AMAZONIA: CPD SITE SA3

SAUL REGION
French Guiana

Location: Central French Guiana, surrounding village of Saül (latitude 3°37'N, longitude 53°12'W); proposed reserve within about latitudes 3°30'–3°45'N and longitudes 52°90'–53°30'W.

Area: Over 1340 km².

Altitude: c. 200–762 m.

Vegetation: Lowland moist forest, swamp forest, submontane forest, low summit forest, granitic-outcrop (inselberg) association.

Flora: 2000 species or more; representative of eastern Guayana Lowland Floristic Province, and most species-diverse region of French Guiana; some endemism on higher mountains, apparently also in lowlands.

Useful plants: Rich in medicinal and timber species; some extraction of rosewood oil (*Aniba rosaeodora*) and "balata" (*Chrysophyllum sanguinolentum*) in past, and palm hearts (*Euterpe oleracea*) for local consumption.

Other values: Watershed protection, genetic resources, ecotourism.

Threats: Road construction, agricultural-settlement schemes, charcoal production, gold mining; potential fuelwood cutting for electricity.

Conservation: Proposed reserve (600 km²) plus potential reserve (190 km²), near boundary of proposed National Park (1600–1800 km²).

Geography

The Guayana Lowland Floristic Province of north-eastern South America is bounded to the north and east by the Atlantic Ocean, to the south by the Amazon River and to the west and north-west by the Negro and Orinoco rivers. Many species of plants and animals occur only in all or part of this vast area (de Granville and Sanité 1992; Mori 1991). Characteristic of the eastern portion of this phytogeographic region is the Saül region, in the geographic centre of French Guiana (Map 39).

This is a zone of contact between granitic formations to the east and basic volcanic rocks of the Paramaca Series to the west (de Granville 1975). The areas on granite generally have rugged relief with steep slopes whereas the areas on volcanic rocks are characterized by gentle regular slopes, the highest capped by a lateritic crust (de Granville 1991). Although the soils are poor (as most tropical rain-forest soils), they are among the best in French Guiana because they are relatively deep with fairly good vertical drainage.

The region of Saül is at the headwaters of major tributaries of the Maroni, Mana and Approuague rivers. Most of the region is moderately dissected terrain between about 200 m and 400 m, ranging to 762 m on Monts Galbao. Also important are the tabletop mountain Mont Belvédère (760 m) and Pic Matecho (590 m), a granitic outcrop (inselberg) botanically explored only once. The proposed reserve around the village of Saül is more extensive north of the village (Map 39).

Climate is influenced by the relative position of the Intertropical Convergence Zone (ITCZ). During the dry season from August to November, the ITCZ lies north of French Guiana. From December to June, the period of heaviest rain, the ITCZ is directly over or south of French Guiana. The village of Saül receives an average of 2413 mm of rain yearly. In 1982, the average annual temperature was 27.1°C. Temperature is relatively constant throughout the year, with the daily fluctuations greater than the annual. The difference between the longest and shortest days of the year is 35 minutes (Mori and Prance 1987a).

Vegetation

The main vegetation of the region is lowland moist forest, for the most part dominated by trees of Burseraceae, Sapotaceae, Lecythidaceae, Mimosaceae, Caesalpiniaceae, Rubiaceae, Moraceae, Chrysobalanaceae, Meliaceae and Bombacaceae. The understorey is rich in Rubiaceae and Melastomataceae and sometimes dominated by *Astrocaryum* palms. Mori and Boom (1987) found 619 trees of 10 cm dbh or more, with a total basal area of 53.0 m², per ha. The tallest tree recorded in the region is a 56 m *Terminalia guyanensis* (Oldeman 1974). The tall stature and high basal area suggest that this forest has not undergone major disturbance for a long time.

Other vegetation types in the region, such as swamp forests along streams, submontane forests above 500 m, low forest on lateritic crust and an open granitic-outcrop association, have not been ecologically studied (cf. Lindeman and Mori 1989).

Flora

North-eastern South America is one of the last wilderness areas, and a high percentage of its plant species are only found there. A multinational project is producing a *Flora of the Guianas* which is slowly reducing our ignorance. The Guayana lowlands is an important source of genetic variability for many lowland South American tree families, and c. 25% of the

species of some of these important neotropical families occur within the political boundaries of the Guianas: e.g. Chrysobalanaceae, Lecythidaceae, Meliaceae and Sapotaceae (Mori 1991).

The lowland Guayana flora is also important as a source of plant species that have migrated into the Amazon Basin. Mori and Prance (1987b) suggested that migration out of the Guayana lowlands has prevailed over immigration, and de Granville (1992) demonstrated that many Guayanan species have peri-Amazonian distributions. Several theories may help explain the present distribution of the Guayanan plants, including: the presence of Pleistocene refugia of forest during dry climatic periods (de Granville 1982), flooding of the Amazon Basin by various marine transgressions (de Granville 1992) and the presence of a large lake (Lago Amazonas) throughout much of the Amazon as recently as in the Late Pleistocene-Holocene (Frailey *et al.* 1988; Mori 1991).

The proposed reserve surrounding Saül village is representative of the eastern Guayana lowland flora (for the Guayana Highlands see CPD Site SA2, the Pantepui region). French Guiana has some 4000 species of vascular plants (de Granville 1990), of which at least 2000 are found in the proposed reserve area (Cremers *et al.* 1988). Sabatier (see de Granville 1990) calculated that c. 746 species of large trees (over 10 cm dbh) are in French Guiana, and as many as 531 of them may be found in the vicinity of Saül (Mori and Boom 1987). Of the species of Lecythidaceae known from the three Guianas, 54.7% would be protected if the proposed reserve were established (Mori 1991). According to de Granville (1990, 1991), 60% of the entire French Guianan flora may be represented in the Saül region. This relatively small area has a surprisingly high percentage of the entire eastern Guayana lowland flora.

Compared to other regions of French Guiana, Saül has the most endemics. French Guiana is considered to have more than 150 endemic species of vascular plants, although some may be found elsewhere when there has been adequate collecting throughout the lowland Guayana area. Because the Saül region is not separated phytogeographically, endemism within the proposed reserve is low: c. 50 of the endemics are in the Saül region and more than 20 have been found only within the proposed reserve (de Granville 1990). The outlying submontane forest floras on the summits of Monts Galbao (with some endemics) and Mont Belvédère show affinities with the Guayana Highlands and Andean floras.

Useful plants

These forests harbour many actual and potential medicinal plants (Grenand, Moretti and Jacquemin 1987), as well as species traditionally exploited as non-timber forest products such as palm hearts (*Euterpe oleracea*), rosewood oil (*Aniba rosaeodora*) and "balata" (*Chrysophyllum sanguinolentum*). The Guayana lowland flora also is rich in timber species (Gazel 1990).

Social and environmental values

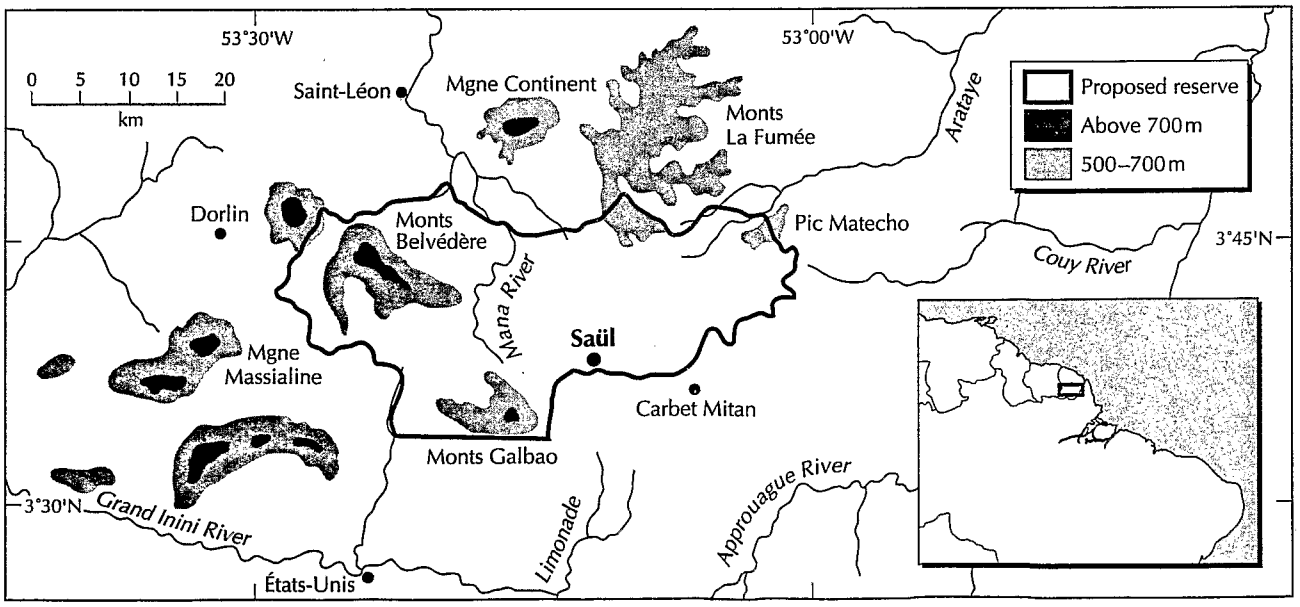
Intact forests in the Saül region provide watershed protection for the headwaters of major tributaries of the Maroni, Mana and Approuague rivers, which are among the most important in French Guiana. This is one of the French Guianan regions most frequently visited for ecotourism.

The lowland moist forest that is characteristic of the region around Saül forms the primary vegetation for the Guayana Shield Endemic Bird Area (EBA B01), which is centred on the three Guianas and extends from eastern Venezuela into the State of Amapá in northern Brazil. Five restricted-range bird species occur in this large tract, while at least seven others with larger ranges are essentially confined to this area.

Economic assessment

The principal source of income has been small-scale gold mining. Attempts at other than subsistence agriculture have failed, however mostly because of the difficulty of transporting produce to market. Likewise timber production, although economically important in other parts of French Guiana, has

MAP 39. SAUL REGION, FRENCH GUIANA (CPD SITE SA3)



not been feasible because of the limited local market and high cost of transportation to coastal markets.

The greatest economic potential for the region is tourism. A large tour operator, based in Cayenne, offers trips on the Mana River which originate or end in Saül. Several individuals have developed moderately successful local tourist businesses and the village recently constructed a rustic hotel. Tourists, mostly from France, visit the region to see undisturbed rain forest and hike the nearly 100 km of trails around the village.

Threats

A road is under construction to link Cayenne to Saül. It even has been suggested that when the road is completed, Saül should be designated the capital. The road will bring radical changes to this pristine forest region. Current low-scale threats are slash-and-burn agriculture, cutting of trees for charcoal production, limited gold mining which has had minimal impact on the environment, and hunting especially to feed an ever-increasing number of tourists. Potentially, fuelwood may be cut to produce electricity.

Conservation

In 1993 the Department of French Guiana (which is an overseas department of France) was declaring 600 km² surrounding Saül village as an Arrêté de Protection du Biotope (protected area for natural habitat) (Map 39), and the Office National Forestière was considering establishment of a Nature Reserve of 190 km² in the same general region. Earlier a National Park of 1336 km² had been recommended, surrounding the village between 3°33'–3°49'N and 53°00'–53°27'W (de Granville 1975), with some attempts to establish that park since (de Granville 1990). These two declared and potential reserves are near/at the northern boundary of a proposed Southern National Park, which would include most of the southern half of French Guiana (1600–1800 km²).

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