

ARUBA

LAND AREA **193 km²** ALTITUDE **0–188 m**
HUMAN POPULATION **103,500** CAPITAL **Oranjestad**
IMPORTANT BIRD AREAS **4, totalling 6.1 km²**
IMPORTANT BIRD AREA PROTECTION **9%**
BIRD SPECIES **207**
THREATENED BIRDS **1** RESTRICTED-RANGE BIRDS **0** BIOME-RESTRICTED BIRDS **1**



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The islands within St Nicolas Bay are globally important for their seabird colonies. (PHOTO: ADRIAN DEL NEVO)

INTRODUCTION

Aruba is a country within the Kingdom of the Netherlands¹, and one of the three Netherlands Antilles islands (Aruba, Bonaire and Curaçao) that lie off the north-west coast of Venezuela. Aruba is the westernmost of the three islands (c.65 km west of Curaçao) and the island nearest to mainland Venezuela. It lies just 27 km north of the Paraguaná peninsula in Falcón state, and (unlike Bonaire and Curaçao) its geological origins are as a former part of South America. The island is 33 km long and 8–9 km wide. It is a generally flat, barren and riverless island although the interior features some rolling (volcanic) hills including Hooiberg (165 m) and Mount Jamanota, the highest on the island at 188 m. The leeward southern and western coasts (sheltered from ocean currents) are shallow, with long sandy beaches (the main attraction for ever growing numbers of tourists), sheltered bays and lagoons and offshore islets. Aruba's climate is warm (moderated by

the constant trade winds from the Atlantic) and dry, with an average annual precipitation of c.500 mm falling primarily between October and January. The resultant vegetation is sparse and dominated by cacti with some thorn scrub. The resident human population is greatly supplemented by a large and expanding tourist industry.

Conservation

The main provision for wildlife conservation in Aruba is the 3,400-ha Parke Nacional Arikok (administered by the Fundacion Parke Nacional Arikok) which covers Mount Jamanota and significant areas of cactus scrub. A number of other “protected areas” such as the Het Spaans Lagoen (Spanish Lagoon) Ramsar site exist, but none of these have qualified as Important Bird Areas in the current analysis. With no single government ministry responsible for environmental policy and implementation, wildlife conservation issues are not dealt with in a coordinated, efficient way. An island-wide Coastal Zone Management Plan is currently being developed and aims to identify areas of importance and those requiring protection and conservation. It will hopefully also address some of the administrative and practical issues associated with nature conservation within Aruba. The formal protection afforded the Important Bird Areas is difficult to assess. Bubali

¹ At some point in the near future the “Netherlands Antilles” will be dissolved. St Maarten and Curaçao will become separate countries within the Kingdom of the Netherlands (similar to the status currently enjoyed by Aruba). The islands of Bonaire, Saba and St Eustatius will be linked directly to the Netherlands as overseas territories.



Bubali Wetlands IBA is a well recognised “nature reserve”. (PHOTO: ADRIAN DEL NEVO)

Wetlands IBA (AW001), Oranjestad Reef Islands IBA (AW003), and San Nicolas Bay Reef Islands IBA (AW004) are all state owned but their formal protection status is unknown. However, they do enjoy informal, de facto or non-regulatory protection to varying degrees.

A number of different non-governmental organisations (NGOs) have been established to address different environmental concerns and these have focused upon marine turtles, cetaceans, endemic and introduced snakes, and seabirds. The projects these institutions are implementing are helping to address the critical need for an island-wide inventory of both terrestrial and marine resources to feed into a prioritised and coordinated conservation plan for Aruba. For example, the Aruba Tern Project (ATP) was started in 1999 and aims to provide a quantitative description of the population ecology of the island’s seabirds. The ATP has also documented the status and distribution of other bird families (such as shorebirds and waterfowl) on Aruba. In collaboration with the government of Aruba the ATP also conducts field surveys (point counts) and bird banding to assess the status, distribution, and habitat condition of terrestrial (thorn scrub) bird species. An island-wide bird monitoring plan is currently being developed by the ATP in collaboration with the Dutch Caribbean Nature Alliance.

The main threat faced by Aruba’s biodiversity is increased and seemingly unchecked urbanisation which is leading to the loss of the island’s unique desert habitat, and is also resulting in the expansion of unplanned beach houses around the coast. In particular, the human encroachment and development along the coast, mostly associated with tourism and recreational activities, pose a serious threat to nesting seabirds within San Nicolas Bay and on the Oranjestad Reef Islands. Disturbance associated with recreational activities (e.g. off-road vehicles) pose a threat to fragile habitat, particularly the already limited areas of sand-dunes. Unauthorised visits to seabird nesting islands are also a serious threat.

■ Birds

Aruba’s 207 recorded bird species comprise up to 70 resident (current or former) breeding species and 164 migrants. Most of the migrants (some of which winter on the island) are Neotropical migrants from breeding grounds in North America, although many are vagrants (recorded on average less than once a year). A smaller number of species are of South American origin, representing either dispersing

individuals or austral migrants overshooting their northern South American wintering grounds having originated from breeding grounds further south or west. However, the island is seriously under-recorded in terms of its bird life. Three species (Collared Plover *Charadrius collaris*, American Oystercatcher *Haematopus palliatus* and Black Noddy *Anous minutus*) are new or recently confirmed breeders, demonstrating how much there is still to discover on the island.

Aruba supports just one Northern South America biome-restricted bird, namely Bare-eyed Pigeon *Patagioenas corensis*, and no restricted-range species. However, two subspecies are endemic to the island—Burrowing Owl *Athene cunicularia arubensis* and Brown-throated Parakeet *Aratinga pertinax arubensis*—both of which warrant further taxonomic research. Whereas the terns (*Sterna* spp.) have shown a dramatic increase in their breeding populations over the last 50 years (see below), some parts of the island are experiencing a decline in some bird species such as Yellow Oriole *Icterus nigrogularis*, Burrowing Owl *A. cunicularia*, and Crested Bobwhite *Colinus cristatus*. It would appear that Scaly-naped Pigeon *Columba squamosa* has been extirpated and the White-tailed Hawk *Buteo albicaudatus* probably so.

Aruba’s endemic subspecies of Brown-throated Parakeet. (PHOTO: JEFF WELLS)



The Near Threatened Caribbean Coot *Fulica caribaea* is the only globally threatened bird present on Aruba, and is present at four sites which support a population of at least 280 individuals. Aruba supports significant populations of breeding terns (*Sterna* and *Anous* spp.), with globally significant numbers of the “Cayenne” form of Sandwich Tern *S. sandvicensis eurygnatha*, Roseate Tern *S. dougallii*, and Common Tern *S. hirundo*, and also Laughing Gull *Larus atricilla*.

IMPORTANT BIRD AREAS

Aruba’s four IBAs cover just 610 ha, but between them they support over 30,000 seabirds and a number of other significant bird populations. Tierra del Sol Salina IBA (AW002) is set within a privately-owned golf course and is unprotected. The

other three IBAs are state owned with differing levels of protection afforded them. Bubali Wetlands IBA (AW001) enjoys de facto protection as a nature reserve, although it is unclear what formal protection status exists for the area. Oranjestad Reef Islands IBA (AW003) is benefiting from non-regulatory protection provided by the coastguard, harbour authorities and the police, but again, its formal protected status is uncertain. San Nicolas Bay Reef Islands IBA (AW004) is not formally protected, although informal protection is provided by staff of the adjacent oil refinery, and the coastguard. Building these sites into a formalised legislative framework for national conservation and protected area establishment would help facilitate much needed conservation action and management.

The IBAs have been identified on the basis of 12 key bird species that variously trigger the IBA criteria. While four of

“Cayenne” Terns nesting in St Nicholas Bay Reef Islands IBA. (PHOTO: ADRIAN DEL NEVO)



Table 1. Key bird species at Important Bird Areas in Aruba.

Key bird species	Criteria	National population	Aruba IBAs			
			AW001	AW002	AW003	AW004
Caribbean Coot <i>Fulica caribaea</i>	NT ■	280	■	■		
Laughing Gull <i>Larus atricilla</i>	■	1,050				■
Royal Tern <i>Sterna maxima</i>	■					■
Sandwich Tern <i>Sterna sandvicensis</i>	■	6,000–10,500			■	■
Roseate Tern <i>Sterna dougallii</i>	■	150				■
Common Tern <i>Sterna hirundo</i>	■	165			■	■
Least Tern <i>Sterna antillarum</i>	■	480				■
Bridled Tern <i>Sterna anaethetus</i>	■	174				■
Sooty Tern <i>Sterna fuscata</i>	■	19,800				■
Brown Noddy <i>Anous stolidus</i>	■	510				■
Black Noddy <i>Anous minutus</i>	■	100–144				■
Bare-eyed Pigeon <i>Patagioenas corensis</i>	■ ■		■	✓		

All population figures = numbers of individuals.
 Threatened birds: Near Threatened ■. Biome-restricted birds ■. Congregatory birds ■.



Tierra del Sol Salina IBA. (PHOTO: ADRIAN DEL NEVO)

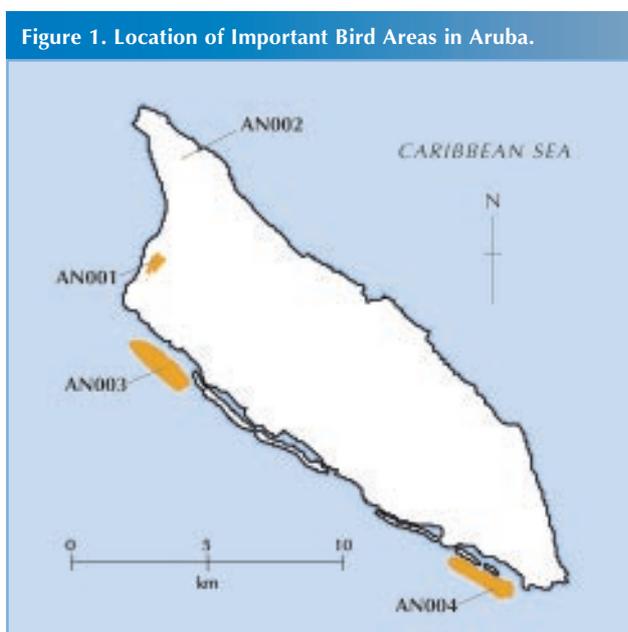
these species occur within two IBAs, the majority of these birds (the breeding seabirds) are confined to the San Nicolas Bay Reef Islands IBA (AW004), highlighting the critical importance of these islands for maintaining Aruba's biodiversity. However, there is a proven between-year movement of breeding Cayenne Terns *S. sandvicensis eurygnatha* between the colonies at the San Nicolas Bay IBA and Oranjestad Reef Islands IBA (AW003) showing that these two IBAs should really have shared conservation management plans.

Aruba's ornithological importance is largely focused on its 10 species of nesting terns, and this is reflected in the identification of two IBAs specifically for these seabirds. During the 1950s, the population of terns breeding on Aruba was very low (and for some species non-existent), but they have demonstrated a dramatic increase as a result of the protection (albeit informal) afforded the Oranjestad Reef Islands IBA (AW003) and San Nicolas Bay Reef Islands IBA (AW004). The increasing populations have been monitored on an annual basis since 1999 through the Aruba Tern Project. This monitoring could be used to inform the assessment of state, pressure and response variables at each of Aruba's IBAs

in order to provide an objective status assessment and highlight management interventions that might be required to maintain these internationally important biodiversity sites.

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AW001 Bubali Wetlands		Bird Sanctuary	
<p>COORDINATES 12°34'N 70°03'W ADMIN REGION — AREA 53 ha ALTITUDE 1 m HABITAT Inland wetland, shrubland</p>		 <p>Caribbean Coot</p>	<p>THREATENED BIRDS 1</p> <p>RESTRICTED-RANGE BIRDS</p> <p>BIOME-RESTRICTED BIRDS 1</p> <p>CONGREGATORY BIRDS</p>

Site description

Bubali Wetlands IBA is located on the north-west coast, at the western end of Aruba. The wetlands were created to contain water from a waste water treatment facility. They are situated between high-rise and low-rise tourist hotels, commercial developments and are bounded by roads on three sides. Rapidly expanding aquatic vegetation and reeds have reduced the area of open water to about 4–5 ha (June 2007). Mixed desert scrub vegetation borders the wetland on the west (seaward) side.

Birds

This IBA is significant for the Near Threatened Caribbean Coot *Fulica caribaea*. Over 30 pairs are known to breed, and up to 110 birds have been recorded. The wetland supports a wide range of waterbirds including a roost of 400+ Neotropic Cormorant *Phalacrocorax brasilianus*, and numerous migratory shorebirds. The shrublands are important for a number of species, including White-tailed Nightjar *Caprimulgus cayennensis*, and Bare-eyed Pigeon *Patagioenas corensis*—Aruba’s only Northern South America biome-restricted species.

Other biodiversity

Nothing recorded.

Conservation

Bubali Wetlands IBA is state owned. The area is a well-recognised nature reserve (“Bubali Pond Bird Sanctuary”) and thus de facto protection exists through general awareness of the site’s wildlife importance. However, its formal protected status is unknown. The wetlands have undergone some management in the past but are now suffering from rapidly expanding aquatic vegetation and reeds that are minimising the open water areas (reduced from 8–10 ha in 1999 to c.4–5 ha in 2007). The encroaching reeds are slowing the water flow and leading to sedimentation and terrestrial plant growth. Unless management action is taken the wetland will disappear. Human trash is sometimes dumped in areas within or around the site, creating an attraction to rats and cats and thus introducing further threats to the area.

AW002 Tierra del Sol Salina		Unprotected	
<p>COORDINATES 12°36'N 70°02'W ADMIN REGION — AREA 2 ha ALTITUDE 1 m HABITAT Coastline, salina, shrubland</p>		 <p>Caribbean Coot</p>	<p>THREATENED BIRDS 1</p> <p>RESTRICTED-RANGE BIRDS</p> <p>BIOME-RESTRICTED BIRDS 1</p> <p>CONGREGATORY BIRDS</p>

Site description

Tierra del Sol Salina IBA is a natural salina close to the north coast at the north-western tip of the island. The salina is situated within a golf course. It comprises an area of open water which flows naturally to the sea, and is surrounded by desert scrub habitat. The salina dries out periodically either naturally or through re-directed surface water flow.

Birds

This IBA is significant for the Near Threatened Caribbean Coot *Fulica caribaea*. Up to 170 birds have been recorded. The wetland supports a wide range of waterbirds including White-cheeked Pintail *Anas bahamensis* (up to 95 birds), nesting and roosting herons and egrets (over 300 birds in the roost), and roosting terns. Hundreds of shorebirds visit the site during migration. The surrounding shrubland is important for a number of species, including Bare-eyed Pigeon *Patagioenas corensis*—Aruba’s only Northern South America biome-restricted species.

Other biodiversity

Nothing recorded.

Conservation

Tierra del Sol Salina IBA is situated within a privately owned golf course. The irregular presence of water within the wetland may be exacerbated by the water management practices of the golf course. The salina may be subject to future changes or developments by the golf course owners. The birds in this IBA have been counted periodically.

AW003 Oranjestad Reef Islands		Unprotected
<p>COORDINATES 12°31'N 70°02'W</p> <p>ADMIN REGION —</p> <p>AREA 309 ha</p> <p>ALTITUDE 0–1 m</p> <p>HABITAT Coastline, coral islets</p>	  <p>Cayenne Tern</p>	<p>THREATENED BIRDS <input type="checkbox"/></p> <p>RESTRICTED-RANGE BIRDS <input type="checkbox"/></p> <p>BIOME-RESTRICTED BIRDS <input type="checkbox"/></p> <p>CONGREGATORY BIRDS <input checked="" type="checkbox"/></p>

Site description

Oranjestad Reef Islands IBA is on the south coast of western Aruba. It comprises two or more variably-sized sand and coral islets adjacent to the central harbour in Oranjestad and the east end of Oranjestad bay. They lie under the flight path of the Queen Beatrice Airport. The islets are subject to considerable variation in size, shape and substrate following winter storms, but are typically no greater than 0.25 ha.

Birds

This IBA is significant for its breeding terns. The most numerous species is the “Cayenne” *eurygnatha* subspecies of Sandwich Tern *Sterna sandvicensis* with a globally important 1,300 pairs. These islets represent one of only two nest sites for this species on Aruba. In most years, c.30% of the island population nests in this IBA, and 70% in the San Nicolas Bay Reef Islands IBA (AW004). There is a proven between-year movement of breeding birds between these two nesting colonies. The population of 26 pairs of Common Tern *S. hirundo* is regionally significant.

Other biodiversity

Globally threatened sea turtles are occasionally observed in the waters surrounding this IBA, but there is no evidence of nesting on the islets. The seaward side of these islands contain large (but not quantified) numbers of queen conch *Strombus gigas*.

Conservation

Oranjestad Reef Islands IBA is state owned with an uncertain protective status. However, the islands are patrolled by the coastguard and observed by the harbour authorities and the police, which has effectively prevented unauthorised access or disturbance to the nesting terns. The islands are monitored annually using both ground counts and aerial photographs. More extensive surveys would draw attention from the mainland and cause unnecessary disturbance to nesting birds. The islands are vulnerable to natural threats from island erosion and substrate change associated with winter storms and hurricanes.

AW004 San Nicolas Bay Reef Islands		Unprotected
<p>COORDINATES 12°25'N 69°54'W</p> <p>ADMIN REGION —</p> <p>AREA 248 ha</p> <p>ALTITUDE 0–3 m</p> <p>HABITAT Coastline, coral islets</p>	  <p>Cayenne Tern</p>	<p>THREATENED BIRDS <input type="checkbox"/></p> <p>RESTRICTED-RANGE BIRDS <input type="checkbox"/></p> <p>BIOME-RESTRICTED BIRDS <input type="checkbox"/></p> <p>CONGREGATORY BIRDS <input checked="" type="checkbox"/></p>

Site description

San Nicolas Bay Reef Islands IBA comprises five small, low lying, boulder-coral reef islets located off the south coast of south-easternmost Aruba. The islands are within San Nicolas Bay, separated from the mainland by a shallow (3–15 m deep) lagoon adjacent to a large oil refinery and the town of San Nicolas. Three of the five islands are covered with a variety of salt-resistant plants (e.g. buttonwood, sea purslane and bay cedar) that have become more prolific in recent years. Hurricanes, winter storms and heavy rains change the size, substrate and extent of vegetative cover on the islands.

Birds

This IBA is significant for nesting gulls and terns. Globally important numbers of Laughing Gull *Larus atricilla* (800 birds), Sandwich “Cayenne” Tern *Sterna sandvicensis eurygnatha* (1,300–3,500 pairs), Roseate Tern *S. dougallii*, and Common Tern *S. hirundo* breed, as do regionally important numbers of Royal Tern *S. maxima*, Least Tern *S. antillarum*, Bridled Tern *S. anaethetus*, Sooty Tern *S. fuscata* (14,340 birds), Brown Noddy *Anous stolidus*, and Black Noddy *A. minutus*. The nesting season is primarily between early April and mid-August.

Other biodiversity

The Aruban endemic whiptail lizard *Cnemidophorus arubensis* is known from this IBA. Globally threatened sea-turtles are occasionally observed in the waters surrounding this IBA, but there is no evidence of nesting. Queen conch *Strombus gigas* is relatively abundant.

Conservation

San Nicolas Bay Reef Islands IBA is state owned but not formally protected. Informal protection is provided by staff of the adjacent oil refinery, and the coastguard regularly patrols the area. Building on preliminary surveys and awareness efforts in the 1980s, a detailed study of tern population ecology has been conducted since 1999 by Applied Ecological Solutions Inc. in collaboration with the government of Aruba, the oil refinery owners and Caribe Alaska. Human disturbance and egg collecting has been minimised through public awareness and education initiatives. However, a proposal for a hotel complex just 1.5 km away raises the threat of disturbance from water sports. *Larus atricilla* accounts for 85% of egg and chick mortality in *Sterna sandvicensis eurygnatha*. Since detailed studies started in 1999 there have been no significant incidents or threats from the oil refinery to the terns. The recent discovery of rats on the islands is a cause for concern and the target of an aggressive eradication campaign.