

Montserrat



Ministry of Agriculture, Housing, Lands and Environment

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View of the Centre Hills

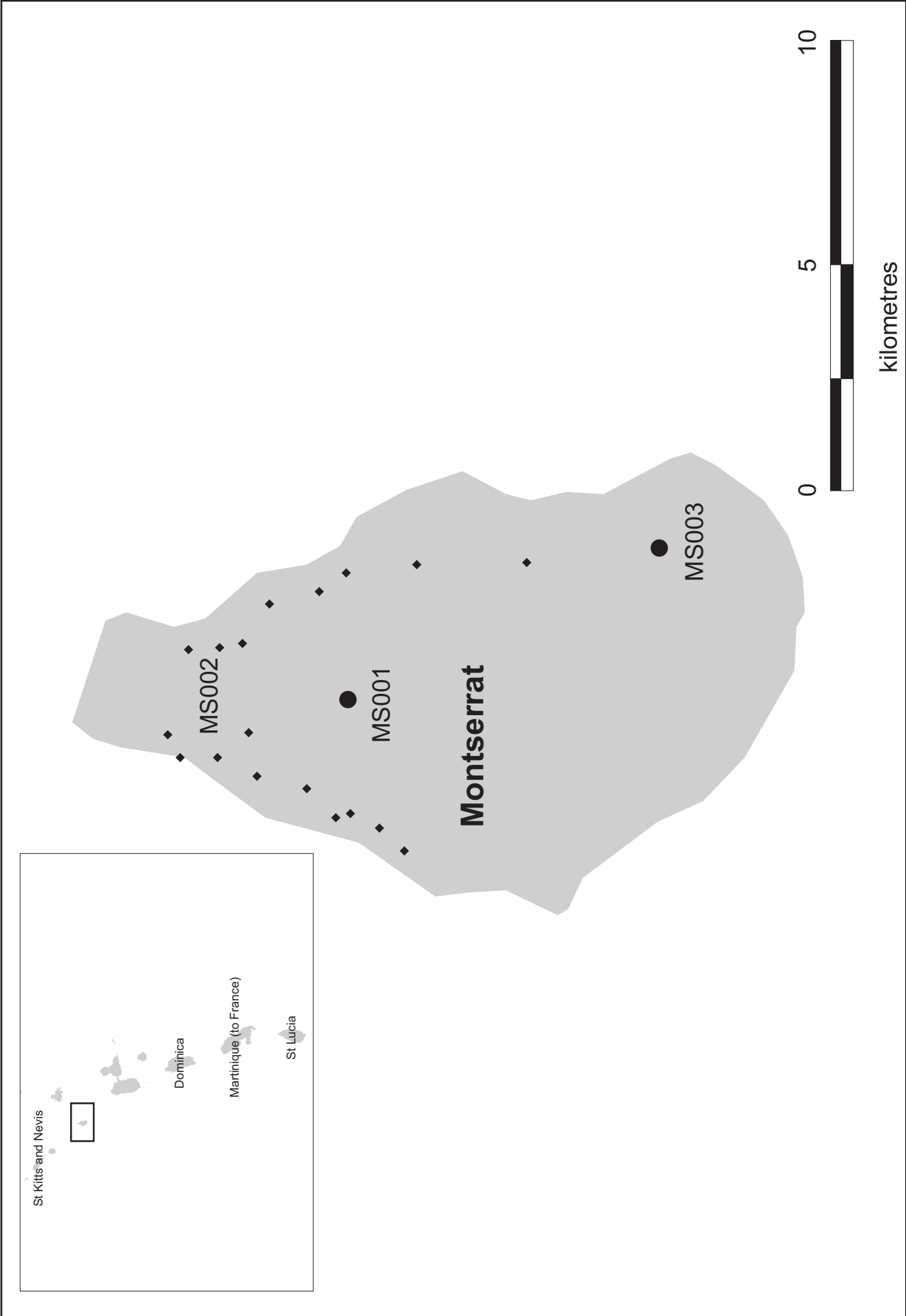
General introduction

Montserrat (40 square miles/104 square km) is part of the Leeward Island chain, lying towards the northern end of the Lesser Antilles. It is tropical (about 16°45'N), and the climate is continually warm with a mean annual temperature at sea level of about 27°C. The mountainous topography creates strong rainfall gradients, with annual precipitation varying between about 1,100 and 2,100 mm. The wet season extends from June to December and coincides with the Atlantic hurricane season. The last devastating hurricane was Hurricane Hugo in 1989, which caused massive tree fall and almost complete defoliation.

The island is volcanic in origin, having emerged during the Pliocene (2–11 million years BP). This is reflected in an extremely rugged topography. There are three major volcanic hill ranges: the Soufriere and South Soufriere Hills, the Centre Hills, and the Silver Hills. Prior to the eruption of the Soufriere Hills volcano, Chances Peak was the highest point on the island, rising to 914 m, while the highest point in the Centre Hills – Katy Hill – reaches 741 m. There are also two smaller hills: Garibaldi Hill and St Georges Hill. There are a few, very small offshore islets.

The coastline is mostly rocky and rather steep, with low cliffs in a few places in the north. A number of relatively small sandy beaches are scattered around the island.

The recent ecological and human history of the island is dominated by the eruption of the Soufriere Hills volcano, 1995–2004 (and ongoing). Explosive eruptions, ash falls and pyroclastic flows have been frequent and devastating. The southern two-thirds of the island have been evacuated, including the capital, Plymouth. The majority of the human population emigrated, with the population declining from around 12,000 to 3,500. Economic, administrative and civic life was massively disrupted by the mass emigration and loss of the capital. The forests of the Soufriere/South Soufriere Hills ranges were almost entirely destroyed by pyroclastic flows, leaving only a small remnant in the south-eastern flanks of the South Soufriere Hills. Most areas of Montserrat, including the largest surviving forest block in the Centre Hills, were subject to repeated heavy ash falls and acid rain. The remaining human population is now clustered in the north, around the fringes of the Centre Hills.



The natural vegetation over the majority of the island is tropical forest. This ranges from dry deciduous forest in the lowlands, through semi-deciduous and evergreen wet forest in the hills, to montane elfin forest on the highest peaks. There are small areas of littoral woodland, and in the driest areas of the lowlands the vegetation is xerophytic scrub, with many cacti. All but a few small forest patches were apparently cleared during the plantation era, and the bulk of the remaining forest is therefore secondary. In the Centre Hills, the largest remaining forest block, native trees are mixed with large non-native fruit trees, remnants of earlier agricultural endeavours. Substantial areas in the lowlands are now cleared for agriculture and settlement. In the Silver Hills, forest clearance and overgrazing has resulted in an extremely degraded scrub vegetation.

The island has very few wetlands. Prior to the eruption, Foxes Bay Bird Sanctuary contained areas of saline lagoon and mangroves; these were largely destroyed by pyroclastic flows. A very small, partly degraded saline lagoon and mangrove area at Carrs Bay remains.

In common with other Lesser Antillean islands, Montserrat has a rich biota, and an extremely high level of endemism. Recent investigations demonstrate that the arthropod fauna is very patchily described and is rich in endemics. As a result of this work, new checklists are expected. Two amphibian, 11 terrestrial reptile and 10 native bat species have been recorded on Montserrat in modern times. Among these terrestrial vertebrates are two endemic reptile species – the Montserrat Galliwasp *Diploglossus montiserrati* and the Montserrat Anole *Anolis lividus* – and four endemic sub-species – the Montserrat Ameiva *Ameiva pluvianotata pluvianotata* (Teiidae), Southern Leeward Dwarf Gecko *Sphaerodactylus fantasticus ligniservulus* (Gekkonidae), Montserrat Black Snake *Alsophis antillensis manselli* (Colubridae) and the Montserrat Blind Worm Snake *Typhlops monastus monastus* (Typhlopidae). There is one endemic sub-species of bat, *Sturnira thomasi vulcanensis*. The Mountain Chicken *Leptodactylus fallax* is the second largest frog species in the world, with an extraordinary life history. It is now confined to Dominica and Montserrat. The island is a nesting site for the Green Turtle *Chelonia mydas*, Hawksbill Turtle *Eretmochelys imbricata* and Leatherback Turtle *Dermochelys coriacea*. The current plant list contains 875 species. The plant fauna has been poorly studied but is important for the following globally threatened plant species: Red Cedar *Cedrela odorata* (VU), Lignum Vitae *Guaiacum officinale* (EN), Brazilian Mahogany *Swietenia macrophylla* (VU) and American Mahogany *Swietenia mahagoni* (EN). Since the volcanic eruption, two single endemic species have been found, the orchid *Epidendrum montserratense* and the privet *Rondeletia buxifolia*. The third island endemic species *Xylosma*

serratum has still to be recorded.

Montserrat's ecology has been radically altered by human activity since the arrival of Europeans. Massive forest clearance during the plantation era left only a tiny remnant of primary forest. Subsequently, much of the area of the main hill ranges reverted to secondary forest. Parts of the Silver Hills are heavily degraded by soil exhaustion and erosion. Much of the lowland and coastal areas of Montserrat has been converted to agriculture and settlement. Lowland forest is now relatively rare, and occurs primarily as narrow riparian strips. In recent years, there has been relatively little pressure to clear further areas of hill forest; their value for watershed protection is widely realised.

Non-native species of mammal are widespread on Montserrat. Recent research on Montserrat Orioles and Mountain Chickens indicates that rats *Rattus spp.* are major predators of the native biota, and probably also affect vegetation dynamics. Feral cats, goats and pigs also present significant conservation problems. Invasive alien plants have not been well studied, but may also have significant impacts.

The volcanic eruption has had a massive impact on the native wildlife, and the impacts of this natural catastrophe have been exacerbated by the human habitat degradation that preceded it. Most of the island's hill forests, including all of the high-altitude habitats, have been lost. Ash fall is known to have had pronounced effects on the arthropod fauna, with knock-on effects on the food chain. Bats are known to have been severely impacted. Direct impacts on birds are less well known.

Montserrat is a UK Overseas Territory. There is a popularly elected legislature, and a Chief Minister serves with an appointed Cabinet of Ministers. A resident Governor represents the British Crown.

Prior to the volcanic eruption, tourism (though not mass tourism) and agriculture were the mainstays of the economy. Subsequently, both sectors have been depressed, and reconstruction work has provided the main economic activity for the greatly reduced human population of the island.

Montserrat has suffered enormous disruption following the volcanic crisis. The population is now entirely in the north of the island. There is much pressure to provide new housing and infrastructure to accommodate the relocation and return of emigrants. The relocated population draws water from the Centre Hills, which formerly had many natural watercourses. There is clearly a need to ensure that this development is environmentally sustainable, despite its urgency. The volcanic crisis, and accompanying loss of population, has also affected the human capacity on Montserrat to execute conservation action.

Ornithological importance

There are two species of global conservation concern on Montserrat. The Critically Endangered Montserrat Oriole is the island's endemic national bird. Formerly found

throughout the island's hill forests (at altitudes greater than about 150 m), the majority of the population was wiped out with the destruction of the southern hill forests during the

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volcanic eruption. It persists in the Centre Hills, and in a small area of the South Soufriere Hills. It is considered Critically Endangered because the loss of the southern hill forests was followed by a substantial decline in the Centre Hills population. It is estimated that there are only 200–400 pairs remaining in the wild. Jersey Zoo has a captive breeding programme to safeguard the species from the risk of extinction in the wild and to provide birds for reintroduction in the future.

The Vulnerable Forest Thrush is a forest interior species. It is endemic to a small group of islands in the northern Lesser Antilles: Montserrat, Dominica, Guadeloupe and St Lucia. It is globally vulnerable because of declines in recent years; it is now rare on Guadeloupe and St Lucia, and Montserrat may be the species' global stronghold. The Centre Hills population appears to have recovered from the most severe period of volcanic ash fall (1996–97) and to number in the low thousands.

There was thought to be a small breeding population of the Near-threatened Caribbean Coot prior to the eruption, but

this appears to have been extirpated following the destruction of Foxes Bay wetland.

Montserrat is part of Endemic Bird Area EBA030, Lesser Antilles. This 2,432 square mile (6,300 square km) EBA stretches from Grenada in the south to Anguilla in the north, and has 33 restricted-range species, of which 24 are confined to the EBA. A total of 12 restricted-range species are listed for Montserrat; these are the Bridled Quail-dove, Purple-throated Carib, Green-throated Carib, Antillean Crested Hummingbird, Lesser Antillean Flycatcher, Brown Trembler, Scaly-breasted Thrasher, Pearly-eyed Thrasher, Forest Thrush, Lesser Antillean Bullfinch, Montserrat Oriole and Antillean Euphonia. The Lesser Antillean Flycatcher has not been recorded recently so may not occur.

The A3 geographic biome criteria is not applied.

There are some very small seabird nesting colonies around the island, with White-tailed Tropicbirds, Brown Pelicans and Brown Boobies thought to nest.

The occurrence of globally threatened and restricted-range species at Important Bird Areas in Montserrat

Species	MS001	MS002	MS003
Montserrat Oriole (CR) <i>Icterus oberi</i>	X		X
Forest Thrush (VU) <i>Cichlherminia lherminieri</i>	X	X	X
Bridled Quail-dove <i>Geotrygon mystacea</i>	X	X	X
Purple-throated Carib <i>Eulampis jugularis</i>	X	X	
Green-throated Carib <i>Eulampis holosericeus</i>	X	X	X
Antillean Crested Hummingbird <i>Orthorhynchus cristatus</i>	X	X	X
Lesser Antillean Flycatcher <i>Myiarchus oberi</i>			
Brown Trembler <i>Cinlocerthia ruficauda</i>	X	X	X
Scaly-breasted Thrasher <i>Margarops fuscus</i>	X	X	X
Pearly-eyed Thrasher <i>Margarops fuscatus</i>	X	X	X
Lesser Antillean Bullfinch <i>Loxigilla noctis</i>	X	X	X
Antillean Euphonia <i>Euphonia musica</i>		X	

Conservation infrastructure and Protected Area system

The Forestry Department of the Ministry of Agriculture, Lands, Housing and Environment has responsibility for biodiversity conservation. The main conservation NGO in the Territory is the Montserrat National Trust. It is mandated to preserve and protect the natural, historical and cultural heritage of Montserrat.

Montserrat is included in the UK's ratification of the following Multilateral Environment Agreements: Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention); Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention); Convention on the Regulation of Whaling; Convention on Biological Diversity (CBD); Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES); Convention on Migratory Species of Wild Animals (Bonn Convention).

The enabling legislation for CITES is the Endangered Animals and Plants Ordinance (1976). The enabling legislation for the Bonn Convention is the Convention on Migratory Species of Wild Animals Ordinance (1985). A Forestry, Wildlife, National Parks and Protected Areas Ordinance (1996) was passed in 1996, and makes provision for protected areas and wildlife

protection. However, there are no National Parks as yet. The Centre Hills area, although largely privately owned, is a Forest Reserve. Species protection is provided for by the Wild Birds Protection (Amendment) Ordinance (1987).

A Species Action Plan for the Montserrat Oriole is in preparation. A new proposal to declare the Centre Hills a National Park and develop a site management plan is in the early stages of preparation. The development of nature tourism is seen as an important component of the island's redevelopment; this potentially provides opportunities to combine biodiversity conservation with economic growth.

To date, most funding for conservation work has been received from international donor agencies and UK government funds. Several UK-based NGOs have a long history of involvement in Montserranian conservation, working in partnership with the Forestry Department and/or the National Trust. Academic researchers have also been active in recent years, perhaps most notably entomologists from Montana State University, bat experts from South Dakota State University and marine turtle experts from the University of Exeter.

Overview of the inventory

The Important Bird Area (IBA) programme has identified three sites of global conservation importance. Two of these capture almost the entire remaining area of hill forest, and with it the entire population of Montserrat Orioles, plus the vast majority of the population of other forest specialists such as the Brown Tumbler and the Forest Thrush. The remaining site comprises a number of discrete riparian forest patches, which also hold assemblages of restricted-range species, including concentrations of those species that reach highest abundance in the lowlands (e.g. the Green-throated Carib, Antillean Euphonia, Lesser Antillean

Bullfinch), plus a small number of Forest Thrushes. No seabird or wetland sites qualify.

The ornithological data for this inventory have been gathered largely by members of the Forestry Department, the National Trust and the RSPB as part of the forest bird monitoring programme that commenced in 1997, and the Montserrat Oriole Emergency Conservation Programme (2001–2004). Earlier data, gathered by W. J. Arendt (Arendt and Arendt 1984, Arendt 1990) were also used.

Sites of global conservation importance

IBA code	Site name	A1	A2	A4i	A4ii	A4iii
MS001	Centre Hills	X	X			
MS002	Northern Forested Ghauts	X	X			
MS003	South Soufriere Hills	X	X			

Site accounts

MS001: Centre Hills

Ref number	MS001
Admin region	Montserrat
Coordinates	16°46'N 62°19'W
Area	1,400 ha
Altitude	150–741 m
IBA categories (details below)	A1, A2
Status	Forest Reserve, privately owned

Site description

This site is the largest remaining forest area on Montserrat, forming a single, almost continuous block of hill forest in the centre of the island. A series of small, steep streams (known locally as ghauts) radiate from central ridges. The boundary goes beyond the forest reserve to include areas where the Montserrat Oriole is found. There is a transition from tropical deciduous forest in the drier lowlands (especially on the eastern and north-eastern sides), through semi-deciduous and evergreen tropical forest at higher altitudes to elfin forest on the summit of Katy Hill. The majority of the forest is secondary, having been cleared for agriculture during the plantation era. The frequent passage of hurricanes ensures that there is a range of successional stages. Most of the area is steep and pathless. Apart from small agricultural and banana plots around the periphery, the area is little used or visited by humans. It forms the main water catchment for the inhabited area of the island, and recently several trails have been cleared to allow tourists to explore the area.

Birds

See the accompanying table for details of key species. The vast majority of the world population (thought to be 200 to 400 pairs) of the Critically Endangered Montserrat Oriole is resident in the Centre Hills. The Vulnerable Forest Thrush also occurs at relatively high densities throughout, and this site may well be the world stronghold for the species. Eight restricted-range species of the Lesser Antillean EBA are relatively common: the Purple-throated Carib, Green-throated Carib, Antillean Crested Hummingbird, Brown Trembler, Bridled Quail-dove, Scaly-breasted Thrasher, Pearly-eyed Thrasher and the Lesser Antillean Bullfinch. The Centre Hills is the major site on the island for most of these species. The main exceptions to this are the Green-throated Carib and the Lesser Antillean Bullfinch, which are more common in the surrounding lowlands. Pearly-eyed Thrashers and Antillean Crested Hummingbirds are abundant throughout Montserrat in all habitats. Brown Tremblers, Montserrat Orioles and Bridled Quail-doves are confined to the Centre Hills and South Soufriere Hills (MS003).

Point count monitoring carried out between 1997 and 2003 indicates that populations of most species have increased in recent years. Exceptions to this are the Montserrat Oriole and the Brown Trembler, both of which showed indications of a population decline during the monitoring period.

Most of the key species are found in all forest types in the Centre Hills. The Purple-throated Carib reaches its highest densities in dry forest, and the Pearly-eyed Thrasher is most abundant in lowland areas. The Montserrat Oriole occurs primarily in mesic and wet forest, and is scarce in dry forest. At around 19 birds ha⁻¹, densities of the Pearly-eyed Thrasher are among the highest in its range (Arendt, in press).

Other threatened/endemic wildlife

As by far the largest area under broadly natural vegetation cover in Montserrat, the Centre Hills is the stronghold for much native wildlife, including many of the island's endemic species and sub-species. The Montserrat Galliwasp *Diploglossus montserratati* (CR) has only ever been recorded from the Cassava Ghaut area of the Centre Hills. The Mountain Chicken *Leptodactylus fallax* occurs relatively abundantly and is absent elsewhere on the island (this, the second largest frog in the world, is found only in Dominica and Montserrat). The endemic Montserrat Anole *Anolis lividus* (Iguanidae) is common in the Centre Hills, and through many parts of the island. The Montserrat Ameiva *Ameiva pluvianotata pluvianotata* (Teiidae) and Southern Leeward Dwarf Gecko *Sphaerodactylus fantasticus ligniservulus* (Gekkonidae) are endemic sub-species. The former is found in the edges of the Centre Hills, but is more common in the lowlands. The latter is abundant in the Centre Hills and throughout Montserrat. The endemic sub-species Montserrat Black Snake *Alsophis antillensis manselli* (Colubridae) is relatively common in the Centre Hills, but rarer in inhabited areas of Montserrat. The endemic sub-species Montserrat Blind Worm Snake *Typhlops monastus monastus* (Typhlopidae) occurs in the Centre Hills, and at some other sites in Montserrat, but its status is poorly known.

As a generalisation, bat diversity on Montserrat is thought to be highest in the southern and western ghauts of the Centre Hills (Soldier Ghaut to Sappit Spring) (S. Pedersen, personal communication). *Tadarida brasiliensis* (Near-threatened) is probably present in this IBA, and is believed to be common and widespread throughout Montserrat, though under-recorded (ibid.). The endemic sub-species *Ardops nicholli montserratensis* is common on Montserrat, but specialises in smaller, native fruits, and although widespread, its population is likely to be concentrated in higher-altitude native forests. Hence, the Centre Hills are probably an important stronghold on the island. Similarly,

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the nectarivorous *Monophyllus plethodon* (Near-threatened) is probably most common in the Centre Hills, but widespread elsewhere in Montserrat.

The insect fauna of Montserrat has been little studied, but was the subject of a major research project in 2000–2003, which focused on the Centre Hills. Extremely high levels of endemism are apparent. For example, several hundred to a thousand beetle species are thought to be present in the IBA, of which approximately 30% are previously undescribed, and 10% are endemic. The Centre Hills may be home to the world's smallest Cerambycid (longhorn beetle). An enormous scarab beetle larva found in dead logs in the Centre Hills awaits identification, but is likely to be a new genus; it is certainly endemic and may be the

largest insect in the UK and its Territories. Among other taxa, the Centre Hills holds an undescribed endemic sawfly, an undescribed endemic long-horned grasshopper, and several undescribed flies that may be endemic. Although sampling has not been sufficiently widespread to determine the Montserratian range of these species, it is inevitable that the Centre Hills is the most important site on the island, since it is the largest area of natural vegetation and covers a large altitudinal range.

It is important for the following globally threatened plant species: the Red Cedar *Cedrela odorata* (VU), Lignum Vitae *Guaiaacum officinale* (EN), Brazilian Mahogany *Swietenia macrophylla* (VU) and the American Mahogany *Swietenia mahagoni* (EN). Two endemic species are to be found: the

Key species

Criteria	Key species	Population estimate ¹ (individuals, with 95% confidence intervals)	Notes
A1, A2	Montserrat Oriole <i>Icterus oberi</i>	1,700 (930–3,000)	This is thought to be an overestimate; the true population is thought likely to be in the order of 200–400 pairs, plus an unknown number of territorial birds
A1, A2	Forest Thrush <i>Cichlherminia lherminieri</i>	3,100 (1,800–5,200)	
A2	Bridled Quail-dove <i>Geotrygon mystacea</i>	None available	Insufficient data to estimate population size; numbers are likely to be in the order of 100–1,000 individuals
A2	Purple-throated Carib <i>Eulampis jugularis</i>	22,000 (12,000–42,000)	
A2	Green-throated Carib <i>Eulampis holosericeus</i>	None available	Insufficient data to estimate population size; numbers are likely to be in the order of 100–1,000 individuals
A2	Antillean Crested Hummingbird <i>Orthorhyncus cristatus</i>	63,000 (32,000–127,000)	
A2	Brown Trembler <i>Cinlocerthia ruficauda</i>	None available	Insufficient data to estimate population size; numbers are likely to be in the order of 500–2,000 individuals
A2	Scaly-breasted Thrasher <i>Margarops fuscus</i>	7,100 (3,800–12,800)	
A2	Pearly-eyed Thrasher <i>Margarops fuscatus</i>	27,000 (20,000–36,000)	
A2	Lesser Antillean Bullfinch <i>Loxigilla noctis</i>	None available	

Note: 1 Based on distance-estimation analysis of a point count census in December 1999, assuming a forest area of 1,440 hectares.

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orchid *Epidendrum montserratense* and the privet *Rondeletia buxifolia*.

Conservation issues/threats

Introduced Ship Rats *Rattus rattus* are abundant in the Centre Hills, at least in some years, and appear to have increased during the period of volcanic activity; the causes of their population fluctuations are unknown. They are known to predate the nests of Montserrat Orioles and to predate Mountain Chicken; they probably have a profound effect on many other species and on the ecology of the forest. Feral pigs are spreading rapidly through the forest from the south-east, having escaped from abandoned farms in the volcanic exclusion zone. They have already destroyed large clumps of *Heliconia caribaea* (the preferred nest plant of the Montserrat Oriole) along streams in the south of the Centre Hills. They may be significant predators of Mountain Chickens and other wildlife, and there is particular concern that they may predate the Critically Threatened Montserrat Galliwasp, which appears to be extremely rare and to have a tiny range. Their effects on forest plant communities are unknown, but may be significant. Feral cats are present in the forest, and are known to predate Forest Thrushes. Their abundance and impact are difficult to assess at present.

Much of the forest vegetation is secondary, and is also subject to the impacts of introduced rats, pigs and goats. There are known to be a number of non-native plants present, but their distribution, abundance and impact is unknown. It is therefore possible that the plant communities are far removed from the natural state, which would undoubtedly have consequences for animal communities. However, plant community ecology has not been studied.

Although a native species, the exceptional density of Pearly-eyed Thrashers may also be a conservation problem. The abundance of planted fruit trees and the proximity of

agricultural plots may be a key factor in permitting them to become so abundant; as a result, they are major nest predators of the nests of Montserrat Orioles and Forest Thrushes.

Ash falls from the still-active volcano in the south of the island may continue to affect the ecology of the Centre Hills, particularly through the arthropod die-offs that result from heavy falls. Heavy falls also result in the physical destruction of the nests of Montserrat Orioles, and may have direct health impacts on bats and herptiles, though these impacts are poorly understood.

Although most of the land is privately owned, there is relatively little pressure for forest clearance in the Centre Hills, and the importance of the forest cover for watershed protection is widely realised. However, small-scale encroachment around the fringes, both for housing and agricultural development, appears to be increasing.

The boundary of the existing Forest Reserve does not take in all oriole sites. There are plans to extend it in the future, after consultation with landowners, to take in orioles that are currently outside the boundary.

Since the evacuation of the southern portion of the island, the Centre Hills now provides the water resources for the increasing human population of Montserrat. As a result, there has been an increase in spring-capping. The resulting reduction in stream flows may lead to increased dessication in valley bottoms. The ecological effects of this are unknown, but may be important for birds during the dry season, and also for herptiles.

There is currently minimal bird hunting in the Centre Hills. However, applications have recently been made to begin hunting, and the law currently permits hunting of the restricted range Bridled Quail-dove, which is likely to be very vulnerable to hunting pressure, and for which Montserrat is probably a major stronghold.

Site accounts

MS002: Northern Forested Ghauts

Ref number	MS002
Admin region	Montserrat
Coordinates	<p>The following is a list of watercourses (ghauts) that are believed to hold significant riparian forest below the lower limit of the Centre Hills Reserve; they are listed clockwise, from the south-west.</p> <p>Nantes River/Barzey's 16°45'03"N 62°13'45"W Runaway Ghaut 16°45'22"N 62°13'28"W Bunkum River 16°46'13"N 62°12'58"W Cassava Ghaut 16°45'52"N 62°13'20"W Lawyers River 16°45'42"N 62°13'18"W Soldier Ghaut 16°46'49"N 62°12'50"W Caines River 16°46'56"N 62°12'16"W Collins River 16°47'18"N 62°12'35"W Carr's Bay/Piper's Pond 16°47'45"N 62°12'36"W Little Bay Ghaut 16°47'53"N 62°12'18"W Brimm's Ghaut 16°47'39"N 62°11'15"W Cat Ghaut 16°47'16"N 62°11'12"W Sweetwater Ghaut 16°47'00"N 62°11'10"W Bottomless Ghaut 16°46'40"N 62°10'40"W Cedar Ghaut 16°46'05"N 62°10'30"W Pelican Ghaut 16°45'45"N 62°10'16"W Mournful Ghaut 16°43'36"N 62°10'09"W Lee River 16°44'55"N 62°10'11"W</p>
Area	Unknown, probably 100–400 ha
Altitude	0–300 m (approx)
IBA categories (details below)	A1, A2
Status	Privately owned

Site description

Several of the streams (ghauts) that originate in the Centre Hills forest have a more or less continuous riparian fringe of native forest as they run through the open lowlands of northern Montserrat. This IBA includes the main forested ghauts; it is therefore a discontinuous series of patches. The wooded areas comprise tropical deciduous and semi-deciduous forest. The watercourses themselves are very small, and there is no associated wetland habitat. The forested riparian areas are typically only 50–150 m across, and are surrounded by agricultural and residential areas. However, several are contiguous with the large Centre Hills forest block.

The riparian forest in the following areas are included in this IBA: Nantes River and Barzey's, Runaway Ghaut, Bunkum River, Cassava Ghaut, Lawyers River, Soldier Ghaut, Caines River, Collins River, Little Bay Ghaut, Brimm's Ghaut, Cat Ghaut, Sweetwater Ghaut, Bottomless Ghaut, Cedar Ghaut, Pelican Ghaut, Mournful Ghaut, Lee River and Carr's Bay/Piper's Pond.

Bird counts have not been conducted at all sites, so the list should be considered as provisional; further sites may need to be added, and some sites dropped.

Birds

See the accompanying table for details of key species. The

majority of the biome-restricted and restricted-range species that occur in Montserrat are found in this IBA.

The Green-throated Carib occurs in this IBA at densities twice as high as those in the Centre Hills, reflecting its preference for lower-altitude and forest-edge sites. This IBA is also a relative stronghold for the Lesser Antillean Bullfinch. Antillean Crested Hummingbirds, Scaly-breasted Thrashers and Pearly-eyed Thrashers are all common, occurring at similar densities in this IBA as in the Centre Hills. Bridled Quail-doves and Purple-throated Caribs reach their highest densities in the Centre Hills IBA, but are nevertheless regular in the forested ghauts. The Forest Thrush is absent or extremely rare in some of the ghauts contained within this IBA. Nevertheless, in some of the wetter ghauts, and those that have forest that is contiguous with the Centre Hills, it reaches densities comparable with those of the Centre Hills. The Montserrat Oriole is absent, and the Brown Trembler extremely rare in this IBA.

Other threatened/endemic wildlife

Many of the forest species found in the Centre Hills also occur in this IBA, but their distribution and abundance is not well known. Those species that prefer wetter semi-deciduous and evergreen forest are likely to be peripheral here, whereas species of drier deciduous forest are likely to have their stronghold in the lowland ghauts. Such species

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Key species

Criteria	Key species	Number of breeding pairs (if known)	Notes
A1, A2	Forest Thrush <i>Cichlherminia lherminieri</i>	Not known	Frequent in Bottomless Ghaut, Soldier Ghaut, Granney Ghaut, Upper Caines River; rare in Runaway Ghaut, Brimm's Ghaut, Carr's Bay
A2	Bridled Quail-dove <i>Geotrygon mystacea</i>	Not known	Frequent in Bottomless Ghaut and Upper Caines River; occasional records in Carr's Bay, Runaway Ghaut and Granney Ghaut
A2	Purple-throated Carib <i>Eulampis jugularis</i>	Not known	Frequent in Upper Caines River; rare in Bottomless Ghaut, Brimm's Ghaut, Runaway Ghaut
A2	Green-throated Carib <i>Eulampis holosericeus</i>	Not known	Frequent almost throughout; most common in Brimm's Ghaut and Little Bay
A2	Antillean Crested Hummingbird <i>Orthorhyncus cristatus</i>	Not known	Common throughout
A2	Brown Trembler <i>Cinclocerthia ruficauda</i>	Not known	Has been recorded in Upper Caines River, but extremely rare
A2	Scaly-breasted Thrasher <i>Margarops fuscus</i>	Not known	Common throughout
A2	Pearly-eyed Thrasher <i>Margarops fuscatus</i>	Not known	Abundant throughout
A2	Lesser Antillean Bullfinch <i>Loxigilla noctis</i>	Not known	Frequent throughout
A2	Antillean Euphonia <i>Euphonia musica</i>	Not known	Recorded in Runaway Ghaut and Little Bay; apparently very rare

are likely to be heavily reliant on this IBA because of the widespread deforestation of the Montserratian lowlands in historical times. The endemic sub-species Montserrat Ameiva *Ameiva pluvianotata pluvianotata* (Teiidae) probably has its stronghold in this IBA. The endemic Montserrat Anole *Anolis lividus* (Iguanidae) and endemic sub-species Southern Leeward Dwarf Gecko *Sphaerodactylus fantasticus ligniservulus* (Gekkonidae) are probably common. The endemic sub-species Montserrat Black Snake *Alsophis antillensis manselli* (Colubridae) and Montserrat Blind Worm Snake *Typhlops monastus monastus* (Typhlopidae) may occur. Mountain Chicken and Montserrat Galliwasp have not been recorded.

The northern forested ghauts probably hold a similar bat fauna to the Centre Hills, with all three of Montserrat's species of global concern occurring: *Tadarida brasiliensis* (Near-threatened), *Ardops nichollsi montserratensis* (Near-threatened endemic sub-species) and *Monophyllus plethodon* (Near-threatened).

The major insect sampling project that ran from 2000 to 2003 has made limited sampling visits to the northern forested ghauts and, in general, the insect fauna of the site

is poorly known. It is likely to hold many of the endemic forest insects that occur in the Centre Hills, and possibly some distinct species that are characteristic of lowland, drier areas of Montserrat.

Conservation issues/threats

This IBA is less well known ecologically than the Centre Hills. However, it seems likely that rats *Rattus spp.* are abundant, and may have a significant ecological impact. Feral goats are widespread, and must have considerable effects on plant communities. Being close to human habitation, pet dogs and cats, and feral cats are fairly common, and may be important predators of some species. Invasive alien plants may also be a threat, but have not been studied.

Rapid expansion of built areas in the north of Montserrat, as a result of the abandonment of the south, has affected some ghauts, and is likely to have a significant impact in the next few years, both through direct habitat destruction and the increased presence of dogs, cats and rodents. These small forest patches are frequently considered to be 'wasteland' and there is some dumping of rubbish.

Site accounts

MS003: South Soufriere Hills

Ref number	MS003
Admin region	Montserrat
Coordinates	16°42'N 62°10'W
Area	200 ha (approx)
Altitude	200–750 m (approx)
IBA categories (details below)	A1, A2
Status	Privately owned

Site description

This IBA covers the one small patch of the original forests in the South Soufriere Hills that has survived the pyroclastic flows from the volcano. Despite being no more than 1 mile (1.5 km) from the Chances Peak volcano, an area of evergreen and semi-deciduous forest has remained intact. The area has been little explored since 1997, since it is in the exclusion zone, but fieldworkers were able to make brief visits in 2001 and 2002. The forest appears to be in good condition.

Birds

See the accompanying table for details of key species. The site was known as a hot-spot for Montserrat Orioles prior to the eruption. During brief visits in 2001 and 2002 the continued presence of the species at relatively high densities was confirmed and fledglings were seen. Densities in the South Soufriere Hills appear to be similar to those in the most favoured parts of the Centre Hills, and perhaps 50–100 pairs are present.

The South Soufriere Hills hold the majority of the restricted-range and biome-restricted species that occur on Montserrat. During point counts in 2001 and 2002, Antillean Crested Hummingbirds, Scaly-breasted Thrashers and Pearly-eyed Thrashers were frequent; Bridled Quail-doves, Green-throated Caribs, Forest Thrushes and Brown Tremblers were all recorded. Lesser Antillean Bullfinches were recorded in exceptional numbers. The Purple-throated Carib was not recorded.

Other threatened/endemic wildlife

Many of the forest species found in the Centre Hills probably also occur in this IBA, but data are almost completely lacking, especially for the post-eruption period.

Among the herptiles, the Montserrat Anole *Anolis lividus* (Iguanidae), Southern Leeward Dwarf Gecko *Sphaerodactylus fantasticus ligniservulus* (Gekkonidae), Montserrat Black Snake *Alsophis antillensis manselli* (Colubridae) and Montserrat Blind Worm Snake *Typhlops monastus monastus* (Typhlopidae) may all occur. The Mountain Chicken *Leptodactylus fallax* is

Key species

Criteria	Key species	Number of breeding pairs (if known)
A1, A2	Montserrat Oriole <i>Icterus oberi</i>	Not known
A1, A2	Forest Thrush <i>Cichlherminia lherminieri</i>	Not known
A2	Antillean Crested Hummingbird <i>Orthorhyncus cristatus</i>	Not known
A2	Scaly-breasted Thrasher <i>Margarops fuscus</i>	Not known
A2	Pearly-eyed Thrasher <i>Margarops fuscatus</i>	Not known
A2	Bridled Quail-dove <i>Geotrygon mystacea</i>	Not known
A2	Green-throated Carib <i>Eulampis holosericeus</i>	Not known
A2	Brown Tumbler <i>Cincloerthia ruficauda</i>	Not known
A2	Lesser Antillean Bullfinch <i>Loxigilla noctis</i>	Not known

Important Bird Areas in the United Kingdom Overseas Territories

absent from the South Soufriere Hills area.

The major insect sampling project that ran from 2000 to 2003 made brief sampling visits to the South Soufriere Hills, but in general the insect fauna of the site is poorly known. It is likely to hold many of the endemic forest insects that occur in the Centre Hills. An undescribed endemic long-horned grasshopper has been found in the South Soufriere Hills as well as the Centre Hills. There is also an undescribed, endemic soldier beetle (*Cantharidae*) and two undescribed, endemic darkling ground beetle species (*Tenebrionidae*) from the South Soufriere Hills.

The bat fauna of the South Soufriere Hills is thought never to have been sampled. However, predictions are that *Tadarida brasiliensis* (Near-threatened) and *Ardops nichollsi montserratensis* (Near-threatened) are likely to be present, unless the heavy ash falls in that area have adversely affected them.

Conservation issues/threats

The site's position deep within the exclusion zone means that human activity has been minimal since 1996. This may have been to the benefit of some taxa. Conversely, restricted access hinders effective conservation action. This IBA is less well known ecologically than the Centre Hills, and its conservation status is not well understood.

However, it is known that rats *Rattus spp.* are present, and

were abundant in 2002 (when numbers were low in the Centre Hills). They are likely to have a significant ecological effect. The presence of other non-native mammals is not well known, but it is likely that feral livestock (possibly pigs and goats) are present, following the abandonment of farms in the southern part of the island.

As with the Centre Hills, the vegetation is predominantly secondary, as a result of clearance in historical times. There are many non-native fruit trees and small, abandoned agricultural plots. These may be a source of invasive plants, and may also affect the ecology of the forest as a whole by favouring omnivores such as rats and Pearly-eyed Thrashers, which can out-compete and predate other wildlife.

By virtue of its proximity to the volcanic dome, the area has presumably been impacted by ash falls over the 1997–2003 period. The severity and impact of these on the site are not known. The site is at relatively low risk of being directly affected by pyroclastic flows. The site is now a rather small and isolated forest patch, being separated from other forested areas by pyroclastic flows. In the long term, this might be expected to adversely affect wildlife populations, however if volcanic activity remains low, vegetative recolonisation of pyroclastic flows is likely to be rapid enough to avert this threat.

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