary</a>              | 8  |
| <a href="#">More Information</a>               | 49 |

[The Southeast Conservation Blueprint 2025](#)



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## About the Southeast Blueprint

The Southeast Conservation Blueprint is the primary product of the [Southeast Conservation Adaptation Strategy](#) (SECAS). It is a living, spatial plan to achieve the SECAS vision of a connected network of lands and waters across the Southeast and Caribbean. The Blueprint is regularly updated to incorporate new data, partner input, and information about on-the-ground conditions.

The Blueprint identifies priority areas based on a suite of natural and cultural resource indicators representing terrestrial, freshwater, and marine ecosystems. A connectivity analysis identifies corridors that link coastal and inland areas and span climate gradients.

For more information:

- Visit the [Blueprint webpage](#)
- Review the [Blueprint 2025 Development Process](#)
- View and download the Blueprint data and make maps on the [Blueprint page of the SECAS Atlas](#)

### We're here to help!

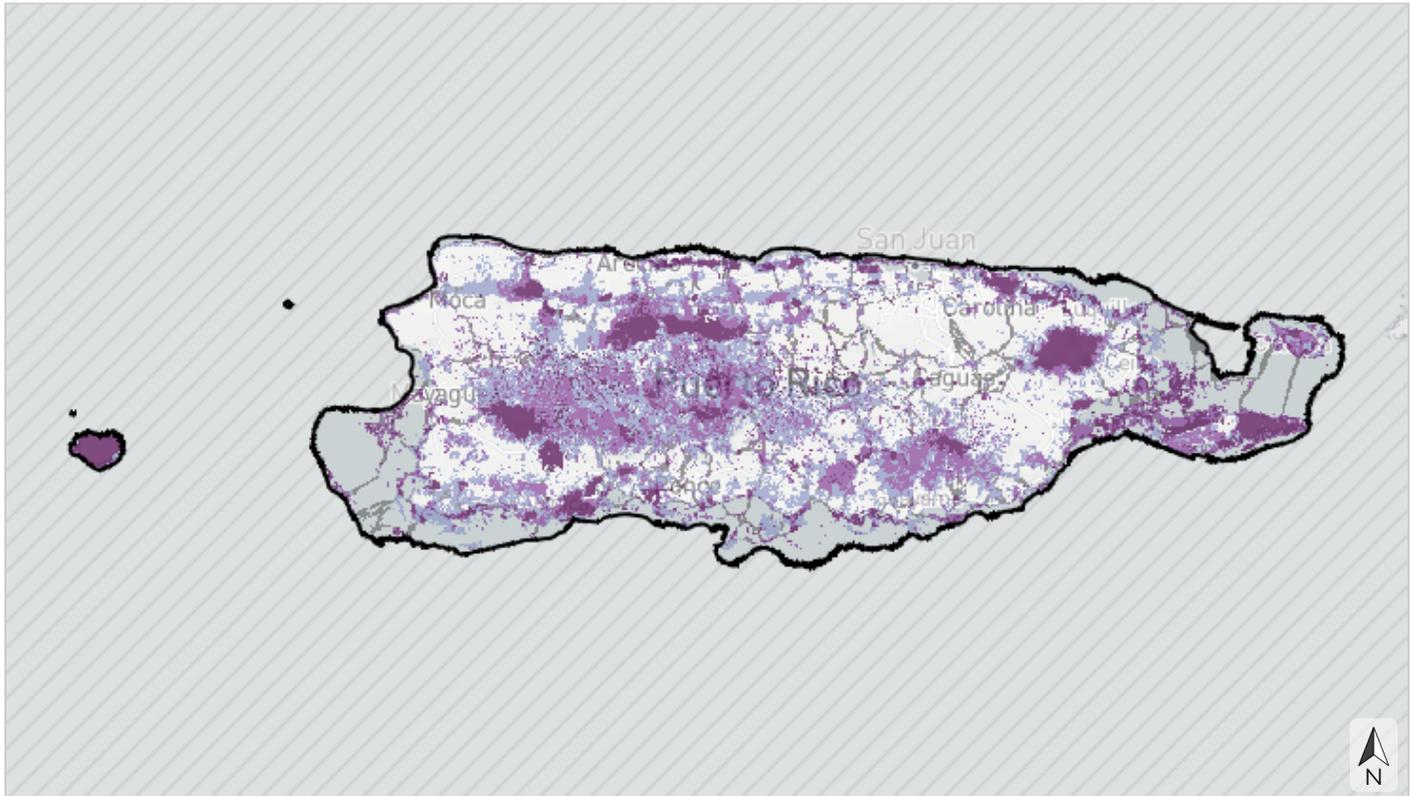
- Do you have a question about the Blueprint?
- Would you like help using the Blueprint to support a proposal or inform a decision?
- Do you have a suggestion on how to improve the Blueprint? The Blueprint and its inputs are regularly revised based on input from people like you.
- Do you have feedback on how to improve the Blueprint Explorer interface?

If you need help or have questions, [contact Southeast Blueprint staff](#) by reaching out to a member of the user support team.

We're here to support you. We really mean it. It's what we do!

This report was generated by the Southeast Conservation Blueprint Explorer, which was developed by [Astute Spruce, LLC](#) in partnership with the U.S. Fish and Wildlife Service under the [Southeast Conservation Adaptation Strategy](#).

# Southeast Blueprint Priorities



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## Priorities for a connected network of lands and waters

- Highest priority
- High priority
- Medium priority
- Priority connections

## Priority Categories

### For a connected network of lands and waters

In total, Blueprint priorities and priority connections cover roughly 50% of the Southeast Blueprint geography.

#### Highest priority

Areas where conservation action would make the biggest impact, based on a suite of natural and cultural resource indicators. This class covers roughly 10% of the Southeast Blueprint geography.

#### High priority

Areas where conservation action would make a big impact, based on a suite of natural and cultural resource indicators. This class covers roughly 15% of the Southeast Blueprint geography.

#### Medium priority

Areas where conservation action would make an above-average impact, based on a suite of natural and cultural resource indicators. This class covers roughly 20% of the Southeast Blueprint geography.

#### Priority connections

Connections between priority areas that cover the shortest distance possible while routing through as much Blueprint priority as possible. This class covers roughly 5% of the Southeast Blueprint geography.

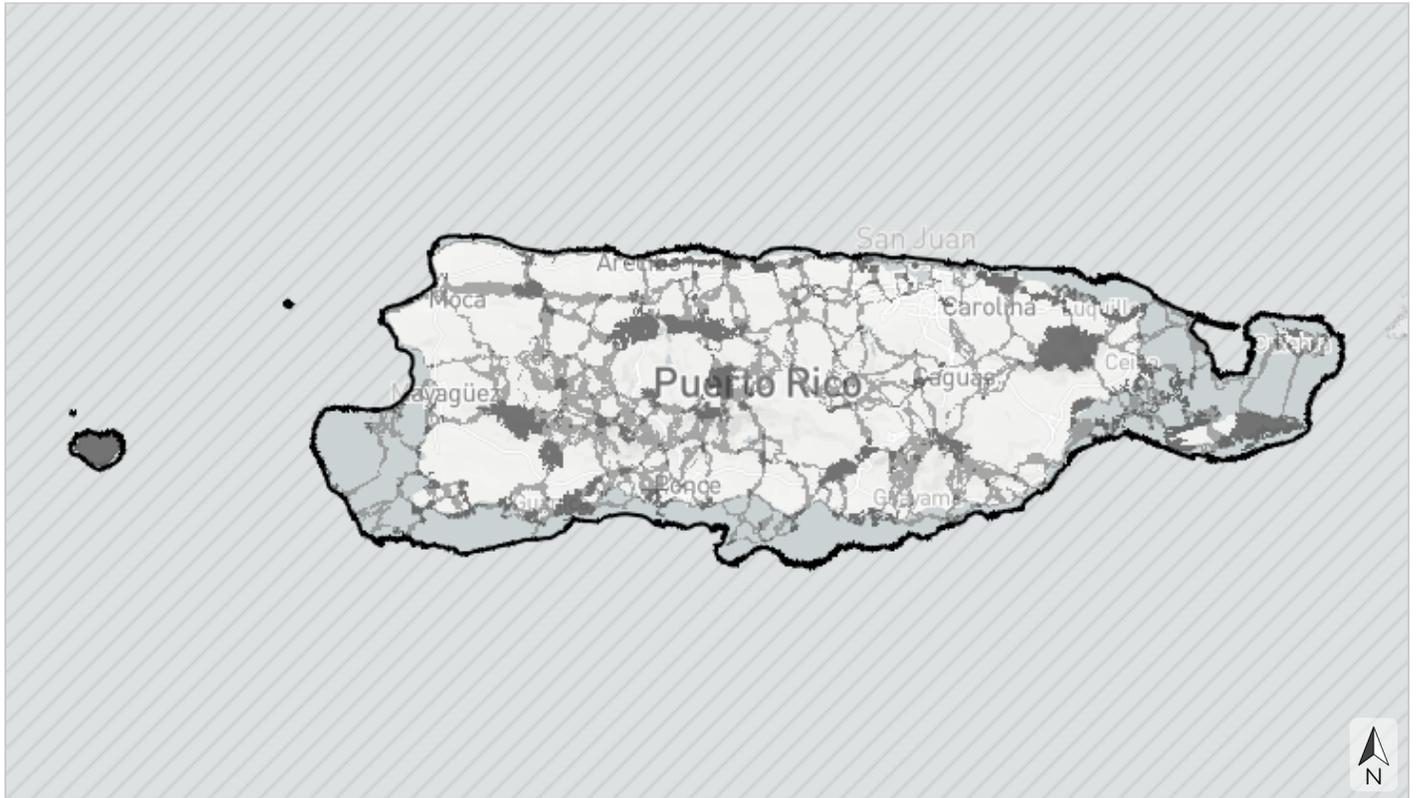
Table 1: Extent of each Blueprint priority category within Puerto Rico.

| Priority Category    | Acres            | Percent of Area |
|----------------------|------------------|-----------------|
| Highest priority     | 298,763          | 10.0%           |
| High priority        | 448,144          | 15.0%           |
| Medium priority      | 591,815          | 19.8%           |
| Priority connections | 145,954          | 4.9%            |
| Lower priority       | 1,502,952        | 50.3%           |
| <b>Total area</b>    | <b>2,987,629</b> | <b>100%</b>     |

# Hubs and Corridors

The Blueprint uses a least-cost path connectivity analysis to identify corridors that link hubs across the shortest distance possible, while also routing through as much Blueprint priority as possible.

In the Caribbean, hubs are large patches (~500+ acres) of highest priority Blueprint areas and/or protected lands.



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- Hubs
- Corridors

Table 2: Extent of hubs and corridors within Puerto Rico.

| Type                  | Acres            | Percent of Area |
|-----------------------|------------------|-----------------|
| Hubs                  | 323,102          | 10.8%           |
| Corridors             | 559,542          | 18.7%           |
| Not a hub or corridor | 2,104,985        | 70.5%           |
| <b>Total area</b>     | <b>2,987,629</b> | <b>100%</b>     |

# Indicator Summary

Table 3: Terrestrial indicators.

| Indicator  | Present |
|--|---------|
| <a href="#">Caribbean greenways &amp; trails</a>             | ✓       |
| <a href="#">Caribbean habitat patch size (large islands)</a> | ✓       |
| <a href="#">Caribbean habitat patch size (small islands)</a> | ✓       |
| <a href="#">Caribbean island habitat</a>                     | ✓       |
| <a href="#">Caribbean karst habitat</a>                      | ✓       |
| <a href="#">Caribbean landscape condition</a>                | ✓       |
| <a href="#">Caribbean low-urban historic landscapes</a>      | ✓       |
| <a href="#">Caribbean reforestation potential</a>            | ✓       |
| <a href="#">Caribbean urban park size</a>                    | ✓       |
| <a href="#">Puerto Rico potential access to parks</a>        | ✓       |

Table 4: Freshwater indicators.

| Indicator  | Present |
|--|---------|
| <a href="#">Caribbean natural landcover in floodplains</a> | ✓       |
| <a href="#">Caribbean network complexity</a>               | ✓       |
| <a href="#">Caribbean permeable surface</a>                | ✓       |

Table 5: Coastal & marine indicators.

| Indicator  | Present |
|--|---------|
| <a href="#">Caribbean beach habitat</a>                | ✓       |
| <a href="#">Caribbean coastal shoreline condition</a>  | ✓       |
| <a href="#">Caribbean fish hotspots</a>                | ✓       |
| <a href="#">Caribbean fish nursery habitat</a>         | ✓       |
| <a href="#">Caribbean mangrove migration</a>           | ✓       |
| <a href="#">Caribbean seagrass</a>                     | ✓       |
| <a href="#">Caribbean shallow hardbottom and coral</a> | ✓       |



Terrestrial

## Caribbean greenways & trails

This cultural resource indicator measures both the natural condition and connected length of greenways and trails in the U.S. Caribbean to characterize the quality of the recreational experience. Natural condition is based on the amount of impervious surface surrounding the path. Connected length captures how far a person can go without leaving a dedicated path, based on common distances for walking, running, and biking. This indicator originates from OpenStreetMap data and the National Oceanic and Atmospheric Administration's Coastal Change Analysis Program landcover.



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- Mostly natural and connected for 5 to <40 km or partly natural and connected for  $\geq 40$  km
- Mostly natural and connected for 1.9 to <5 km, partly natural and connected for 5 to <40 km, or developed and connected for  $\geq 40$  km
- Mostly natural and connected for <1.9 km, partly natural and connected for 1.9 to <5 km, or developed and connected for 5 to <40 km
- Partly natural and connected for <1.9 km or developed and connected for 1.9 to <5 km
- Developed and connected for <1.9 km
- Sidewalk
- Not identified as a trail, sidewalk, or other path

Table 6: Indicator values for Caribbean greenways & trails within Puerto Rico. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

|        | <b>Indicator Values</b>   | <b>Acres</b>     | <b>Percent of Area</b> |                         |
|--------|---|------------------|------------------------|-------------------------|
| ↑ High | Mostly natural and connected for 5 to <40 km or partly natural and connected for ≥40 km   | 1,396            | <0.1%                  |                         |
|        | Mostly natural and connected for 1.9 to <5 km, partly natural and connected for 5 to <40 km, or developed and connected for ≥40 km  | 1,959            | <0.1%                  |                         |
|        | Mostly natural and connected for <1.9 km, partly natural and connected for 1.9 to <5 km, or developed and connected for 5 to <40 km | 2,380            | <0.1%                  | ↑ In good condition     |
|        | Partly natural and connected for <1.9 km or developed and connected for 1.9 to <5 km  | 1,388            | <0.1%                  | ↓ Not in good condition |
|        | Developed and connected for <1.9 km   | 1,959            | <0.1%                  |                         |
|        | Sidewalk  | 216              | <0.1%                  |                         |
| ↓ Low  | Not identified as a trail, sidewalk, or other path  | 2,281,894        | 76.4%                  |                         |
|        | <i>Area not evaluated for this indicator</i>  | 696,438          | 23.3%                  |                         |
|        | <b>Total area</b>   | <b>2,987,629</b> | <b>100%</b>            |                         |

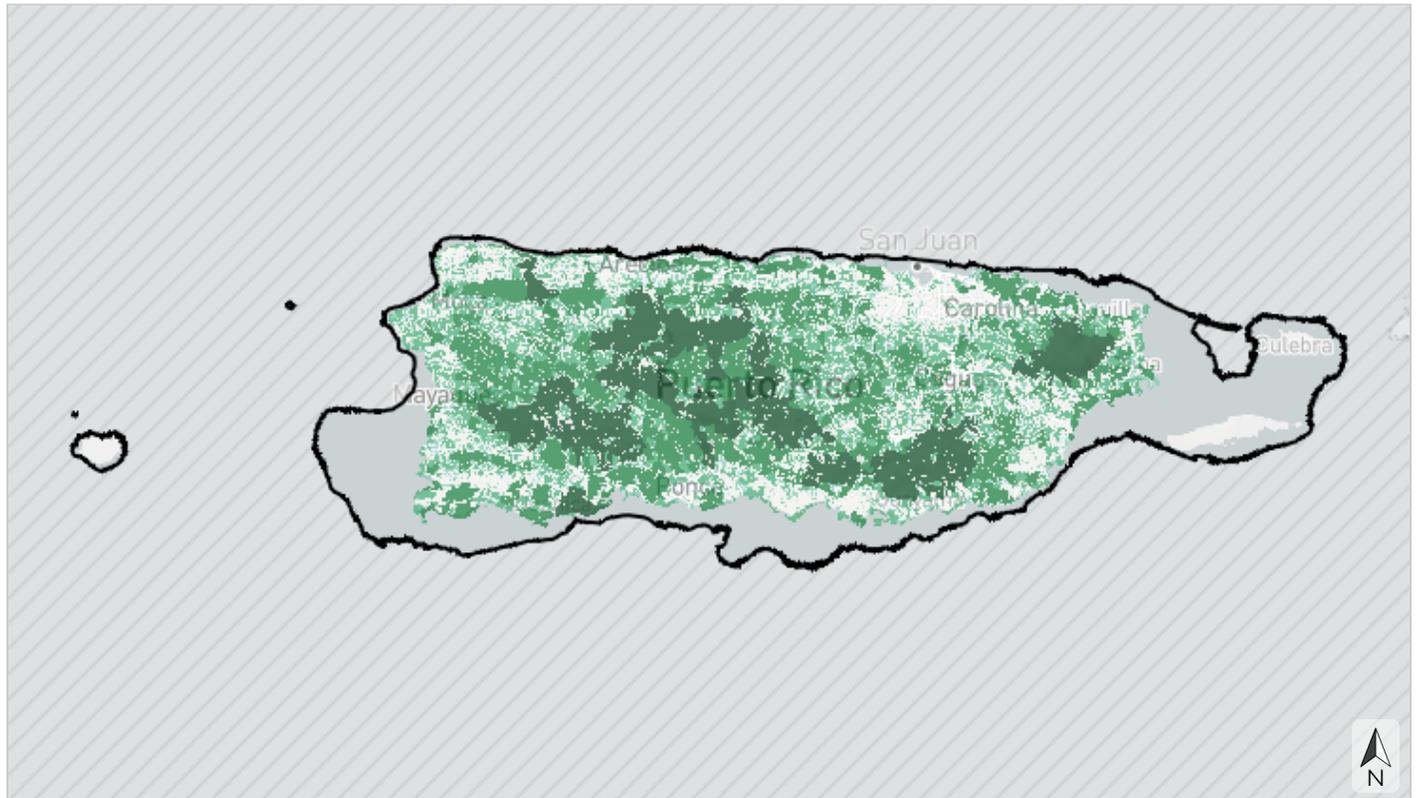
To learn more and explore the GIS data, [view this indicator in the SECAS Atlas](#).



Terrestrial

## Caribbean habitat patch size (large islands)

This indicator represents the size of natural habitat patches on large islands in the U.S. Caribbean that are unfragmented by roads, urban development, or agriculture. Large areas of intact natural habitat are important for many wildlife species, including reptiles and amphibians, birds, and large mammals. It uses LANDFIRE landcover and road data, mimicking Esri's intact habitat cores approach from their green infrastructure data.



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- Very large patch (>10,000 acres)
- Large patch (>1,000-10,000 acres)
- Medium patch (>100-1,000 acres)
- Small patch (>10-100 acres)
- Very small patch ( $\leq$ 10 acres)
- Developed or agriculture

Table 7: Indicator values for Caribbean habitat patch size (large islands) within Puerto Rico. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

|        | <b>Indicator Values</b>                      | <b>Acres</b>     | <b>Percent of Area</b> |                         |
|--------|--|------------------|------------------------|-------------------------|
| ↑ High | Very large patch (>10,000 acres)             | 419,737          | 14.0%                  |                         |
|        | Large patch (>1,000-10,000 acres)            | 566,422          | 19.0%                  |                         |
|        | Medium patch (>100-1,000 acres)              | 339,664          | 11.4%                  | ↑ In good condition     |
|        | Small patch (>10-100 acres)                  | 128,675          | 4.3%                   | ↓ Not in good condition |
|        | Very small patch (≤10 acres)                 | 66,000           | 2.2%                   |                         |
| ↓ Low  | Developed or agriculture                     | 634,032          | 21.2%                  |                         |
|        | <i>Area not evaluated for this indicator</i> | 833,098          | 27.9%                  |                         |
|        | <b>Total area</b>                            | <b>2,987,629</b> | <b>100%</b>            |                         |

To learn more and explore the GIS data, [view this indicator in the SECAS Atlas](#).



Terrestrial

## Caribbean habitat patch size (small islands)

This indicator represents the size of natural habitat patches on small islands in the U.S. Caribbean that are unfragmented by roads, urban development, or agriculture. Large areas of intact natural habitat are important for many wildlife species, including reptiles and amphibians, birds, and large mammals. It uses LANDFIRE landcover and road data, mimicking Esri's intact habitat cores approach from their green infrastructure data.



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- Large patch (>1,000 acres)
- Medium patch (>100-1,000 acres)
- Small patch (>10-100 acres)
- Very small patch (≤10 acres)
- Developed or agriculture

Table 8: Indicator values for Caribbean habitat patch size (small islands) within Puerto Rico. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

|        | <b>Indicator Values</b>                      | <b>Acres</b>     | <b>Percent of Area</b> |                         |
|--------|--|------------------|------------------------|-------------------------|
| ↑ High | Large patch (>1,000 acres)                   | 34,596           | 1.2%                   | ↑ In good condition     |
|        | Medium patch (>100-1,000 acres)              | 12,987           | 0.4%                   |                         |
|        | Small patch (>10-100 acres)                  | 4,181            | 0.1%                   |                         |
|        | Very small patch (≤10 acres)                 | 1,601            | <0.1%                  | ↓ Not in good condition |
| ↓ Low  | Developed or agriculture                     | 6,060            | 0.2%                   |                         |
|        | <i>Area not evaluated for this indicator</i> | <i>2,928,205</i> | <i>98.0%</i>           |                         |
|        | <b>Total area</b>                            | <b>2,987,629</b> | <b>100%</b>            |                         |

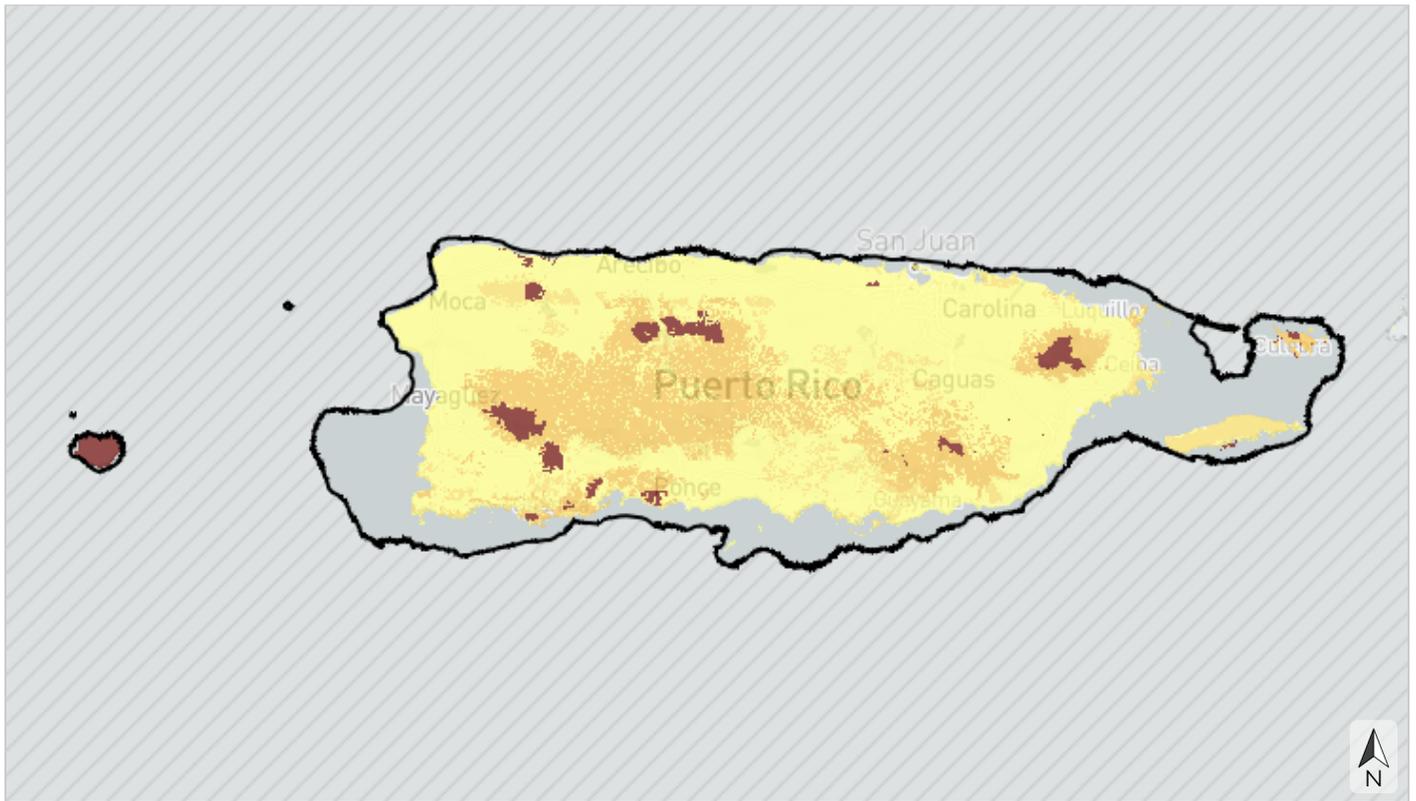
To learn more and explore the GIS data, [view this indicator in the SECAS Atlas](#).



Terrestrial

## Caribbean island habitat

This indicator represents the importance of island habitat in the U.S. Caribbean for federally listed and other imperiled species based on the presence of imperiled and invasive animals. The isolation of islands often makes them ecologically unique and protects them from disturbance and mainland predators; however, these factors also make them more vulnerable to invasive species. This indicator uses species data from Island Conservation's Threatened Island Biodiversity Database, U.S. Fish and Wildlife Service critical habitat, and the Puerto Rico and U.S. Virgin Islands Gap Analysis Project.



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- Island area with critical habitat for a threatened or endangered species
- Island area with no invasive animals and 2+ imperiled species
- Island area with no invasive animals and 1 imperiled species
- Island area with no invasive animals
- Island area with invasive animals and 2+ imperiled species
- Island area with invasive animals and 1 imperiled species
- Island area with invasive animals
- Not an island

Table 9: Indicator values for Caribbean island habitat within Puerto Rico. A good condition threshold is not yet defined for this indicator.

|        | <b>Indicator Values</b>  | <b>Acres</b>     | <b>Percent of Area</b> |
|--------|--|------------------|------------------------|
| ↑ High | Island area with critical habitat for a threatened or endangered species | 83,379           | 2.8%                   |
|        | Island area with no invasive animals and 2+ imperiled species            | 29               | <0.1%                  |
|        | Island area with no invasive animals and 1 imperiled species             | 33               | <0.1%                  |
|        | Island area with no invasive animals                                     | 2                | <0.1%                  |
|        | Island area with invasive animals and 2+ imperiled species               | 470,049          | 15.7%                  |
|        | Island area with invasive animals and 1 imperiled species                | 216,962          | 7.3%                   |
| ↓ Low  | Island area with invasive animals  | 1,443,502        | 48.3%                  |
|        | Not an island  | 773,674          | 25.9%                  |
|        | <b>Total area</b>  | <b>2,987,629</b> | <b>100%</b>            |

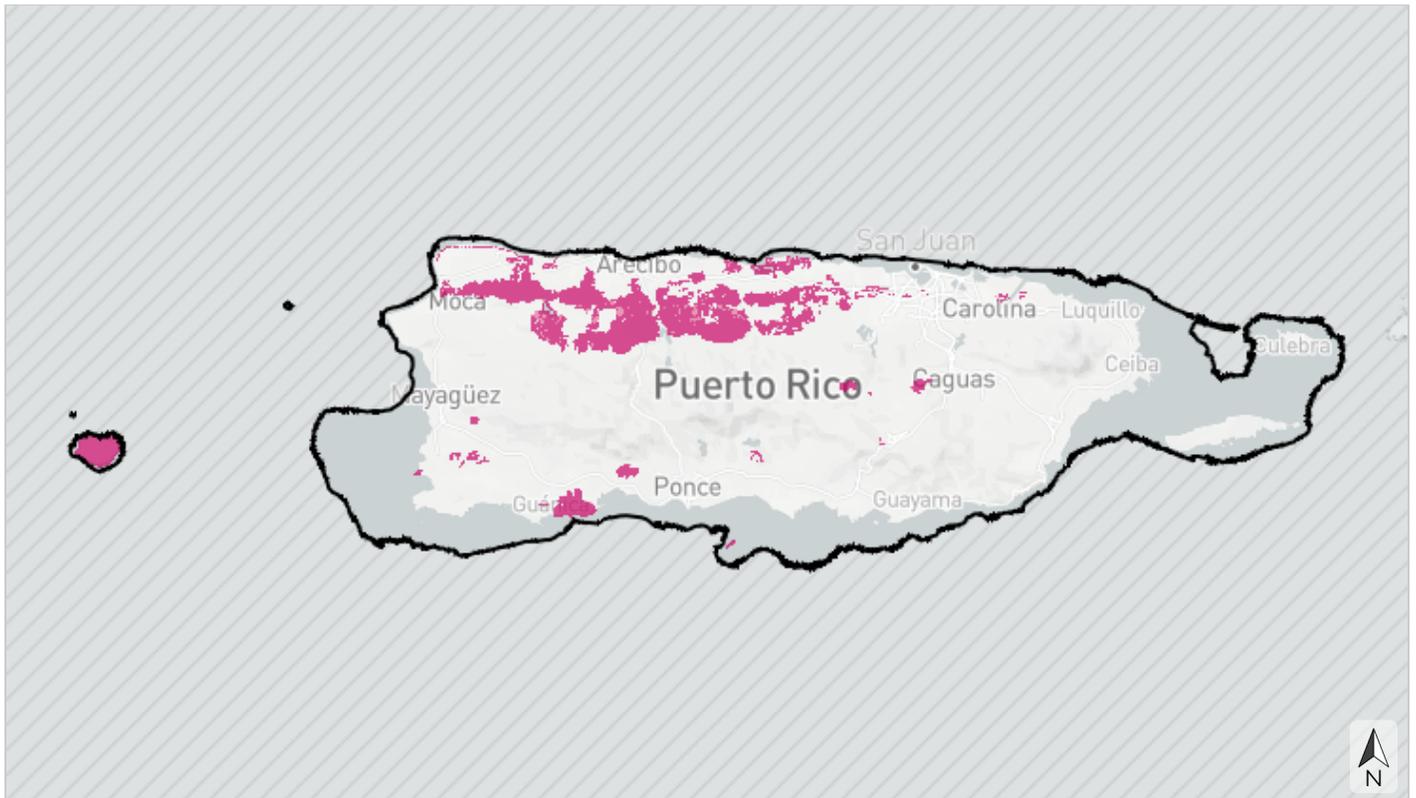
To learn more and explore the GIS data, [view this indicator in the SECAS Atlas](#).



Terrestrial

## Caribbean karst habitat

This indicator for the U.S. Caribbean represents natural karst areas with limited human alteration from activities such as urban development and intensive agriculture. Karst is a geologically unique landscape where the movement of water through easily dissolved bedrock, particularly limestone, produces distinctive features like caves, sinkholes, and underground rivers. Areas characterized by karst geology support many unique and endemic species, help recharge freshwater aquifers, and often contain significant cultural and historic sites. This indicator combines LANDFIRE land cover with karst datasets from the Puerto Rico Department of Natural and Environmental Resources, National Park Service, and U.S. Geological Survey.



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- Karst with natural landcover
- Karst with pasture, crops, or open space in developed area
- Karst with developed landcover
- Not identified as karst

Table 10: Indicator values for Caribbean karst habitat within Puerto Rico. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

|        | <b>Indicator Values</b>                                    | <b>Acres</b>     | <b>Percent of Area</b> |                         |
|--------|--|------------------|------------------------|-------------------------|
| ↑ High | Karst with natural landcover                               | 214,320          | 7.2%                   | ↑ In good condition     |
|        | Karst with pasture, crops, or open space in developed area | 17,045           | 0.6%                   | ↓ Not in good condition |
|        | Karst with developed landcover                             | 1,612            | <0.1%                  |                         |
| ↓ Low  | Not identified as karst                                    | 1,953,047        | 65.4%                  |                         |
|        | <i>Area not evaluated for this indicator</i>               | <i>801,605</i>   | <i>26.8%</i>           |                         |
|        | <b>Total area</b>  | <b>2,987,629</b> | <b>100%</b>            |                         |

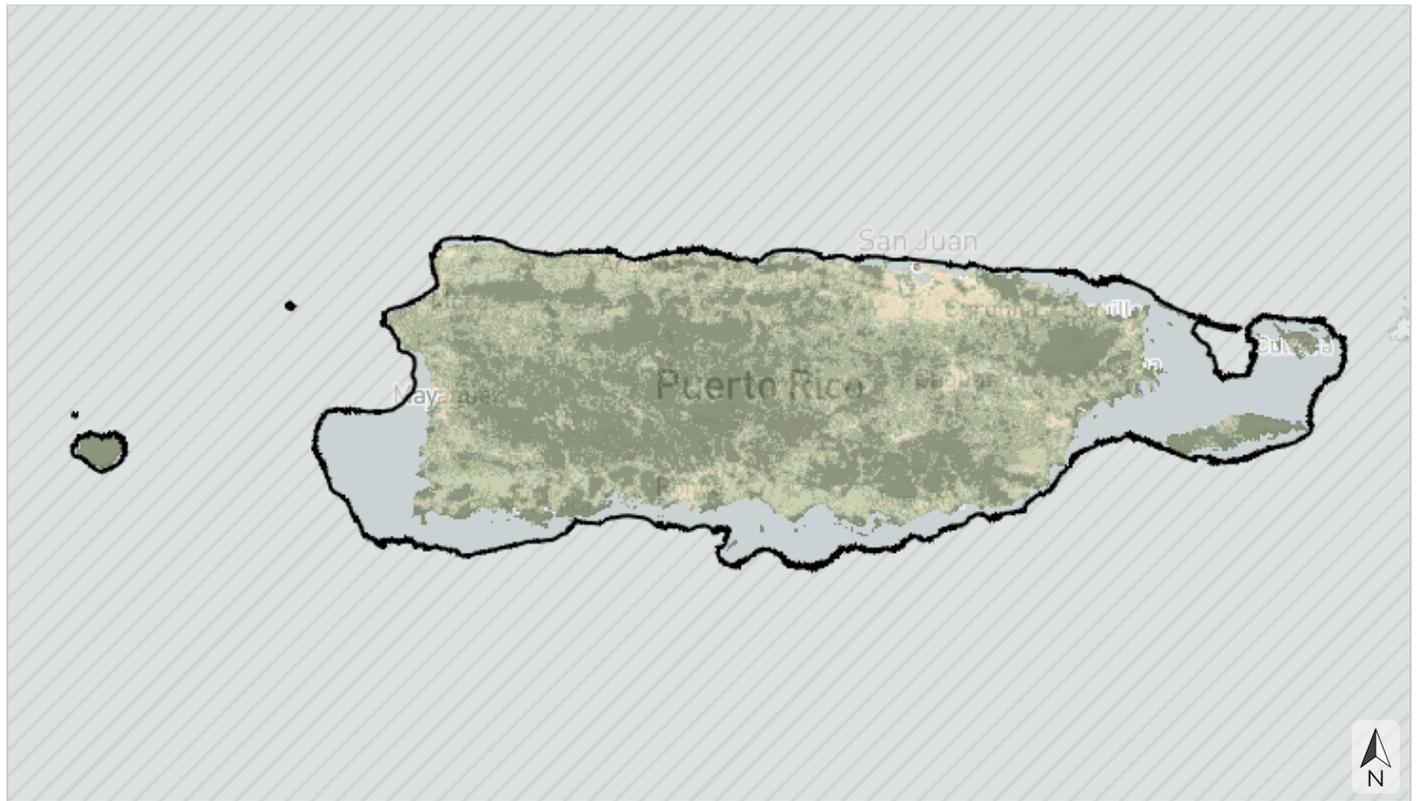
To learn more and explore the GIS data, [view this indicator in the SECAS Atlas](#).



Terrestrial

## Caribbean landscape condition

This indicator for the U.S. Caribbean represents natural areas with limited human alteration while also considering the naturalness of the surrounding landscape. Examples of human alteration include urban development and intense agricultural use. The degree of naturalness across the landscape is a key ecological condition for sustaining species and ecosystem services that are sensitive to habitat fragmentation at multiple scales. This indicator uses LANDFIRE landcover and ideas from the Florida Critical Lands and Waters Identification Project's approach for evaluating landscape integrity.



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- Natural landscape
- Mostly natural landscape
- Partly natural landscape
- Altered landscape
- Heavily altered landscape

Table 11: Indicator values for Caribbean landscape condition within Puerto Rico. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

|        | <b>Indicator Values</b>                      | <b>Acres</b>     | <b>Percent of Area</b> |                         |
|--------|--|------------------|------------------------|-------------------------|
| ↑ High | Natural landscape                            | 895,032          | 30.0%                  |                         |
|        | Mostly natural landscape                     | 802,309          | 26.9%                  | ↑ In good condition     |
|        | Partly natural landscape                     | 415,482          | 13.9%                  | ↓ Not in good condition |
|        | Altered landscape                            | 95,313           | 3.2%                   |                         |
| ↓ Low  | Heavily altered landscape                    | 5,764            | 0.2%                   |                         |
|        | <i>Area not evaluated for this indicator</i> | <i>773,730</i>   | <i>25.9%</i>           |                         |
|        | <b>Total area</b>                            | <b>2,987,629</b> | <b>100%</b>            |                         |

To learn more and explore the GIS data, [view this indicator in the SECAS Atlas](#).



Terrestrial

## Caribbean low-urban historic landscapes

This cultural resource indicator is an index of sites on the National Register of Historic Places and other historic sites surrounded by limited urban development in the U.S. Caribbean. It identifies significant historic places that remain connected to their context in the natural world. This indicator uses LANDFIRE landcover and historic places data from the Puerto Rico State Historic Preservation Office, OpenStreetMap, and the University of the Virgin Islands.



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- Historic place with nearby low-urban buffer
- Historic place with nearby high-urban buffer
- Not identified as a historic place

Table 12: Indicator values for Caribbean low-urban historic landscapes within Puerto Rico. A good condition threshold is not yet defined for this indicator.

|        | <b>Indicator Values</b>                      | <b>Acres</b>     | <b>Percent of Area</b> |
|--------|--|------------------|------------------------|
| ↑ High | Historic place with nearby low-urban buffer  | 17,828           | 0.6%                   |
|        | Historic place with nearby high-urban buffer | 3,138            | 0.1%                   |
| ↓ Low  | Not identified as a historic place           | 2,456,357        | 82.2%                  |
|        | <i>Area not evaluated for this indicator</i> | <i>510,307</i>   | <i>17.1%</i>           |
|        | <b>Total area</b>                            | <b>2,987,629</b> | <b>100%</b>            |

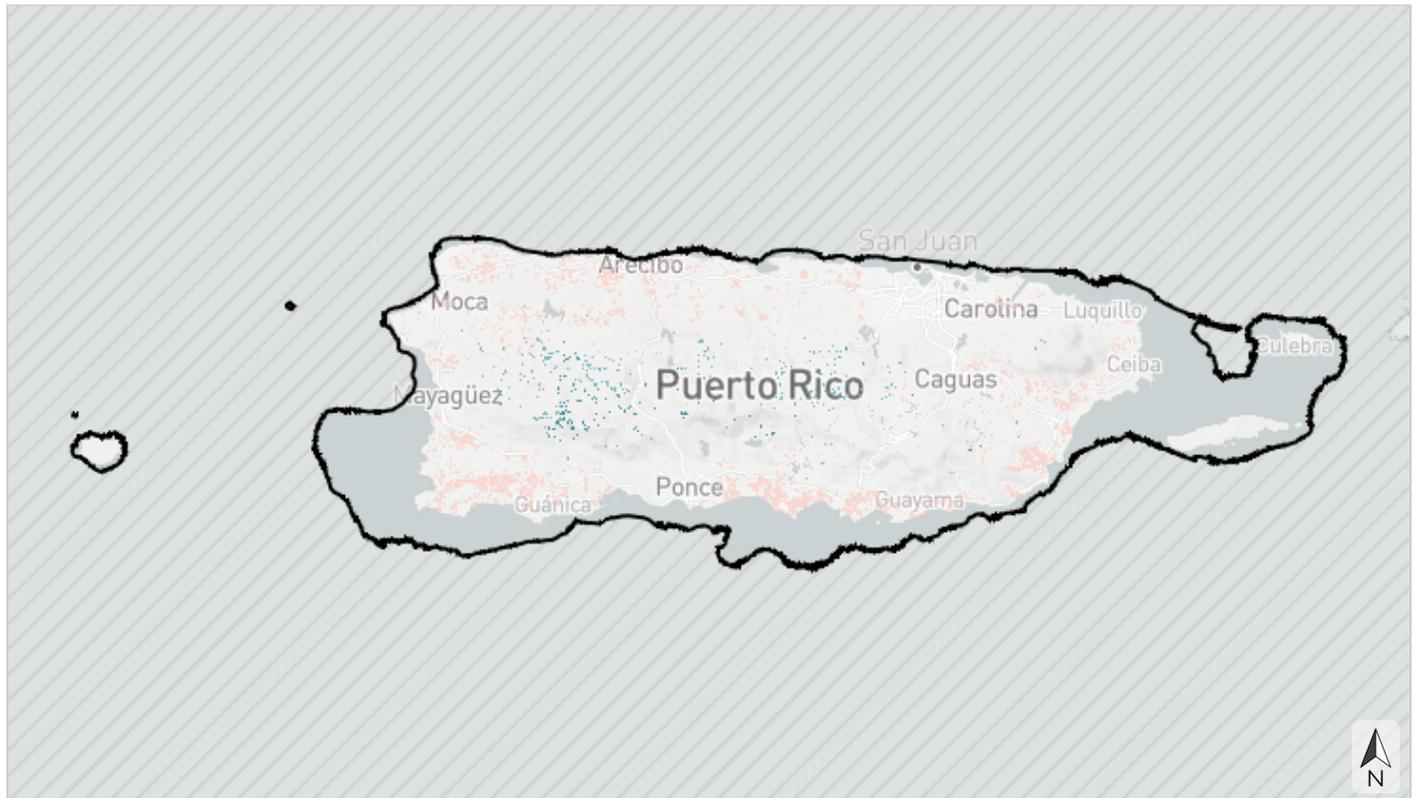
To learn more and explore the GIS data, [view this indicator in the SECAS Atlas](#).



Terrestrial

## Caribbean reforestation potential

This indicator prioritizes areas to increase tree cover in the U.S. Caribbean based on current land uses and potential benefits for local drinking water supplies. It includes opportunities to improve water quality and species habitat by transitioning sun-grown coffee production to shade-grown; enhancing the overstory of shade-grown coffee areas; and reforesting open space in developed areas, pasture, and agricultural lands. The highest scores represent coffee plantations in watersheds with reservoirs. This indicator uses LANDFIRE landcover and U.S. Geological Survey watershed boundaries.



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- Highest reforestation potential (coffee production in watershed with reservoir)
- Very high reforestation potential (other coffee production)
- High reforestation potential (open space in developed area, pasture, or crops in watershed with reservoir)
- Medium reforestation potential (other open space in developed area, pasture, or crops)
- Low reforestation potential (already natural or developed)

Table 13: Indicator values for Caribbean reforestation potential within Puerto Rico. A good condition threshold is not yet defined for this indicator.

|        | <b>Indicator Values</b>  | <b>Acres</b>     | <b>Percent of Area</b> |
|--------|--|------------------|------------------------|
| ↑ High | Highest reforestation potential (coffee production in watershed with reservoir)                            | 8,362            | 0.3%                   |
|        | Very high reforestation potential (other coffee production)  | 18,167           | 0.6%                   |
|        | High reforestation potential (open space in developed area, pasture, or crops in watershed with reservoir) | 9,756            | 0.3%                   |
|        | Medium reforestation potential (other open space in developed area, pasture, or crops)                     | 157,403          | 5.3%                   |
| ↓ Low  | Low reforestation potential (already natural or developed)   | 2,283,633        | 76.4%                  |
|        | <i>Area not evaluated for this indicator</i>   | <i>510,307</i>   | <i>17.1%</i>           |
|        | <b>Total area</b>  | <b>2,987,629</b> | <b>100%</b>            |

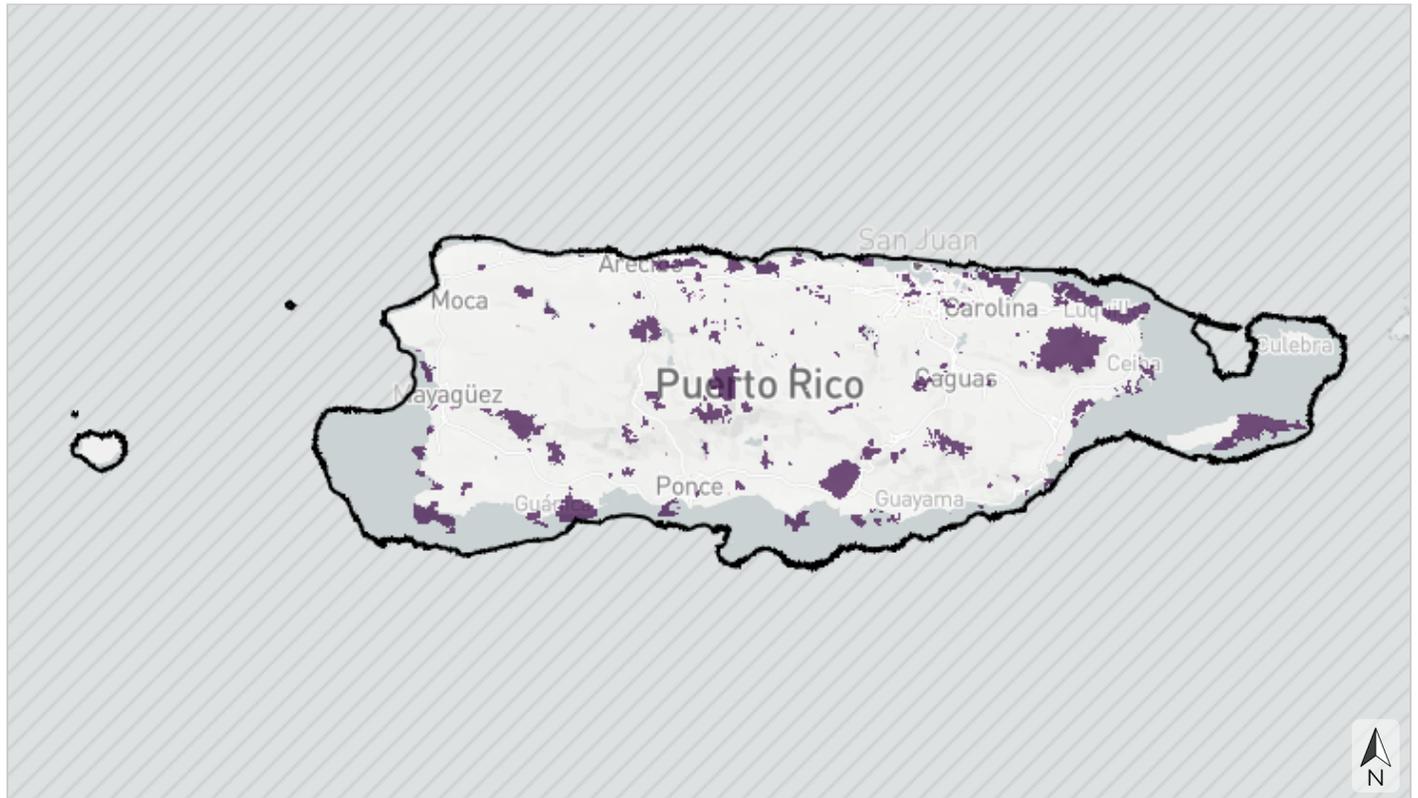
To learn more and explore the GIS data, [view this indicator in the SECAS Atlas](#).



Terrestrial

## Caribbean urban park size

This cultural resource indicator measures the size of parks and beaches in the urban environment in the U.S. Caribbean. Protected natural areas in urban environments provide urban residents a nearby place to connect with nature, and offer refugia for some species. All beaches in this region are open to the public. This indicator uses several protected areas and beach datasets (e.g., the Protected Areas Database of the United States, OpenStreetMap) and U.S. Census Bureau urban areas.



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- 75+ acre urban park
- 50 to <75 acre urban park
- 30 to <50 acre urban park
- 10 to <30 acre urban park
- 5 to <10 acre urban park
- <5 acre urban park
- Not identified as an urban park

Table 14: Indicator values for Caribbean urban park size within Puerto Rico. A good condition threshold is not yet defined for this indicator.

|        | <b>Indicator Values</b>         | <b>Acres</b>     | <b>Percent of Area</b> |
|--------|---------------------------------|------------------|------------------------|
| ↑ High | 75+ acre urban park             | 223,425          | 7.5%                   |
|        | 50 to <75 acre urban park       | 1,734            | <0.1%                  |
|        | 30 to <50 acre urban park       | 921              | <0.1%                  |
|        | 10 to <30 acre urban park       | 1,381            | <0.1%                  |
|        | 5 to <10 acre urban park        | 999              | <0.1%                  |
|        | <5 acre urban park              | 3,320            | 0.1%                   |
| ↓ Low  | Not identified as an urban park | 2,755,849        | 92.2%                  |
|        | <b>Total area</b>               | <b>2,987,629</b> | <b>100%</b>            |

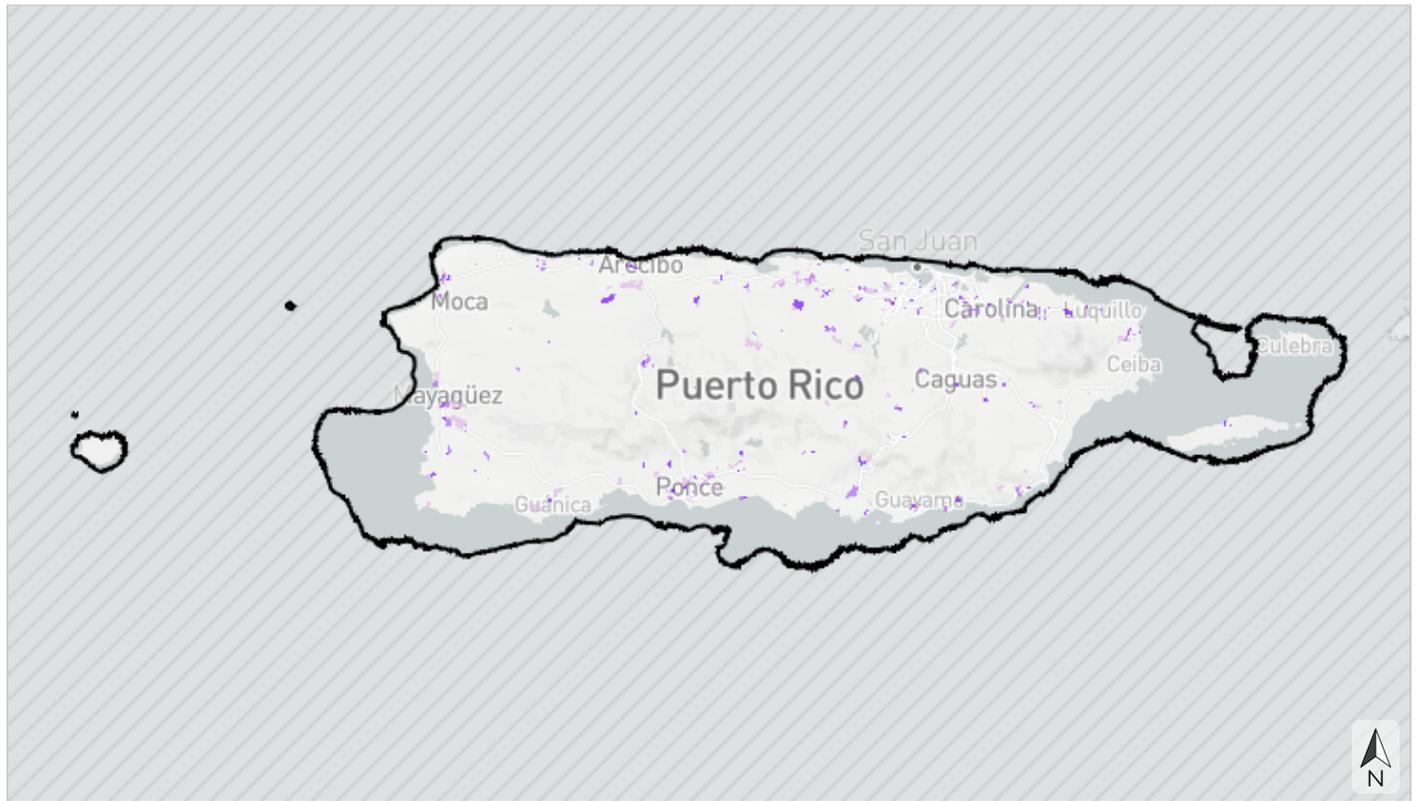
To learn more and explore the GIS data, [view this indicator in the SECAS Atlas](#).



Terrestrial

## Puerto Rico potential access to parks

This cultural resource indicator prioritizes places to create new parks that would fill gaps in access to open space within socially vulnerable communities in urban areas in Puerto Rico. It identifies areas where residents currently lack access to parks within a 10-minute walk (accounting for walkable road networks and access barriers like highways and fences), then prioritizes based on park need using demographic and environmental metrics. This indicator originates from the Trust for Public Land's ParkServe park priority areas and the Center for Disease Control's Social Vulnerability Index.



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### Priority for a new park to serve people who lack nearby park access

- Very high priority
- High priority
- Moderate priority
- Not identified as a priority (within urban areas)

Table 15: Indicator values for Puerto Rico potential access to parks within Puerto Rico. A good condition threshold is not yet defined for this indicator.

|        | <b>Indicator Values: Priority for a new park to serve people who lack nearby park access</b> | <b>Acres</b>     | <b>Percent of Area</b> |
|--------|--|------------------|------------------------|
| ↑ High | Very high priority   | 11,080           | 0.4%                   |
|        | High priority  | 12,864           | 0.4%                   |
|        | Moderate priority  | 26,389           | 0.9%                   |
| ↓ Low  | Not identified as a priority (within urban areas)  | 2,155,816        | 72.2%                  |
|        | <i>Area not evaluated for this indicator</i>   | 781,481          | 26.2%                  |
|        | <b>Total area</b>  | <b>2,987,629</b> | <b>100%</b>            |

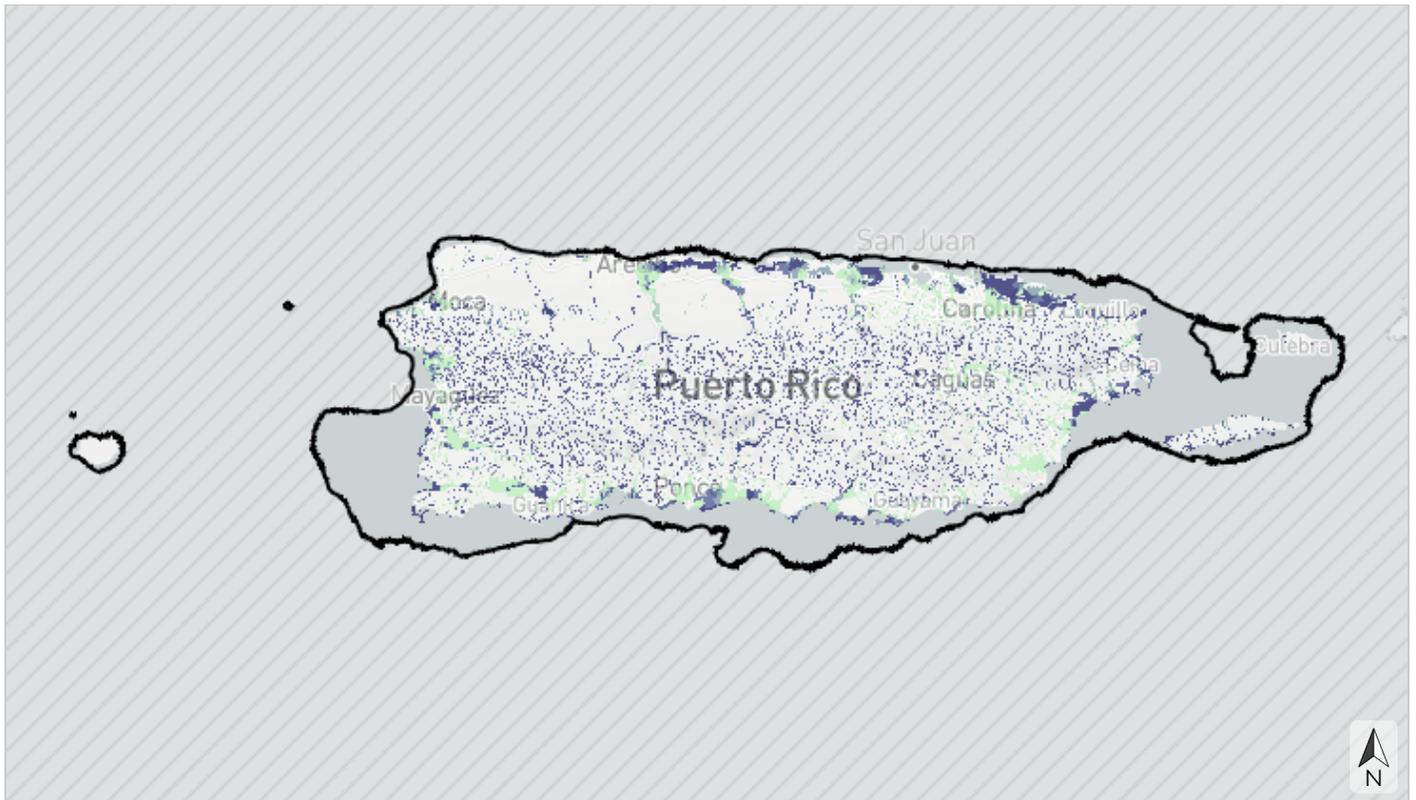
To learn more and explore the GIS data, [view this indicator in the SECAS Atlas](#).



Freshwater

## Caribbean natural landcover in floodplains

This indicator measures the amount of natural landcover in the estimated floodplain of rivers and streams within each catchment in the U.S. Caribbean. It assesses the stream channel and its surrounding riparian buffer, measuring the percent of unaltered habitat like forests, wetlands, or open water (rather than agriculture or development) in the floodplain. Intact vegetated buffers within the floodplain of rivers and streams provide aquatic habitat, improve water quality, reduce erosion and flooding, recharge groundwater, and more. This indicator originates from LANDFIRE land cover. It applies to the floodplain predicted to be inundated by a 100-year flood (also known as the 1% annual chance flood), derived from the Federal Emergency Management Agency's National Flood Hazard Layer, and buffered flowlines representing other streams.



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### Percent natural landcover within the estimated floodplain, by catchment

- >90% natural landcover
- >80-90% natural landcover
- >70-80% natural landcover
- >60-70% natural landcover
- ≤60% natural landcover
- Not identified as a floodplain

Table 16: Indicator values for Caribbean natural landcover in floodplains within Puerto Rico. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

|        | <b>Indicator Values: Percent natural landcover within the estimated floodplain, by catchment</b> | <b>Acres</b>     | <b>Percent of Area</b> |                         |
|--------|--|------------------|------------------------|-------------------------|
| ↑ High | >90% natural landcover   | 191,555          | 6.4%                   |                         |
|        | >80-90% natural landcover  | 73,761           | 2.5%                   | ↑ In good condition     |
|        | >70-80% natural landcover  | 55,563           | 1.9%                   | ↓ Not in good condition |
|        | >60-70% natural landcover  | 39,903           | 1.3%                   |                         |
|        | ≤60% natural landcover   | 121,836          | 4.1%                   |                         |
| ↓ Low  | Not identified as a floodplain   | 1,708,641        | 57.2%                  |                         |
|        | <i>Area not evaluated for this indicator</i>   | <i>796,370</i>   | <i>26.7%</i>           |                         |
|        | <b>Total area</b>  | <b>2,987,629</b> | <b>100%</b>            |                         |

To learn more and explore the GIS data, [view this indicator in the SECAS Atlas](#).



Table 17: Indicator values for Caribbean network complexity within Puerto Rico. A good condition threshold is not yet defined for this indicator.

|        | <b>Indicator Values: Number of connected stream size classes</b> | <b>Acres</b>     | <b>Percent of Area</b> |
|--------|--|------------------|------------------------|
| ↑ High | 4 size classes   | 44,503           | 1.5%                   |
|        | 3 size classes   | 148,701          | 5.0%                   |
|        | 2 size classes   | 196,492          | 6.6%                   |
|        | 1 size class   | 91,961           | 3.1%                   |
| ↓ Low  | Not identified as floodplain                                     | 1,709,601        | 57.2%                  |
|        | <i>Area not evaluated for this indicator</i>                     | <i>796,370</i>   | <i>26.7%</i>           |
|        | <b>Total area</b>  | <b>2,987,629</b> | <b>100%</b>            |

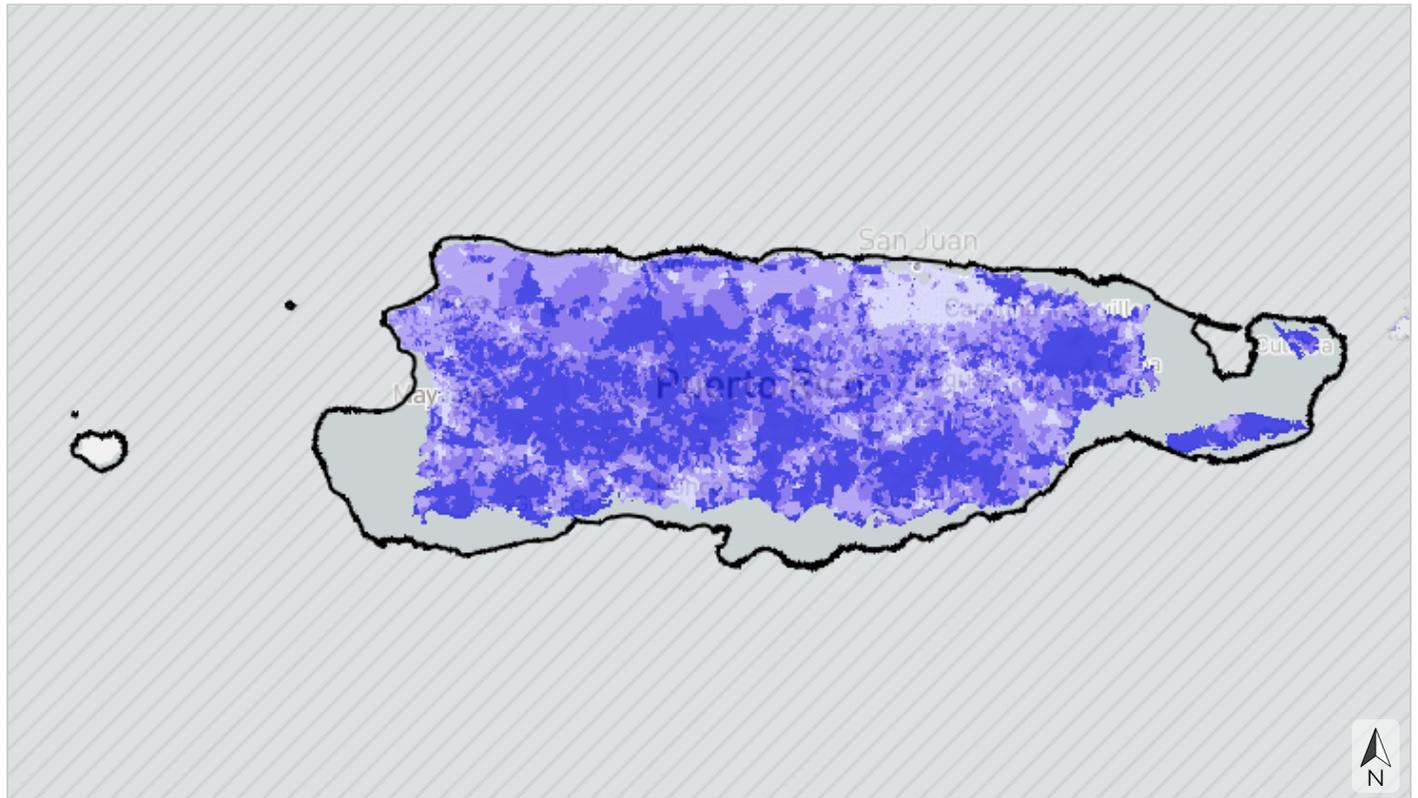
To learn more and explore the GIS data, [view this indicator in the SECAS Atlas](#).



Freshwater

## Caribbean permeable surface

This indicator measures the average percent of non-impervious cover within each catchment in the U.S. Caribbean. High levels of impervious surface degrade water quality and alter freshwater flow, impacting both aquatic species communities and ecosystem services for people, like the availability of clean drinking water. It originates from the National Oceanic and Atmospheric Administration's Coastal Change Analysis Program landcover.



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### Percent of catchment or small island permeable

- >95% permeable (likely high water quality and supporting most sensitive aquatic species)
- >90-95% permeable (likely declining water quality and supporting most aquatic species)
- >70-90% permeable (likely degraded water quality and not supporting many aquatic species)
- ≤70% permeable (likely degraded instream flow, water quality, and aquatic species communities)

Table 18: Indicator values for Caribbean permeable surface within Puerto Rico. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

|        | <b>Indicator Values: Percent of catchment or small island permeable</b>                        | <b>Acres</b>     | <b>Percent of Area</b> |                         |
|--------|--|------------------|------------------------|-------------------------|
| ↑ High | >95% permeable (likely high water quality and supporting most sensitive aquatic species)       | 899,665          | 30.1%                  | ↑ In good condition     |
|        | >90-95% permeable (likely declining water quality and supporting most aquatic species)         | 579,701          | 19.4%                  | ↓ Not in good condition |
|        | >70-90% permeable (likely degraded water quality and not supporting many aquatic species)      | 563,966          | 18.9%                  |                         |
| ↓ Low  | ≤70% permeable (likely degraded instream flow, water quality, and aquatic species communities) | 152,592          | 5.1%                   |                         |
|        | <i>Area not evaluated for this indicator</i>   | <i>791,705</i>   | <i>26.5%</i>           |                         |
|        | <b>Total area</b>  | <b>2,987,629</b> | <b>100%</b>            |                         |

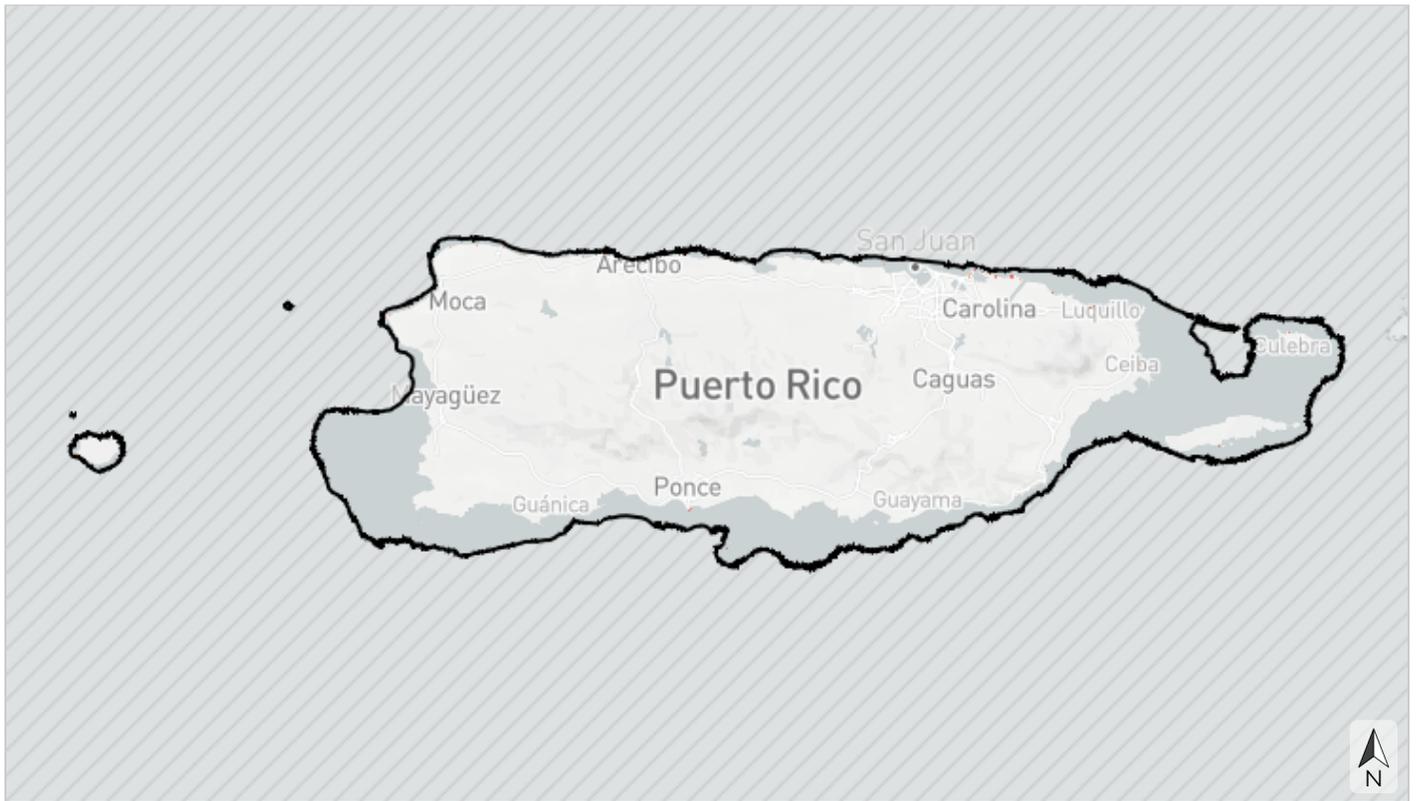
To learn more and explore the GIS data, [view this indicator in the SECAS Atlas](#).



Coastal & marine

## Caribbean beach habitat

This indicator evaluates beach habitat for six species of birds and sea turtles that nest on beaches in the U.S. Caribbean (Wilson's plover, American oystercatcher, and hawksbill, leatherback, green, and loggerhead sea turtles). It includes beach locations, sea turtle nest observations, and predicted suitable habitat for birds and sea turtles. Beaches, especially those known to support beach-nesting species, are particularly important habitats due to their limited spatial extent and vulnerability to development and sea-level rise. This indicator combines multiple datasets from the Gap Analysis Project, State of the World's Sea Turtles, OpenStreetMap, and more.



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- Beach with 1+ nesting species predicted or observed
- Other beach
- Not identified as a beach

Table 19: Indicator values for Caribbean beach habitat within Puerto Rico. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

|        | <b>Indicator Values</b>                             | <b>Acres</b>     | <b>Percent of Area</b> |                         |
|--------|---|------------------|------------------------|-------------------------|
| ↑ High | Beach with 1+ nesting species predicted or observed | 1,791            | <0.1%                  | ↑ In good condition     |
|        | Other beach   | 2,149            | <0.1%                  | ↓ Not in good condition |
| ↓ Low  | Not identified as a beach                           | 2,983,689        | 99.9%                  |                         |
|        | <b>Total area</b>                                   | <b>2,987,629</b> | <b>100%</b>            |                         |

To learn more and explore the GIS data, [view this indicator in the SECAS Atlas](#).



Coastal & marine

## Caribbean coastal shoreline condition

This indicator assesses shoreline alteration based on the presence of hardened structures like seawalls, groins, and riprap at the dynamic interface between land and water along the U.S. Caribbean coast. By restricting the natural movement of sediment, shoreline armoring increases erosion, prevents the inland migration of coastal ecosystems in response to sea-level rise, and degrades habitat for birds, sea turtles, fish, plants, and other species both on and offshore. This indicator originates from the National Oceanic and Atmospheric Administration's Continuously Updated Shoreline Product.



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- Natural
- Armored

Table 20: Indicator values for Caribbean coastal shoreline condition within Puerto Rico. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

|        | <b>Indicator Values</b>                      | <b>Acres</b>     | <b>Percent of Area</b> |                         |
|--------|--|------------------|------------------------|-------------------------|
| ↑ High | Natural                                      | 20,502           | 0.7%                   | ↑ In good condition     |
| ↓ Low  | Armored                                      | 1,081            | <0.1%                  | ↓ Not in good condition |
|        | <i>Area not evaluated for this indicator</i> | <i>2,966,047</i> | <i>99.3%</i>           |                         |
|        | <b>Total area</b>                            | <b>2,987,629</b> | <b>100%</b>            |                         |

To learn more and explore the GIS data, [view this indicator in the SECAS Atlas](#).



Coastal & marine

## Caribbean fish hotspots

This indicator represents areas of high predicted fish density and diversity in the U.S. Caribbean based on the presence of mangroves, seagrass, and coral in close proximity to one another. Many marine and estuarine fish species use mangroves, seagrass, and coral during different life stages or activities. These habitats provide nursery areas, foraging opportunities, shelter, and protection from predators. This indicator draws from research in Puerto Rico that examines fish density and the number of fish species present at different distances from various habitat types (Pittman et al. 2007). It uses benthic habitat data from The Nature Conservancy and landcover from the National Oceanic and Atmospheric Administration's Coastal Change Analysis Program.



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### Level of predicted fish density and diversity

- Highest density/diversity (mangrove, coral, and dense seagrass all present within 300 m)
- Very high density/diversity (either mangrove and coral, mangrove and dense seagrass, or coral and dense seagrass present within 300 m)
- High density/diversity (mangrove, coral, and dense seagrass all present within 600 m)
- Medium density/diversity (either mangrove and coral, mangrove and dense seagrass, or coral and dense seagrass present within 600 m)
- Low density/diversity (no coral, mangrove, or dense seagrass present within 600 m of one other)

Table 21: Indicator values for Caribbean fish hotspots within Puerto Rico. A good condition threshold is not yet defined for this indicator.

|        | <b>Indicator Values: Level of predicted fish density and diversity</b>   | <b>Acres</b>     | <b>Percent of Area</b> |
|--------|--|------------------|------------------------|
| ↑ High | Highest density/diversity (mangrove, coral, and dense seagrass all present within 300 m)   | 3,275            | 0.1%                   |
|        | Very high density/diversity (either mangrove and coral, mangrove and dense seagrass, or coral and dense seagrass present within 300 m) | 88,282           | 3.0%                   |
|        | High density/diversity (mangrove, coral, and dense seagrass all present within 600 m)  | 5,742            | 0.2%                   |
|        | Medium density/diversity (either mangrove and coral, mangrove and dense seagrass, or coral and dense seagrass present within 600 m)    | 98,888           | 3.3%                   |
| ↓ Low  | Low density/diversity (no coral, mangrove, or dense seagrass present within 600 m of one other)  | 586,416          | 19.6%                  |
|        | <i>Area not evaluated for this indicator</i>   | 2,205,027        | 73.8%                  |
|        | <b>Total area</b>  | <b>2,987,629</b> | <b>100%</b>            |

To learn more and explore the GIS data, [view this indicator in the SECAS Atlas](#).



Coastal & marine

## Caribbean fish nursery habitat

This indicator represents nursery and spawning habitat or other concentration areas for fish in the U.S. Caribbean. It captures places like mangrove lagoons, bays, estuaries, and some coral reefs. These areas serve as important nursery habitat for many fish species including snook, tarpon, snapper, great barracuda, grunt, mojarra, mullet, jack, bonefish, and more. This data originates from the National Oceanic and Atmospheric Administration's Environmental Sensitivity Index.



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- Fish spawning, nursery, or other concentration area
- Not identified as a fish spawning, nursery, or other concentration area

Table 22: Indicator values for Caribbean fish nursery habitat within Puerto Rico. A good condition threshold is not yet defined for this indicator.

|        | <b>Indicator Values</b>   | <b>Acres</b>     | <b>Percent of Area</b> |
|--------|---|------------------|------------------------|
| ↑ High | Fish spawning, nursery, or other concentration area                     | 58,216           | 1.9%                   |
| ↓ Low  | Not identified as a fish spawning, nursery, or other concentration area | 2,929,413        | 98.1%                  |
|        | <b>Total area</b>   | <b>2,987,629</b> | <b>100%</b>            |

To learn more and explore the GIS data, [view this indicator in the SECAS Atlas](#).



Coastal & marine

## Caribbean mangrove migration

This indicator represents current and potential future locations of mangroves in the U.S. Caribbean based on land cover and barriers to mangrove migration like slope, elevation, and development. Mangroves serve as essential habitat for migratory birds and economically important fish while also providing ecosystem services like stabilizing shorelines, trapping sediment, and protecting coastal communities from storm surge. This indicator adapts methods from the U.S. Virgin Islands Climate Change Ecosystem-Based Adaptation guidance document and expands the analysis to the full U.S. Caribbean. It uses landcover from the National Oceanic and Atmospheric Administration's Coastal Change Analysis Program as well as slope, elevation, roads, and landcover from LANDFIRE.



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- Current mangrove
- Potential future mangrove <0.5 km from current mangrove
- Potential future mangrove 0.5-1 km from current mangrove
- Potential future mangrove >1 km from current mangrove
- Not likely to be current or future mangrove

Table 23: Indicator values for Caribbean mangrove migration within Puerto Rico. A good condition threshold is not yet defined for this indicator.

|        | <b>Indicator Values</b>                                  | <b>Acres</b>     | <b>Percent of Area</b> |
|--------|--|------------------|------------------------|
| ↑ High | Current mangrove   | 17,803           | 0.6%                   |
|        | Potential future mangrove <0.5 km from current mangrove  | 25,991           | 0.9%                   |
|        | Potential future mangrove 0.5-1 km from current mangrove | 6,849            | 0.2%                   |
|        | Potential future mangrove >1 km from current mangrove    | 11,303           | 0.4%                   |
| ↓ Low  | Not likely to be current or future mangrove              | 2,124,077        | 71.1%                  |
|        | <i>Area not evaluated for this indicator</i>             | <i>801,605</i>   | <i>26.8%</i>           |
|        | <b>Total area</b>  | <b>2,987,629</b> | <b>100%</b>            |

To learn more and explore the GIS data, [view this indicator in the SECAS Atlas](#).



Coastal & marine

## Caribbean seagrass

This indicator represents the presence and density of seagrass at various depths in the U.S. Caribbean. Seagrasses provide food and habitat for a range of marine and estuarine wildlife. They also produce oxygen, filter water, sequester carbon, control erosion, and buffer storms. Seagrasses serve as an important indicator of the overall health of coastal ecosystems because they are sensitive to water quality and require sufficiently clear water for sunlight to penetrate. This indicator uses benthic habitat data from The Nature Conservancy and bathymetry data from the National Oceanic and Atmospheric Administration.



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- Very shallow and dense seagrass
- Very shallow and sparse seagrass
- Shallow and dense seagrass
- Shallow and sparse seagrass
- Deep and dense seagrass
- Deep and sparse seagrass
- Not seagrass

Table 24: Indicator values for Caribbean seagrass within Puerto Rico. A good condition threshold is not yet defined for this indicator.

|        | <b>Indicator Values</b>                      | <b>Acres</b>     | <b>Percent of Area</b> |
|--------|--|------------------|------------------------|
| ↑ High | Very shallow and dense seagrass              | 10,434           | 0.3%                   |
|        | Very shallow and sparse seagrass             | 7,843            | 0.3%                   |
|        | Shallow and dense seagrass                   | 21,994           | 0.7%                   |
|        | Shallow and sparse seagrass                  | 19,219           | 0.6%                   |
|        | Deep and dense seagrass                      | 30,266           | 1.0%                   |
|        | Deep and sparse seagrass                     | 7,075            | 0.2%                   |
| ↓ Low  | Not seagrass                                 | 685,772          | 23.0%                  |
|        | <i>Area not evaluated for this indicator</i> | <i>2,205,027</i> | <i>73.8%</i>           |
|        | <b>Total area</b>                            | <b>2,987,629</b> | <b>100%</b>            |

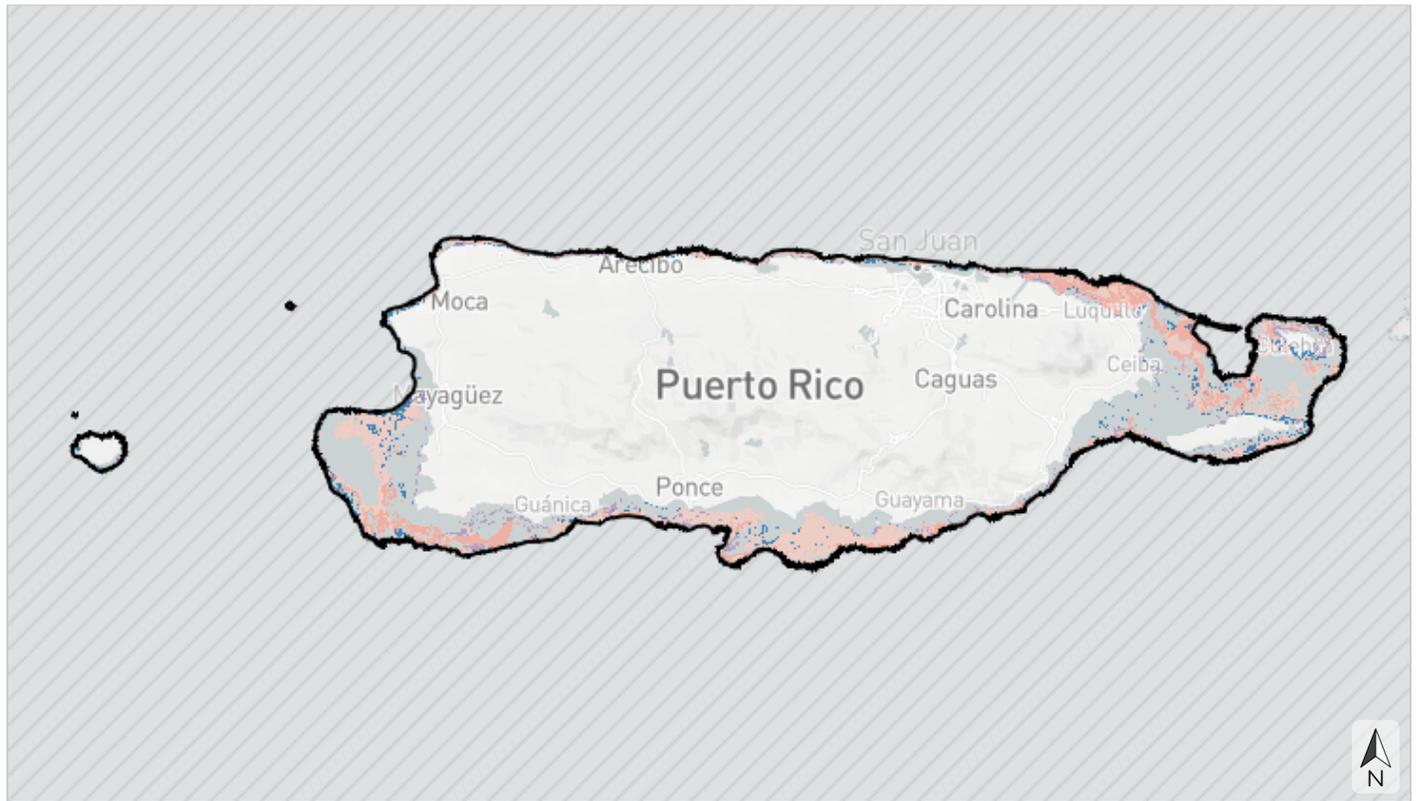
To learn more and explore the GIS data, [view this indicator in the SECAS Atlas](#).



Coastal & marine

## Caribbean shallow hardbottom and coral

This indicator measures the presence of hardbottom habitat and coral in the U.S. Caribbean. It also predicts the ability of coral to survive the impacts of climate change based on reef locations, past and future thermal conditions, hurricane impacts, and coral larval connectivity. Hardbottom and coral serve as important habitat for many marine species and provide economic and cultural benefits to nearby coastal communities, such as supporting fisheries, filtering seawater, and buffering the impacts of storms. This indicator combines benthic habitat and coral climate refugia data from The Nature Conservancy.



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- Coral with above average climate resilience
- Coral with unknown climate resilience
- Coral with below average climate resilience
- Hardbottom with sparse algae
- Hardbottom with dense algae
- Not coral or hardbottom

Table 25: Indicator values for Caribbean shallow hardbottom and coral within Puerto Rico. Good condition thresholds reflect the range of indicator values that occur in healthy, functioning ecosystems.

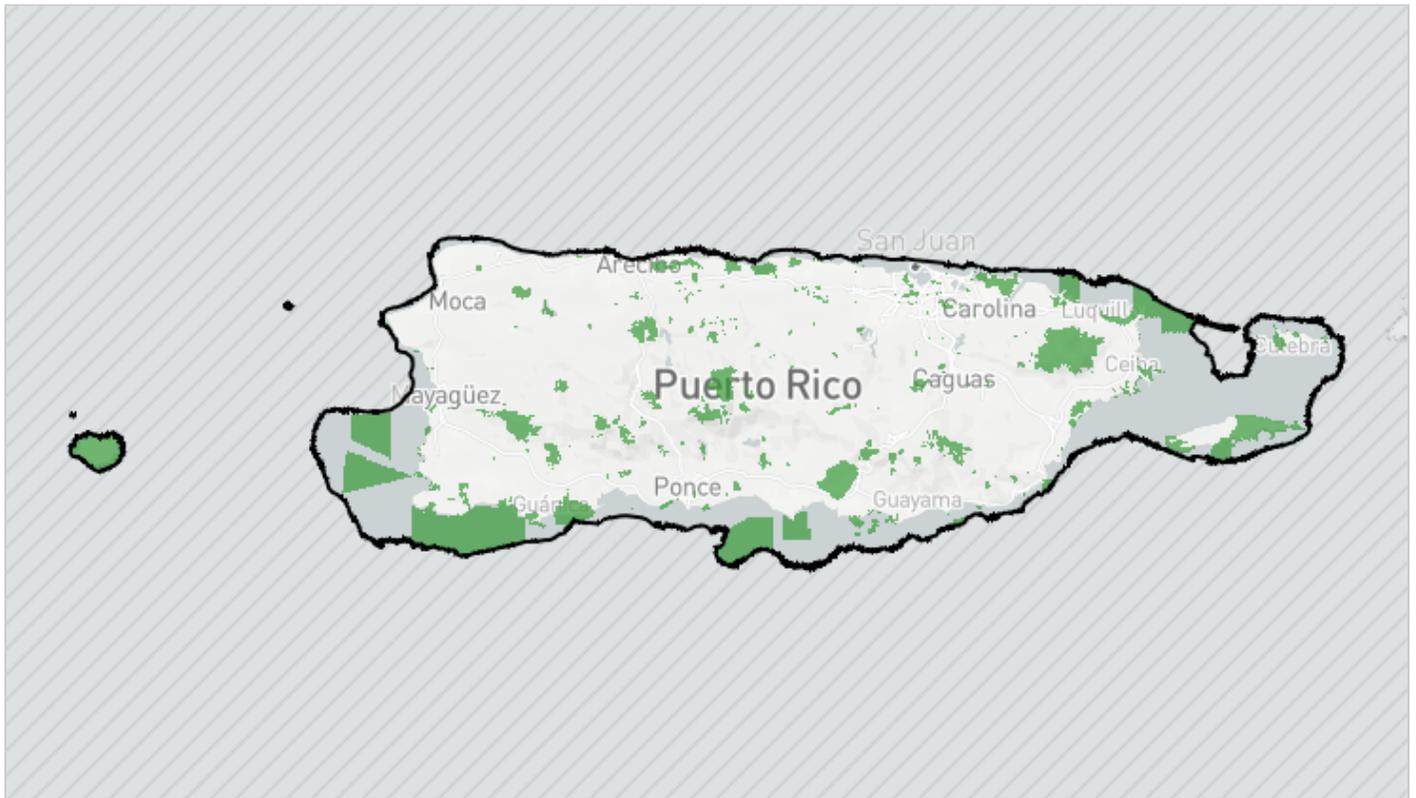
|        | <b>Indicator Values</b>                      | <b>Acres</b>     | <b>Percent of Area</b> |                         |
|--------|--|------------------|------------------------|-------------------------|
| ↑ High | Coral with above average climate resilience  | 33,552           | 1.1%                   |                         |
|        | Coral with unknown climate resilience        | 3,192            | 0.1%                   |                         |
|        | Coral with below average climate resilience  | 30,849           | 1.0%                   | ↑ In good condition     |
|        | Hardbottom with sparse algae                 | 110,172          | 3.7%                   | ↓ Not in good condition |
|        | Hardbottom with dense algae                  | 175,920          | 5.9%                   |                         |
| ↓ Low  | Not coral or hardbottom                      | 428,917          | 14.4%                  |                         |
|        | <i>Area not evaluated for this indicator</i> | <i>2,205,027</i> | <i>73.8%</i>           |                         |
|        | <b>Total area</b>                            | <b>2,987,629</b> | <b>100%</b>            |                         |

To learn more and explore the GIS data, [view this indicator in the SECAS Atlas](#).

# More Information

## Protected Areas

Protected areas include a variety of public lands owned or managed by federal, state, and local agencies and nonprofit organizations, as well as some private conservation lands and conservation easements. Protected areas are derived from the [Protected Areas Database of the United States](#) (PAD-US v4.1) and include Fee, Designation, Easement, Marine, and Proclamation (Dept. of Defense lands only) boundaries.



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-  Within a protected area
-  Not within a protected area

Table 26: Extent of protected areas within Puerto Rico.

| Protected area status       | Acres            | Percent of Area |
|-----------------------------|------------------|-----------------|
| Not within a protected area | 2,602,153        | 87.1%           |
| Within a protected area     | 385,476          | 12.9%           |
| <b>Total area</b>           | <b>2,987,629</b> | <b>100%</b>     |

## Protected areas at this location:

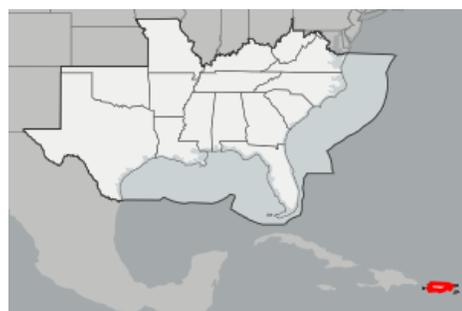
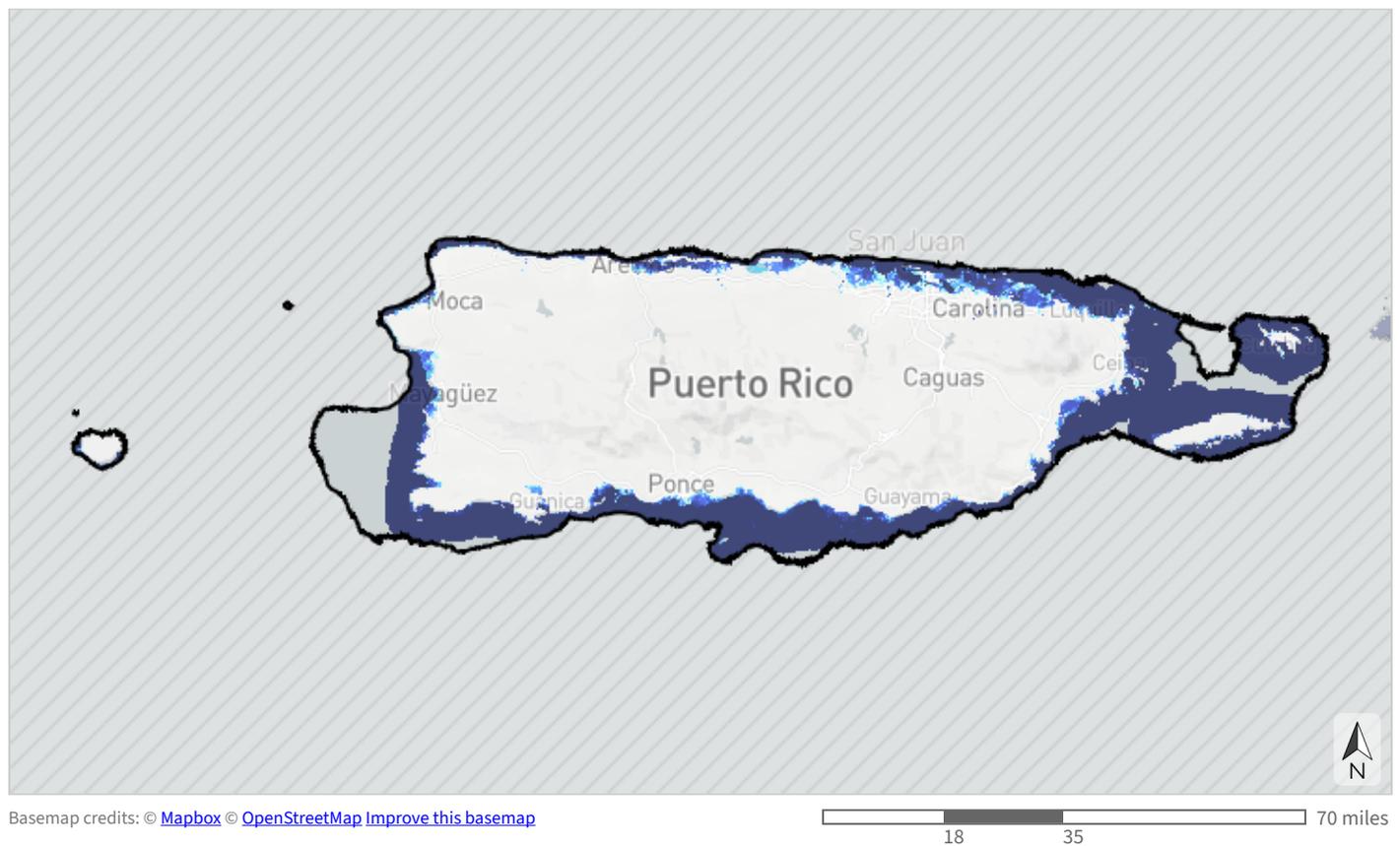
- La Parguera Natural Reserve (39,971 acres)
- El Yunque National Forest (USDA Forest Service; 28,789 acres)
- Luquillo Experimental Forest (28,480 acres)
- Caja de Muertos Natural Reserve (24,750 acres)
- Punta Guaniquilla Natural Reserve (19,795 acres)
- Isla de Mona Natural Reserve (18,730 acres)
- Arrecifes de Tourmaline Natural Reserve (17,961 acres)
- Vieques National Wildlife Refuge (US Fish and Wildlife Service; 17,503 acres)
- Vieques National Wildlife Refuge (17,500 acres)
- Bosque Natural de Boquerón Natural Reserve (17,255 acres)
- Reserva Natural de Isla de Mona y Monito (Dominio público; 14,048 acres)
- Arrecifes de la Cordillera Natural Reserve (13,487 acres)
- National Guard Military Training Area Camp Santiago (12,649 acres)
- Bosque Estatal de Guánica Natural Reserve (12,633 acres)
- El Toro Area Roadless Area (12,584 acres)
- Mameyes Area Roadless Area (11,150 acres)
- El Toro Wilderness (10,360 acres)
- Bosque Estatal de Maricao (terrenos públicos y privados; 9,875 acres)
- Cabezas de San Juan Natural Reserve (9,853 acres)
- Bosque Estatal de Guánica (terrenos públicos y privados; 9,152 acres)
- Punta Petrona Natural Reserve (8,040 acres)
- Río Espíritu Santo Natural Reserve (7,955 acres)
- Servidumbre Escénica Montes Oscuros (terrenos privados; 7,554 acres)
- Bosque Estatal de Toro Negro (terrenos públicos y privados; 6,805 acres)
- Bosque Estatal de Carite (terrenos públicos y privados; 6,581 acres)
- ... and 476 more protected areas ...

Note: areas are listed based on name, ownership, and boundary information in the Protected Areas Database of the United States, which may include overlapping and duplicate areas.

## Sea-level Rise

NOAA's sea-level rise (SLR) inundation models represent areas likely to experience flooding at high tide based on each foot of SLR above current levels. Darker blue areas will experience flooding first, and at greater depth, compared to lighter blue areas. These models are not linked to a future timeframe; see the projections below. NOAA calculates the inundation footprint at "mean higher high water", or the average highest daily tide. The area covered in each SLR scenario includes areas projected to be inundated at lower levels. For example, the area inundated by 4 ft of SLR also includes areas inundated by 3 ft, 2 ft, 1 ft, and 0 ft of SLR (where 0 ft represents current levels).

To explore additional SLR information, please see NOAA's [Sea Level Rise Viewer](#).



**Flooding extent by projected sea-level rise (ft)**



Table 27: Extent of flooding by projected average highest daily tide due to sea level rise within Puerto Rico. Values from the [NOAA sea-level rise inundation data](#).

| Feet of sea-level rise                                | Acres            | Percent of Area |
|---|------------------|-----------------|
| 0 feet  | 631,826          | 21.1%           |
| 1 foot  | 654,011          | 21.9%           |
| 2 feet  | 669,226          | 22.4%           |
| 3 feet  | 680,987          | 22.8%           |
| 4 feet  | 692,743          | 23.2%           |
| 5 feet  | 705,508          | 23.6%           |
| 6 feet  | 716,194          | 24.0%           |
| 7 feet  | 727,122          | 24.3%           |
| 8 feet  | 738,087          | 24.7%           |
| 9 feet  | 747,256          | 25.0%           |
| 10 feet   | 755,211          | 25.3%           |
| <i>Not projected to be inundated by up to 10 feet</i> | 2,074,729        | 69.4%           |
| <i>Sea-level rise data unavailable</i>                | 157,689          | 5.3%            |
| <b>Total area</b>                                     | <b>2,987,629</b> | <b>100%</b>     |

Table 28: Projected sea level rise by decade within Puerto Rico. Values are based on area-weighted averages of decadal projections for 1-degree grid cells that overlap this area based on [NOAA's 2022 Sea Level Rise Report](#). 2060 corresponds to the [SECAS goal](#): a 10% or greater improvement in the health, function, and connectivity of Southeastern ecosystems by 2060.

| SLR Scenario      | 2020 (ft) | 2030 (ft) | 2040 (ft) | 2050 (ft) | 2060 (ft) | 2070 (ft) | 2080 (ft) | 2090 (ft) | 2100 (ft) |
|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Low               | 0.23      | 0.36      | 0.49      | 0.62      | 0.75      | 0.88      | 0.98      | 1.1       | 1.2       |
| Intermediate-low  | 0.26      | 0.41      | 0.59      | 0.77      | 0.98      | 1.2       | 1.4       | 1.6       | 1.8       |
| Intermediate      | 0.26      | 0.43      | 0.62      | 0.89      | 1.2       | 1.6       | 2         | 2.6       | 3.4       |
| Intermediate-high | 0.26      | 0.46      | 0.72      | 1.1       | 1.6       | 2.4       | 3.2       | 4         | 5         |
| High              | 0.26      | 0.49      | 0.82      | 1.3       | 2.1       | 3.1       | 4.2       | 5.5       | 6.8       |

## **Urban growth**

Projected future urbanization data is not currently available for this area.

## **Wildfire Likelihood**

Wildfire likelihood data is not currently available for this area.