

## FRENCH GUIANA

### INTRODUCTION

by Jean-Luc Dujardin

French Guiana, an overseas Department of France, has an area of about 88,900km<sup>2</sup>, and is the smallest country on the South American mainland. The land rises gradually from the coastal plain to the higher slopes and savannas about 80 km inland. The only significant relief consists of the Inini-Camopi and Maripasoula Camopi hills, with peaks above 800m. In the extreme south-west, the peneplain is dominated by a series of isolated rock outcrops (inselbergs), the legendary Tumuc-Humac Mountains, with peaks up to 700m. The country is very well watered, and about twenty rivers enter the Atlantic along the 320 km of coastline. The coastal plain is characterized by extensive mangrove forests, fresh to brackish swamps, and seasonally flooded savannas, interspersed with patches of swamp forest and humid tropical forest on higher ground. The bulk of the interior (80,000km<sup>2</sup>) is still covered in relatively undisturbed tropical forest. The climate is tropical with very heavy rainfall; the rainy season is from November to July, although there is sometimes a short dry period in February and March.

The total population of about 76,000 is almost entirely concentrated on the coastal plain, with over half in the city of Cayenne. There is a little agriculture, mainly rice growing, an industry involving the collection and pickling of the edible hearts of the palm *Euterpe oleracea*, and some shrimp farming on the coastal plain, while further inland the main activity is exploitation of forest resources. However, large tracts of the interior remain undisturbed except by hunters. Very large deposits of bauxite and kaolin have been discovered, and the exploitation of these is likely to increase greatly in the coming decades.

The only important wetland areas in the country are along the coastal plain where human population pressures are greatest. Large tracts of the coastal swamps have already been destroyed for agriculture and shrimp farming, and plans for agronomic expansion are threatening many other accessible areas. However, the very extensive marshes of the Kaw area, Pointe Behague and the lower River Oyapock in the east remain difficult of access and under no immediate threat.

### Institutional Base for Wetland Conservation and Research

The governmental organization responsible for conservation in French Guiana (and also the French Antilles) is the Ministère de l'Environnement. However, in French Guiana this Ministry has to date been concerned only with agronomic development. The only organizations actively concerned with conservation are the Société d'étude, de la protection et de l'aménagement de la nature en Guyane (SEPANGUY), and IBIS. Both societies are based in Cayenne, and have similar aims. SEPANGUY was established as a private conservation body in 1971, and is affiliated to the Société pour l'étude, la protection et l'aménagement de la nature dans les régions inter-tropicales (SEPARIT), based in Bordeaux, France. IBIS was established in 1983 and is a voluntary body concerned with the protection of wildlife.

The research bodies active in fields relevant to nature conservation are the Office de la recherche scientifique et technique Outre-mer (ORSTOM), based in Paris and with an office in Cayenne, and the Institut scientifique et technique des pêches maritimes (ISTPM), also with an office in Cayenne.

The Office National des Forêts (ONF) is primarily responsible for the management and exploitation of forests, and in France, manages forest reserves (reserves domaniales). It is likely that any future reserves in Guiana will first be established as forest reserves, and administered by ONF, but subsequent upgrading to some form of nature reserve will be necessary to ensure adequate habitat protection.

### Progress in Wetland Conservation

No effective measures have as yet been taken to conserve wetlands or their wildlife in French Guiana. Numerous proposals have been made for the establishment of protected areas in the wetlands of the coastal plain, but none have been implemented. No less than eleven proposals for the creation of a reserve at Savane Sarcelle were submitted between 1971 and 1980, but these were abandoned in 1981 and a major rice growing project was initiated instead. However, the possibility of establishing a reserve somewhere in the coastal marshes of western French Guiana has not been entirely abandoned. A proposal was submitted in 1983 for the creation of a state reserve in the Marais de Kaw in the east, and it is anticipated that this proposal will have a better chance of success.

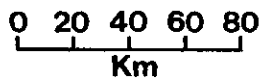
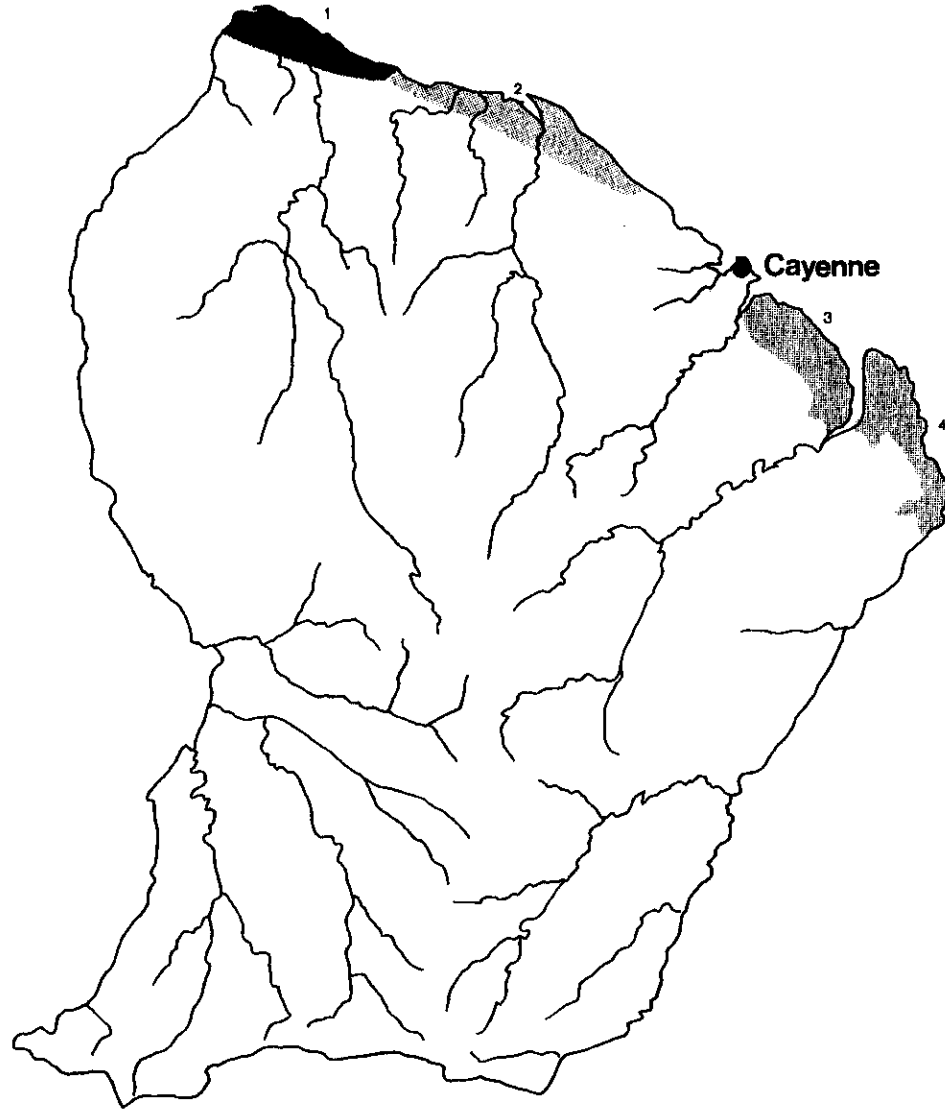
Some legislation has been passed concerning the hunting of wildlife: the hunting laws list a variety of fully protected and partially protected species, and establish hunting seasons and bag limits. However, hunting permits do not exist, insurance is not obligatory, enforcement of the regulations is almost non-existent, and the lists of protected and partially protected species are totally inadequate and ignored. Thus species such as the Ciconiidae, Cracidae, Rallidae, Charadriidae, Scolopacidae and Psittacidae appear nowhere on the lists and can apparently be hunted year round. Hunting is very popular and widespread, not only for food but also for trophies and for feathers for the artificial flower industry. This industry was developed in the Sinnamary area but is now expanding and poses a serious threat to such colourful species as *Eudocimus ruber*.

New hunting regulations are currently under study, but in the absence of any efficient means of control and with a lack of public awareness of the need to conserve wildlife, new regulations are unlikely to have any significant effect.

### Acknowledgements

The author wishes to thank J. J. de Granville of ORSTOM, L. Sanite of SEPANGUY, and O. Tostain for their assistance in the preparation of this report and the following wetland accounts.

# FRENCH GUIANA



## WETLANDS

Site descriptions based on data sheets provided by Jean-Luc Dujardin.

## Savane Sarcelle (1)

**Location:** 5°40'N, 53°45'W; 45 km ENE of St Laurent du Maroni.

**Area:** 34,700 ha (14,700 ha west of the Mana Estuary, 20,000 ha to the east).

**Altitude:** 0-1m.

**Province and type:** 8.4.1; 05, 07, 08, 12 & 13.

**Site description:** A broad strip of seasonal fresh to brackish coastal lagoons and marshes, up to 1m deep, with sandy beaches along the sea shore backed by mangroves. The marshes are flooded from the end of November to July, and dry out completely in September and October. Salinities range from 15 p.p.t. near the sea shore to 0.1 p.p.t. in the grassy marshes.

**Principal vegetation:** There are five main plant communities: the *Ipomoea pescaprae* / *Canavalia maritima* and *Mariscus ligularis* / *Sesuvium portulacastrum* communities in the littoral zone; and the *Eleocharis mutata* / *Avicennia germinans*, *Hydrocotyle umbellata* / *Jussiaea leptocarpa* and *Montrichardia arborescens* / *Blechnum serrulatum* communities in the marshes. The *M. arborescens* / *B. serrulatum* community accounts for about 70-80% of the marsh vegetation.

**Land tenure:** Partly state owned, and partly owned by the communes of Mana and Iracoubo. Concessions for rice cultivation have been granted to two Dutch companies.

**Protection:** None.

**Land use:** Hunting, particularly during the period of construction of the Guianese Space Center at Kourou between 1968 and 1972. Large areas are now being developed for rice cultivation.

**Waterfowl:** The data are very incomplete and no estimates of total populations are possible. However the area is known to be of great importance for a wide variety of breeding, passage and wintering species, and over 75 species of waterfowl have been recorded. Breeding species include *Anhinga anhinga*, *Botaurus pinnatus*, *Ixobrychus exilis*, *Nyctanassa violacea*, *Egretta caerulea*, *E. tricolor*, *Mycteria americana*, *Dendrocygna autumnalis*, *Anas bahamensis*, *Cairina moschata*, *Aramulus guarana*, *Porphyryla flavirostris*, *Jacana jacana*, *Charadrius collaris*, *Himantopus himantopus* and *Sterna superciliaris*. *Tigrisoma lineatum*, *Cochlearius cochlearius*, *Euxenura maguari*, *Ajaia ajaja*, *Oxyura dominica*, *Rallus maculatus*, *Laterallus exilis*, *Heliornis fulica* and *Gallinago undulata* probably breed, and *Eudocimus ruber* is a common non-breeding visitor. The area is extremely important for wintering Nearctic shorebirds; in an aerial survey in January/February 1982, Morrison recorded 413,000 shorebirds between the Suriname border and Cayenne (this site and site 2). The majority were *Calidris* sandpipers, but there were also large numbers of *Numenius phaeopus*, *Limnodromus* sp and *Tringa melanoleuca/flavipes*. The area is also important for wintering *Anas discors*.

**Other fauna:** The area is rich in birds of prey including *Cathartes burrovianus*, *Rostrhamus sociabilis*, *Circus buffoni*, *Buteogallus aequinoctialis*, *B. urubitinga* and wintering *Pandion haliaetus* and *Falco peregrinus*. The beaches between Les Hattes and Organabo are one of the most important localities known for breeding Leatherback Turtles *Dermochelys coriacea*. Other reptiles include *Caiman crocodilus* and *Crotalus durissus dryinus*.

**Threats:** There is excessive hunting, with the almost systematic destruction of the wintering Anatidae, particularly *Anas discors*, and indiscriminate hunting of other species including *Mycteria americana* and *Eudocimus ruber*. Parts of the marshes are already being developed for rice cultivation, and the Direction d'Agriculture de Guyane has recently initiated a project for the polderization of a further 7,000 ha for rice production. The use of pesticides in nearby agricultural land is affecting some areas of marsh.

**Research and conservation:** Since 1971, eleven proposals have been made for the establishment of reserves in the area, but no action has been taken to date. In November 1979, a public enquiry was held to discuss the establishment of a 31,000 ha reserve, but this was ultimately rejected in favour of a major rice growing project. The possibility of establishing a reserve remains; a particularly suitable area would be some 6,000 ha north of the Mana River between Mana and Kawana Point, and including the marshes of Farez Point, with nesting *Ajaia ajaja* and *Mycteria americana*.

**References:** Rossignol (1972); Blancaneaux (1973); Condamin (1975); de Granville (1976 & 1979); Fretey (1982); Morrison (1983a); Association departementale d'Urbanisme et d'Amenagement de La Guyane (?).

**Source:** Jean-Luc Dujardin.

**Criteria for inclusion:** 123.

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### Coastal marshes of Sinnamary and Iracoubo (2)

**Location:** 5°27'N, 53°00'W; 100 km northwest of Cayenne.

**Area:** 55,000 ha (Kourou to Sinnamary 24,500 ha including 9,000 ha of mangroves; Sinnamary to Iracoubo 24,500 ha including 15,000 ha of mangroves; Iracoubo to Organabo 6,000 ha including 3,000 ha of mangroves).

**Altitude:** 0-2m.

**Province and type:** 8.4.1; 02, 06, 07, 08, 09, 13 & 16.

**Site description:** The estuaries of the River Sinnamary, River Iracoubo and numerous other smaller rivers, with intertidal mudflats and mangrove swamps; and a broad coastal strip of permanent and seasonal fresh to brackish marshes, up to 2m deep, behind a fringe of mangroves. Salinities are highest along the littoral zone and in the mangroves, and decrease progressively in the marshes. Maximum flooding of the marshes occurs in May and June, and by November, large areas are dry.

**Principal vegetation:** Mangrove swamps and saline marshes with *Avicennia germinans*, *Laguncularia racemosa*, *Spartina brasiliensis* and *Crenea maritima*; seasonally flooded marshes with *Scirpus maritimus*, *Eleocharis mutata* and *Sporobolus virginicus*; an herbaceous scrub zone dominated by *Rhynchospora corymbosa*, *Montrichardia arborescens*, *Blechnum serrulatum*, *Dryopteris gongyloides* and *Pityrogramma calomelanos*; and numerous scattered trees and shrubs, principally *Chrysobalanus icaco* and *Pterocarpus officinalis*.

**Land tenure:** Mainly owned by the communes of Sinnamary and Iracoubo, but a part in the east is owned by the Guianese Space Centre.

**Protection:** None.

**Land use:** Livestock rearing around Sinnamary, and rice cultivation in the region of Iracoubo. Intensive hunting for sport, food, the animal trade and the artificial flower industry.

**Waterfowl:** An extremely important area for breeding, passage and wintering waterfowl of a wide variety of species. *Eudocimus ruber* formerly nested in large numbers; in 1974, Condamin estimated the population at 6,000 pairs, but there has been a steady decline since then, and no evidence of nesting was found between 1981 and 1983. However, a colony of 300 pairs was located in the mangroves west of Kourou in July 1984. *Ajaia ajaja* also once nested, but is now only an occasional visitor. Species still breeding in the area include *Nycticorax nycticorax*, *Nyctanassa violacea*, *Cochlearius cochlearius*, *Egretta caerulea*, *E. tricolor*, *E. thula* and *Ardea coccyzoides*. An aerial census of Ardeidae and Threskiornithidae in April 1984 included 4,700 *Egretta thula*, 4,350 *E. caerulea*, 2,600 *E. tricolor*, 465 *E. alba* and 2,100 *Egretta ruber*. Although much persecuted by hunters, *Gallinago undulata*, still occurs in small numbers in the coastal savannas. The area is particularly important for wintering Nearctic shorebirds; an aerial survey of this area and adjacent coasts in January/February 1982 located 413,000 shorebirds, mainly *Calidris* sandpipers.

**Other fauna:** No information.

**Threats:** There is no direct threat to the mangroves or the marshes, but some elements of the avifauna are seriously threatened by intensive year round hunting. The taking of young birds for the animal trade, and the killing of species such as *Eudocimus ruber* and Psittacidae for their plumes for the local artificial flower industry have drastically reduced breeding populations.

**Research and conservation:** Several proposals for the establishment of reserves have been made since 1972, but no action has been taken to date. It is essential that an effective reserve be created to protect the breeding colonies of herons and ibises, and that the exploitation of wildlife be strictly controlled, if the local extinction of several species is to be avoided.

**References:** Condamin (1975); Lescure (1977); de Granville (1979); Morrison (1983a).

**Source:** Jean-Luc Dujardin.

**Criteria for inclusion:** 123.

## Kaw Marshes (3)

**Location:** 4°45'N, 52°10'W; 35 km southeast of Cayenne.

**Area:** c.100,000 ha.

**Altitude:** 0-6m.

**Province and type:** 8.4.1; 02, 06, 07, 08, 09, 13, 16 & 18.

**Site description:** The estuaries of the Mahury, Approuague and Kaw Rivers, with intertidal mudflats and mangrove swamps, and a vast area of fresh to brackish marshes, seasonally flooded savanna and swamp forest behind a wide mangrove littoral zone. The marshes are 1-2m deep, and the salinity increases with depth. The savannas flood during the rainy season, and are dry from September to November.

**Principal vegetation:** Mangrove swamps in the littoral zone are dominated by *Avicennia germinans*; the estuarine mangrove swamps include a mixture of *Avicennia germinans*, *Rhizophora racemosa* and the palm *Euterpe oleracea*. Other plant communities include herbaceous marshes; marshy savanna with *Chrysobalanus icaco*; swamp forest with *Euterpe oleracea*, *Virola surinamensis* and *Chrysobalanus icaco*; seasonally flooded savanna with Cyperaceae, *Leersia hexandra* and *Echinochloa polystachya*; and "islands" of humid tropical forest on old raised beaches.

**Land tenure:** Partly state owned and partly owned by the communes of Roura and Regina.

**Protection:** None at present.

**Land use:** Cattle ranching and hunting in the vicinity of Kaw, and exploitation of the palm *Euterpe oleracea* on the banks of the River Approuague. The central portion of the marshes remains remote and undisturbed.

**Waterfowl:** Poorly known because of the difficulties of access, but clearly of great importance for a variety of breeding and wintering species. Birds observed during a brief aerial survey in April 1984 included 2,100 *Egretta caerulea*, 1,000 *Egretta tricolor*, 2,350 *Egretta thula*, 220 *Egretta alba* and 60 *Eudocimus ruber*. Other species recorded in the area and probably nesting include *Phalacrocorax olivaceus*, *Anhinga anhinga*, *Botaurus pinnatus*, *Ixobrychus exilis*, *Tigrisoma lineatum*, *Mycteria americana*, *Cairina moschata*, *Porphyrola martinica*, *P. flavirostris*, *Jacana jacana*, *Phaetusa simplex* and *Rynchops niger*. *Opisthocomus hoazin* nests along the lower Approuague and in the region of Kaw. The area is particularly important for wintering Nearctic shorebirds. 200,000 *Calidris pusilla* were observed in the Mahury estuary in November 1981, along with large numbers of ten other species of shorebirds and a variety of Laridae.

**Other fauna:** The Black Caiman *Melanosuchus niger* occurs; the Kaw Marshes are one of the few areas in South America where very large individuals of this rare species can still be found.

**Threats:** There are no immediate threats to the marshes. An attempt was made in the late 1950s to polderize the western part near the Mahury estuary for agriculture, but this scheme was abandoned in 1967. However, a Dutch group is now planning to purchase 6,000 ha in this area for shrimp farming and various agricultural projects. With the recent expansion of the palm industry in the east, there has been a significant increase in hunting activities, and a permit has recently been granted for the exploitation of palms within the area currently being proposed for the establishment of a reserve.

**Research and conservation:** A proposal for the establishment of a biological reserve has recently been deposited with the Office National des Forêts.

**References:** Condamin (1975); de Granville (1979 & 1983).

**Source:** Jean-Luc Dujardin.

**Criteria for inclusion:** 123.

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 Pointe Behague and the lower River Oyapock (4)

**Location:** 4°20'N, 51°45'W; 80 km southeast of Cayenne.

**Area:** 148,000 ha.

**Altitude:** 0-6m.

**Province and type:** 8.4.1; 02, 06, 07, 08, 09, 13, 16 & 18.

**Site description:** The estuary of the Rio Oyapock on the Brazilian border, with intertidal mudflats and fringing mangroves; and a vast area of seasonally flooded savannas with small areas of permanent marsh, behind a broad coastal belt of mangroves. Surface waters are fresh

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to brackish, but the water is saline at depths of 0.5m near the coast and 1.5m in the interior. The savannas flood in the rainy season, and dry out between August and November. There is some rocky relief in the middle of the marshes, with forested hills rising to 340m.

**Principal vegetation:** Mainly seasonally flooded savannas dominated by *Chrysobalanus icaco* and the palm *Euterpe oleracea*. Other plant communities include coastal mangrove swamps of *Avicennia germinans*; estuarine mangrove swamps with *A. germinans*, *Rhizophora racemosa* and *Euterpe oleracea*; herbaceous marshes; swamp forest with *E. oleracea* and *Virola surinamensis*; and gallery forest with *Mauritia flexuosa*. There is humid tropical forest on the hills.

**Land tenure:** Partly state owned, and partly owned by the communes of Ouanary and Regina.

**Protection:** None.

**Land use:** Hunting and fishing along the Ouanary and Courouaie Rivers; and exploitation of the palm *Euterpe oleracea* along the Approuague River in the west. There is no human activity in the greater part of the marshes.

**Waterfowl:** Very little information is available for this remote area, but it is known to be important for a variety of Ardeidae and wintering Nearctic shorebirds. Birds observed during an aerial survey in April 1984 included 2,150 *Egretta caerulea*, 1,050 *Egretta tricolor*, 2,400 *Egretta thula*, 95 *Eudocimus ruber* and 45 *Ajaia ajaja*. *Opisthocomus hoazin* breeds along the Courouaie and Approuague Rivers. The tidal mudflats in the estuary of the Oyapock and at Pointe Behague are important for shorebirds.

**Other fauna:** The isolated forested hills in the middle of the marshes have many colonies of *Rupicola rupicola*. *Melanosuchus niger* occurs in the marshes, and very large individuals can still be found.

**Threats:** There are no threats to the greater part of the marshes at the present time. However, with expansion in the palm industry around Regina, there has been an increase in hunting activities in the west and along the Courouaie River.

**References:** Condamin (1979); de Granville (1979).

**Source:** Jean-Luc Dujardin.

**Criteria for inclusion:** 2a, 2b & 3a.