

Caribbean Islands Biodiversity Hotspot Ecosystem Profile Summary



About CEPF

Established in 2000, the Critical Ecosystem Partnership Fund (CEPF) is a global leader in enabling civil society to participate in and influence the conservation of some of the world's most critical ecosystems. CEPF is a joint initiative of l'Agence Française de Développement (AFD), Conservation International, the Global Environment Facility (GEF), the Government of Japan, the John D. and Catherine T. MacArthur Foundation and the World Bank. CEPF is unique among funding mechanisms in that it focuses on high-priority biological areas rather than political boundaries and examines conservation threats on a landscape scale. From this perspective, CEPF seeks to identify and support a regional, rather than a national, approach to achieving conservation outcomes and engages a wide range of public and private institutions to address conservation needs through coordinated regional efforts.

Cover photos left to right:

Hispaniola yellow treefrog (*Osteopilus pulchrilineatus*), Haiti. © Robin Moore/iLCP

Seaweed farm on the Tiburon peninsula, Haiti. © Robin Moore/iLCP

The Hotspot

The Caribbean Islands biodiversity hotspot, an archipelago of habitat-rich tropical and semi-tropical islands, comprises 30 nations and territories and stretches across nearly 4 million square kilometers of ocean. It is one of the world's greatest centers of endemic biodiversity due to the region's geography and climate, and is one of the world's 35 biodiversity hotspots—Earth's most biologically rich yet threatened areas.

Its status as a hotspot, as well as the unique biological, economic and cultural importance of the Caribbean Islands Hotspot, led the Critical Ecosystem Partnership Fund (CEPF) to create a conservation strategy for the entire region. The strategy, known as the Caribbean Islands Biodiversity Hotspot Ecosystem Profile, guides CEPF's highly targeted investment in the region — \$6.9 million, to be disbursed via grants to civil society. The profile, which was developed through the input of more than 160 governmental and nongovernmental organizations based in or working in the region, is much more than CEPF's strategy. It offers a blueprint for future conservation efforts in the hotspot and cooperation within the donor community.



Massif de la Hotte, Haiti.
© Robin Moore/iLCP

Development of the Ecosystem Profile

CEPF uses a process of developing “ecosystem profiles” to identify and articulate an investment strategy for each region to be funded. Each profile reflects a rapid assessment of biological priorities and the underlying causes of biodiversity loss within particular ecosystems.

The Caribbean Islands ecosystem profile was developed with broad stakeholder consultation from February to November 2009 under the leadership of BirdLife International, with support from Conservation International. The profiling team is comprised of experts in conservation biology, spatial planning, economics, policy and governance. All worked collaboratively, and engaged more than 200 individuals from civil society, government and donor organizations to develop the profile.

The ecosystem profile presents an overview of the hotspot, including its biological importance in a global and regional context, potential climate change impacts, major threats to and root causes of biodiversity loss, socioeconomic context and current conservation investments. It provides a suite of measurable conservation outcomes, identifies funding gaps and opportunities for investment, and thus identifies the niche where CEPF investment can provide the greatest incremental value.

It also contains a five-year investment strategy for CEPF in the region. This investment strategy comprises a series of strategic funding opportunities, called strategic directions, broken down into a number of investment priorities outlining the types of activities that will be eligible for CEPF funding. The ecosystem profile does not include specific project concepts. Civil society groups develop these for their applications to CEPF for grant funding.



Weighing a Ricord's Iguana (*Cyclura ricordi*) hatchling.
© Dr. Masani Accimé

Biological Importance of the Caribbean Islands Biodiversity Hotspot

The geography and climate of the Caribbean Islands hotspot have resulted in an amazing diversity of habitats and ecosystems, which in turn support high levels of species richness and species found nowhere else. There are four major terrestrial forest types in the hotspot:

- **Tropical/subtropical moist broadleaf forests.** These occur mainly in lowland areas influenced by northeasterly or northwesterly winds, and on windward mountain slopes.
- **Tropical/subtropical dry broadleaf forests.** Favored for human habitation due to relatively productive soils and a comfortable climate. Few dry forests remain undisturbed.
- **Tropical/subtropical coniferous forests (both lowlands and montane).** Threatened by timber extraction and man-made fires that change their age structure and density.
- **Shrublands and seric scrub.** Occurs in areas of rain shadows created by mountains, and also in the more arid climate of the southern Caribbean.



Hispaniola giant treefrog (*Oseopilus vastus*).
© Robin Moore/iLCP

The Caribbean Islands hotspot also supports important freshwater habitats, including rivers, streams, lakes, wetlands and underground karst networks. In addition to providing habitat for many important, unique and migratory animals and plants, these freshwater sites provide clean water, food, hydroelectricity and many other services to local communities. These services are especially important as the small islands of the insular Caribbean are surrounded by salt water, and rely greatly on limited, land-based fresh water from functional ecosystems.

The hotspot supports a wealth of biodiversity within its terrestrial ecosystems, with a high proportion of species that are endemic, or unique, to the hotspot. It includes about 11,000 plant species, of which 72 percent are endemic. For vertebrates, high proportions of endemic species characterize the herpetofauna (100 percent of 189 amphibian species and 95 percent of 520 reptile species), likely due to their low dispersal rates, in contrast to the more mobile birds (26 percent of 564 species) and mammals (74 percent of 69 species, most of which are bats). Species endemic to the hotspot represent 2.6 percent of the world's 300,000 plant species, and 3.5 percent of the world's 27,298 vertebrate species.

The hotspot is the heart of Atlantic marine diversity. Roughly 8 percent to 35 percent of species within the major marine taxa found globally are endemic to the hotspot. The shallow marine environment contains 25 coral genera, 117 sponges, 633 mollusks, more than 1,400 fishes, 76 sharks, 45 shrimp, 30 cetaceans and 23 species of seabirds. The Caribbean contains approximately 10,000 square kilometers of reef, 22,000 square kilometers of mangrove, and as much as 33,000 square kilometers of seagrass beds. The region also provides wintering and nursery grounds for many Northern Atlantic migratory species, including the great North Atlantic humpback whale, which reproduces in the northern Caribbean seascape.

Conservation Outcomes

The Caribbean Islands ecosystem profile reflects CEPF's commitment to using conservation outcomes developed through scientific analysis to identify investment targets to prevent biodiversity loss across the hotspot. CEPF conservation outcomes encompass three closely linked spatial scales: species, sites and landscapes. The basis of this hierarchy rests on the understanding that to save individual species from extinction, the sites that they rely on must be conserved and the landscapes or seascapes must sustain the ecological services on which these sites and species depend.

CEPF uses a bottom-up process to define conservation outcomes, first identifying species-level targets, from which the definition of site and landscape-level targets are developed. The process requires detailed knowledge of the conservation status of individual species. The Caribbean Islands ecosystem profile identifies 703 globally threatened species as defined by the IUCN Red List, a number that ranks among the highest across all hotspots.

Recognizing that most species are best conserved through the protection of sites where they live, the profile's authors next pinpointed key biodiversity areas as targets for achieving site outcomes. These sites are critically important for the conservation of globally threatened species, restricted-range species, biome-restricted species assemblages or congregatory species. The profile presents 290 key biodiversity areas, including 209 areas containing important coastal and marine ecosystems.

Many sites provide habitat for important marine species, including globally threatened sea turtle species. Mangroves are a critical feature in a number of areas, including Portland Ridge and Bight and Black River Great Morass in Jamaica, and Jaragua National Park and Haitises in the Dominican Republic. Virtually all areas are



Critically Endangered Jamaican iguana (*Cyclura collei*).
© Tiana F. Rehman

of critical importance for local people. The wetlands and sea grasses of Jamaica's Portland Ridge and Bight provide the largest nursery area for fish, crustaceans and mollusks on the island, and support 4,000 of country's 16,000 fishers.

The ecosystem profile identifies seven conservation corridors, which contain groupings of key biodiversity areas of high priority due to their importance for maintaining ecosystem health. CEPF's management goals in the conservation corridors are to maintain and increase connectivity, ensure sustainable management of the landscape, and increase the area of actual or potential natural habitat under protection. The seven corridors are located in four countries: Haiti, Dominican Republic, Jamaica and St. Vincent and the Grenadines. The corridors embrace more than 220 globally threatened species and 38 key biodiversity areas. These corridors are essential for protecting the processes and linkages required to support threatened species, particularly in terms of long-term adaptation to climate change.

Threats

The Caribbean's biodiversity has been impacted by people since the arrival of Amerindians some 7,000 years ago. The arrival of Europeans in the 1490s substantially impacted the hotspot's natural resources, which has declined substantially in the last 50 years due to the rapid growth of population and economic activity.



Deforestation on St. Vincent Island.
© Michele Zador

The main threats to the terrestrial biodiversity today are habitat destruction and fragmentation due to the expansion of agriculture, cities, tourism and commercial development. Overexploitation of living resources, predation and competition by invasive alien species are also significant threats. Pollution and sedimentation has negatively affected marine environments by smothering coral reefs, killing fish and reducing the recreational value of beaches. Climate change is believed to have increased the frequency and intensity of hurricanes and droughts. Sea level rise and a general drying trend also is an important concern. A major priority therefore in addressing climate change is to formulate and implement strategies for adaptation to mitigate the social and environmental impacts.

Underlying these threats are a multiplicity of root causes, including a lack of awareness of the importance of environmental protection, weak environmental legislation, limited technical information, weak environmental institutions, and insufficient funding.

Almost all island states have at least one NGO with a mission that includes biodiversity conservation. Furthermore, smaller community-based organizations play an increasingly important role in conservation. However, limited institutional and human resource capacity within local NGOs, community groups and government agencies remains a significant barrier to biodiversity conservation. Local organizations tend to work in relative isolation from each other and lack strong collaborative networks where synergies and lessons learned can be shared.



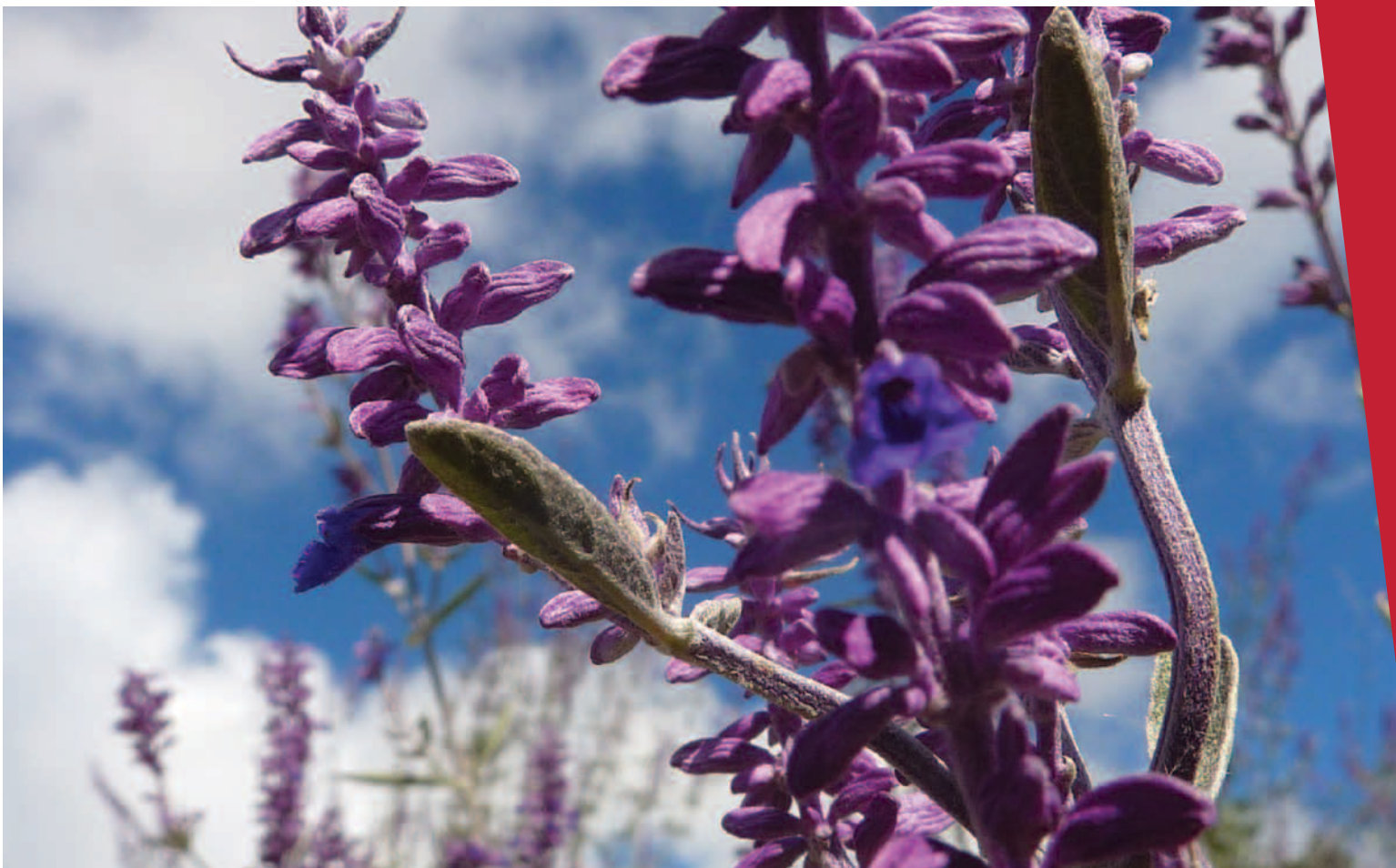
A young boy harvests watercress in Parc la Visite, Massif de la Selle, Haiti.
© CI/ Photo by Pierre Carret

Current Investments

The unique history of the insular Caribbean has given rise to at least three very different forms of government that have helped to determine the kinds of conservation investments made in each type. The developing independent nations (the Dominican Republic is the largest) have attracted by far the most external funding from multilateral (especially GEF), bilateral and private sources. Almost all multilateral aid is provided to and through national government agencies, with the exception of the GEF Small Grants Program. The overseas territories of the United States and several European countries (France, the Netherlands and U.K.) have received funding from programs in their home countries, although they have not always been able to compete well for those funds. Finally, the centrally planned economy of Cuba, the largest Caribbean island, while having significant multilateral investments, has been able to attract few other donors.

Approximately \$54 million is currently invested in biodiversity conservation and climate change adaptation. Of this amount, \$34 million (63 percent) is going to CEPF-eligible countries, with only \$7 million going to key biodiversity areas, and of that, only \$2 million is going to Caribbean organizations. In general, investments are concentrated in the larger independent countries: Cuba, Dominican Republic, Haiti and Jamaica.

GEF is the most important donor, with tens of millions of dollars in conservation investments, mainly going to governments. Bilateral funding from developed countries is also important, and has tended to follow donor country preferences, sometimes based upon commonwealth or historical connections. The Caribbean has attracted only a few private organizations and foundations. The MacArthur Foundation has made the Caribbean one of its regional foci in recent years. Unlike in some other hotspots of biological



Salvia selleana, an endemic species of sage from Massif de la Selle, Haiti.
© CI/ Photo by Pierre Carret

diversity, where conservation interests have successfully worked with the private sector (for example, with plantation agriculture or cattle ranching), there has been little such cooperation in the Caribbean from large-scale tourism or from mining.

CEPF Niche and Investment Strategy

Analysis and consultations conducted during preparation of the ecosystem profile reveal that the Caribbean Islands hotspot is at a crossroads in its development trajectory. With few exceptions, most countries in the hotspot have built economies classified as middle income that are heavily reliant on ecosystem services, particularly for tourism, agriculture and fisheries. The region's ecosystems provide vital freshwater resources, help to mitigate the impacts of hurricanes, regulate local climate and rainfall, prevent soil erosion, produce hydroelectricity and yield locally consumed non-timber forest products. The coastal and marine environments are essential for the tourism and fisheries sectors.

At the same time, these island ecosystems are particularly fragile, finite and under significant pressure. The region has among the highest numbers of globally threatened species in the world and its key biodiversity areas top the world's list of Alliance for Zero Extinction (AZE) sites, which the international conservation community has agreed are the most urgent site-level species conservation priorities. These sites are irreplaceable because they contain the only known populations of a globally threatened species.



Algae growing on black mangrove breathing tubes on a tidal sand flat in Exuma Cays Land and Sea Park, Bahamas.
© Jeff Yonover

Economic policies have failed to fully consider the importance of protecting and maintaining the provision of ecosystem services, and implementation of environmental laws has fallen short. As a result, environmental degradation is taking a toll, agriculture and fisheries are declining, and provision of sufficient fresh water to meet growing populations is a serious concern.

Within this context, the CEPF niche is to support civil society groups so that they can serve as effective advocates, facilitators and leaders for conservation and sustainable development of their islands. The need for such leadership is urgent. Civil society groups are in a unique position in the Caribbean to fulfill this role, as they have significant knowledge of and experience with the biodiversity held in individual key biodiversity areas and conservation corridors, and they can bridge local development aspirations with longer term conservation goals.

Countries currently eligible to receive CEPF funds as both signatories to the Convention on Biological Diversity and World Bank client countries are: Antigua and Barbuda, Bahamas, Barbados, Dominica, Dominican Republic, Grenada, Haiti, Jamaica, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines. Investments fall under five strategic directions, with the fifth pertaining to provision of emergency support to civil society in the wake of the major earthquake that hit Port-au-Prince, Haiti, on 12 January 2010.



Family living in the buffer zone of Loma La Humeadora National Park, Dominican Republic.
© CI/Photo by Michele Zador

CEPF Strategic Directions and Investment Priorities

1

STRATEGIC DIRECTION

Improve protection and management of 45 priority key biodiversity areas.

INVESTMENT PRIORITIES

- Prepare and implement management plans in the 17 highest-priority key biodiversity areas.
- Strengthen the legal protection status in the remaining 28 key biodiversity areas.
- Improve management of invasive species in the 45 priority key biodiversity areas.
- Support the establishment or strengthening of sustainable financing mechanisms.



2

STRATEGIC DIRECTION

Integrate biodiversity conservation into landscape and development planning and implementation in six conservation corridors.

INVESTMENT PRIORITIES

- Mainstream biodiversity conservation and ecosystem service values into development policies, projects and plans, with a focus on addressing major threats such as unsustainable tourism development, mining, agriculture and climate change.

- Strengthen public and private protected-area systems through improving or introducing innovative legal instruments for conservation.
- Prepare and support participatory local and corridor-scale land-use plans to guide future development and conservation efforts.
- Promote nature-based tourism and sustainable agriculture and fisheries to enhance connectivity and ecosystem resilience and promote sustainable livelihoods.



3

STRATEGIC DIRECTION

Support Caribbean civil society to achieve biodiversity conservation by building local and regional institutional capacity and by fostering stakeholder collaboration.



INVESTMENT PRIORITIES

- Support efforts to build and strengthen the institutional capacity of civil society organizations to undertake conservation initiatives and actions.
- Enable local and regional networking, learning and best-practice sharing approaches to strengthen stakeholder involvement in biodiversity conservation.

4

STRATEGIC DIRECTION

Provide strategic leadership and effective coordination of CEPF investment through a regional implementation team.



INVESTMENT PRIORITIES

- Build a broad constituency of civil society groups working across institutional and political boundaries toward achieving the shared conservation goals described in the ecosystem profile.

5

STRATEGIC DIRECTION

Provide emergency support to Haitian civil society to mitigate the impacts of the 2010 earthquake.



INVESTMENT PRIORITIES

- Support conservation of priority key biodiversity areas and ensure the integration of conservation priorities into reconstruction planning.



Mountain views at La Citadelle, near Cap-Haïtien, Haiti.
© CI/Photo by Pierre Carret

CEPF Investments

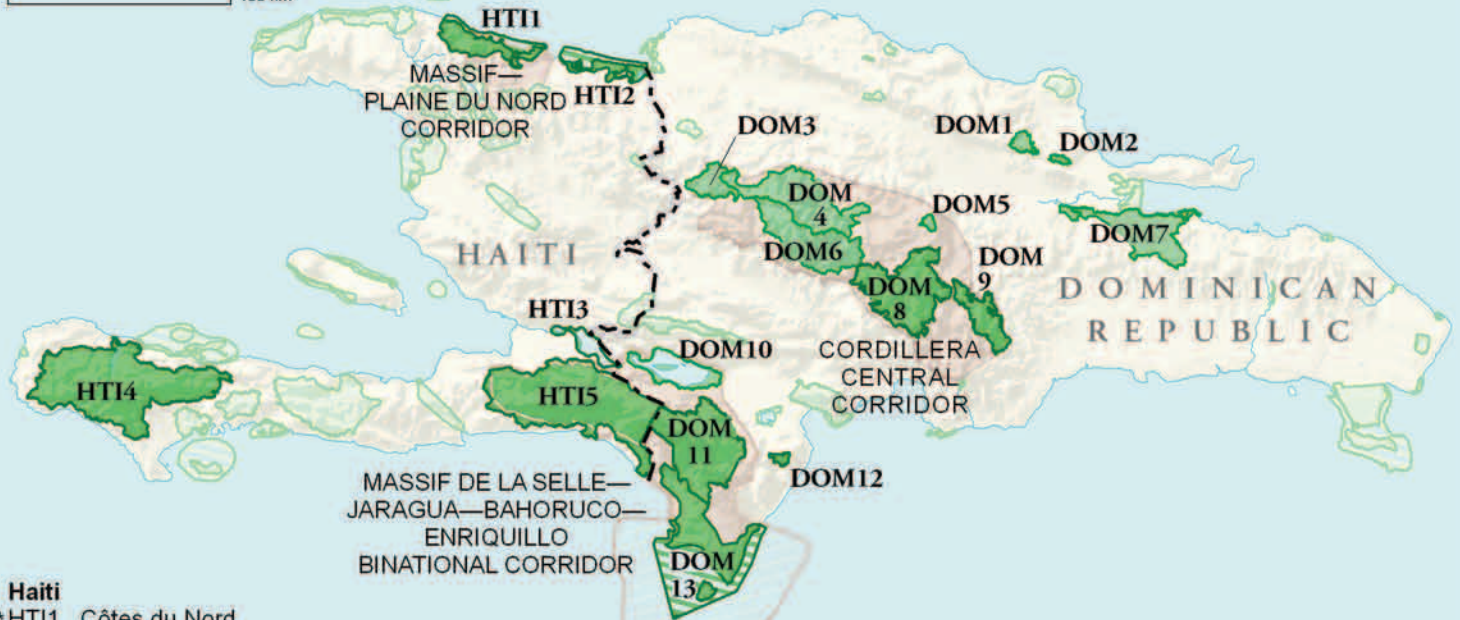
To ensure the greatest incremental contribution to the conservation of the global biodiversity values of the Caribbean Islands hotspot, CEPF investment focuses on six conservation corridors and 45 of the highest-priority key biodiversity areas, many of which are embraced by the corridors. Many of the 45 key biodiversity areas are coastal and dependent on the health and resilience of the adjacent marine environment.

The conservation corridors are located in four countries:

- 1. Cockpit Country-North Coast Forest-Black River Great Morass** – Jamaica
- 2. Portland Bight Protected Area** – Jamaica
- 3. Massif du Nord** – Haiti
- 4. Massif de la Selle-Jaragua-Bahoruco-Enriquillo binational corridor** – Haiti and Dominican Republic
- 5. Cordillera Central** – Dominican Republic
- 6. Central Mountain Range** – St. Vincent and the Grenadines

Hispaniola

100 km



Haiti

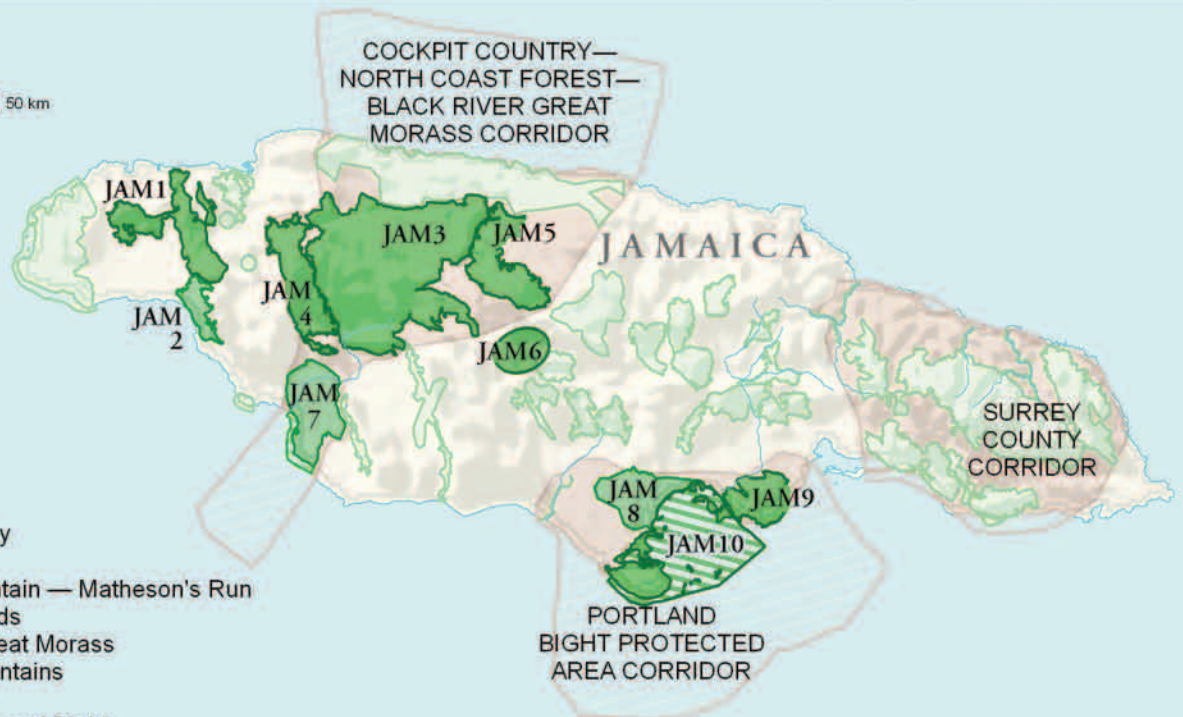
- *HTI1 Côtes du Nord
- *HTI2 Lagons du Nord-Est
- *HTI3 Lac Azuéi - Trou Caïman
- *HTI4 Massif de la Hotte
- *HTI5 Massif de la Selle

Dominican Republic

- | | | |
|--|--|---------------------------------------|
| DOM1 Reservas Científicas Loma Quita Espuela | DOM4 Parque Nacional Armando Bermúdez | DOM10 Parque Nacional Lago Enriquillo |
| DOM2 Reservas Científicas Loma Guanconejo | DOM5 Reserva Científica Ébano Verde | *DOM11 Sierra de Bahoruco |
| DOM3 Loma Nalga de Maco y Río Limpio | DOM6 Parque Nacional Jose del Carmen Ramirez | *DOM12 Bahoruco Oriental |
| | DOM7 Parque Nacional Los Haitises | *DOM13 Parque Nacional Jaragua |
| | *DOM8 Valle Nuevo | |
| | *DOM9 Loma La Humeadora | |

Jamaica

50 km



Jamaica

- * JAM1 Dolphin Head
- JAM2 Bluefields
- * JAM3 Cockpit Country
- * JAM4 Catadupa
- * JAM5 Litchfield Mountain — Matheson's Run
- * JAM6 Peckham Woods
- JAM7 Black River Great Morass
- JAM8 Brazillitto Mountains
- * JAM9 Hellshire Hills
- * JAM10 Portland Ridge and Bight

Lesser Antilles

50 km

ANTIGUA AND BARBUDA

MONTserrat (U.K.)

GUADELOUPE (FR)

DOMINICA

MARTINIQUE (FR)

SAINT LUCIA

CENTRAL MOUNTAIN RANGE CORRIDOR

VCT1

VCT7

VCT6

VCT5

VCT4

VCT2

VCT3

SAINT VINCENT AND THE GRENADINES

BRB1

BARBADOS

Antigua and Barbuda
ATG1 Offshore Islands

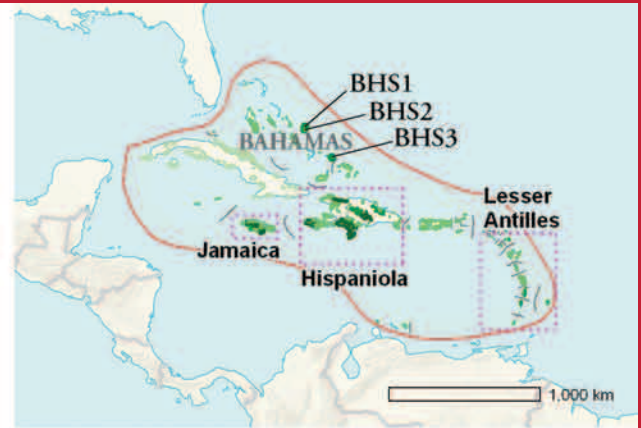
Barbados
BRB1 Scotland District

Grenada
GRD1 Beausejour/Grenville Vale
GRD2 Mount Hartman

Saint Lucia
LCA1 Northeast Coast
LCA2 Mandele Dry Forest
LCA3 Pointe Sable

Saint Vincent and the Grenadines
VCT1 La Soufrière National Park
VCT2 Mount Pleasant Forest Reserve
VCT3 Colonarie Forest Reserve
VCT4 Kingstown Forest Reserve
VCT5 Dalaway Forest Reserve
VCT6 Cumberland Forest Reserve
VCT7 Richmond Forest Reserve

GRENADA



Bahamas
BHS1 Graham's Harbour
BHS2 Southern Great Lake
BHS3 Booby Cay

Key Biodiversity Area CEPF priority level

- high (indicated by *)
- medium
- low

CEPF corridor

Conclusion

The Caribbean Islands biodiversity hotspot is one of the world's greatest centers of biodiversity and endemism, yet its biodiversity and the natural services it provides are highly threatened. Its ecosystems are essential for the maintenance of human well-being, as its inhabitants rely on the wealth of these fragile areas for a multitude of benefits including disaster risk prevention, availability of fresh water and revenue from tourism. CEPF's strategy aims to support civil society to generate significant conservation results that will not only complement the actions of other stakeholders in the Caribbean, but also enable a significant expansion of strategic conservation effort for the benefit of people and nature.



Antillean crested hummingbird (*Orthorhyncus cristatus*).
© Nick Hollands



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