



# **GFECP**

## **GUIANAS FORESTS & ENVIRONMENTAL CONSERVATION PROJECT**

**The Sea Turtles of Suriname 2001 Project:**

### **Aerial Survey of the Surinam Coastline between the Marowijne and Suriname River 2001, 2000, 1999 and 1997**

Prepared by:

*E. Goverse and M.L. Hilterman*



In collaboration with the Foundation for Nature Conservation Suriname (STINASU).

March 2002

**This Study was commissioned by the World Wildlife Fund – Guianas Forests and Environmental Conservation Project (GFECP). The views expressed herein are those of the author(s) and do not necessarily reflect the views of the World Wildlife Fund.**



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## Acknowledgements

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## Introduction

The Surinam coast is part of the extensive tropical mud coast between the Amazon River (Brazil) and the Orinoco River (Venezuela) (Augustinus 1978). Only the smallest sediment parts from the Amazon River are deposited in Suriname. Extensive mud banks on the Surinam coast are shifting along the shore in a westward direction. Deposition of 'sling-mud' on the one hand and of sand and shells on the other takes place separately. It is believed that most of the sand comes from French Guiana, but that the Marowijne contributes some sand too (Schulz 1975).

Because of the highly dynamic shoreline, a yearly aerial survey is needed to monitor the changes. New nesting beaches can also be located by this technique. The aerial survey takes place in the mid of the nesting season of the leatherback turtle (*Dermochelys coriacea*) and is done in the morning during low tide. The aerial survey methodology is described by Schroeder and Murphy (1999). Only the part between the Suriname River and the Marowijne River is monitored because here the nesting beaches of Suriname are found.

The first aerial survey by Biotopic, in collaboration with STINASU, was carried out on the 2<sup>nd</sup> of June 1997, the second survey on the 7<sup>th</sup> of July 1999. In 2000, the survey took place on the 10<sup>th</sup> of July, a rainy day. Unfortunately, the Global Position System (GPS) on board of the plane failed just after departure. The most recent survey was done in the morning of the 7<sup>th</sup> of June 2001. Each aerial survey, a photo reportage is made with different types of camera's and lenses, by different people. The results of 1997 and 1999 were reported in those years (Biotopic 1997, 2000). This report includes a selection of photos of all these aerial surveys in order to make a comparison possible, starting with the most recent one. In this report, the latest names of locations and sections are used. Until the year 1999, Samsambo was called 'Spit'. In 2000, Kolukumbo was temporarily named BGW-III, which means Far Section West.

## **General description**

### **Galibi area**

During the aerial survey of 2001, one camera failed before the survey was finished. Because of this, very few pictures of Babunsanti to Galibi could be made. The pictures of 2000 and before, however, give a good impression of the area as these beaches are more or less stable. The photos 49-50 and 139-140 show different parts of the villages Langamankondre and Christiaankondre, named in this report Galibi. The photos 51 and 142 show the campsite of NB, and 141 the sandy bay next to this camp. The NB camp marks the border of the Galibi Nature Reserve. The fallen lighthouse can be seen on the photos 97 and 143-144. Just after the lighthouse, photos 52, 98 and 143, the first nesting beach is found. It is used mainly by green turtles, that nest between the vegetation. Sporadically, leatherback tracks are seen.

### **Babunsanti**

The beaches of Babunsanti are more or less stable and are shown on the photos 1, 52-59, 99-104, and 146-152. Babunsanti is split into the parts 'Pruimeboom' (PB) and 'Babunsanti' (BS), which are divided into smaller sections of about 1.5 kilometer. The situation does not differ much between the years, except for the border area between the sections PB-I and PB-II (see photos 54 and 55, year 2000). In 2000, a creek was formed here. Before the nesting season of 2001, the creek was blocked by deposited sand. At the northern end of Babunsanti, the section Thomas is present on the photos 2-3, 60 and 153, formerly known as Eilanti. The beaches of Babunsanti are used by high numbers of green turtles (*Chelonia mydas*), leatherback turtles, and low numbers of olive ridley (*Lepidochelys olivacea*) turtles.

### **Samsambo**

The formation of Samsambo took place in few years time. In 1997 (photos 155-162), Samsambo was a large sandbank. After two years, year 1999, the vegetation had started to grow but some parts were still highly dynamic (photos 106-116). In 2000, the beach was more or less stable by the formation of a large mud bank in front of the beach, except for the east side (photos 61-72). In this year, STINASU has built a campsite on Samsambo in order to make monitoring of nesting leatherbacks possible. In 2001, Samsambo had lost its importance as a high density nesting beach due to growth of the mud bank and the rapid growth of vegetation (photos 4-13). In addition, black mangrove had started to grow on the mud.

### **Kolukumbo**

In 2000, a beach was discovered few kilometres west of Samsambo (photos 73-77). The beach was newly formed and during washed over during spring tides. Before the nesting season of 2001, the beach had become high enough for not being washed over anymore by spring tides (photos 14-17). The average width of the beach is over twenty metres. The beach is used by exceptionally high numbers of leatherbacks for nesting. On the east side, mud has started to deposit in the course of the 2001 nesting season.

### **Wia Wia**

In the whole area from Wia Wia to the present location of Matapica, no suitable nesting beaches can be found (photos 18-26, 79-82, 117-120, and 163-165). Some parts of Wia Wia contain sand stretches and mud banks. In 2001, tracks were located on some sandbanks. These sandbanks were still totally washed over during spring tides.

### **Matapica**

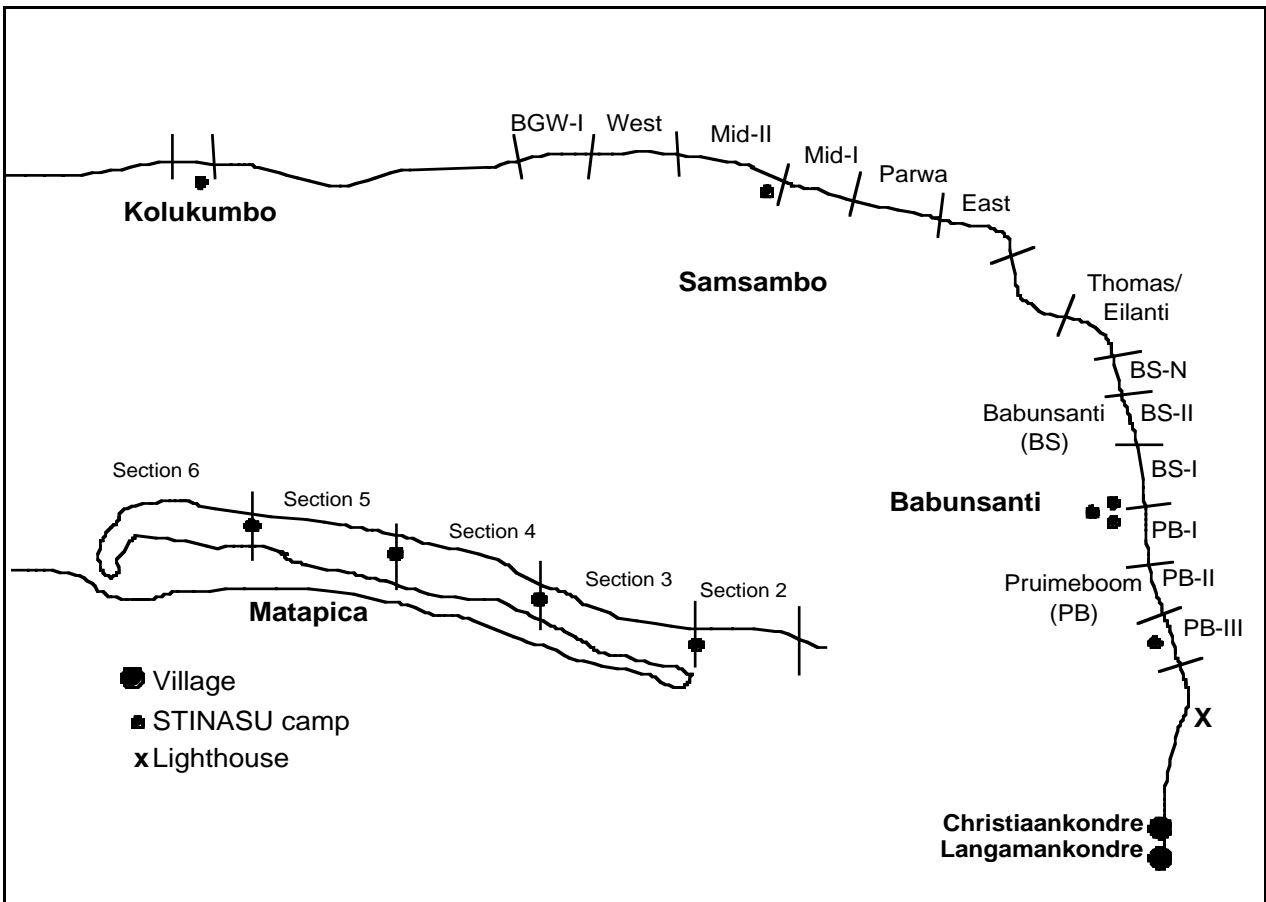
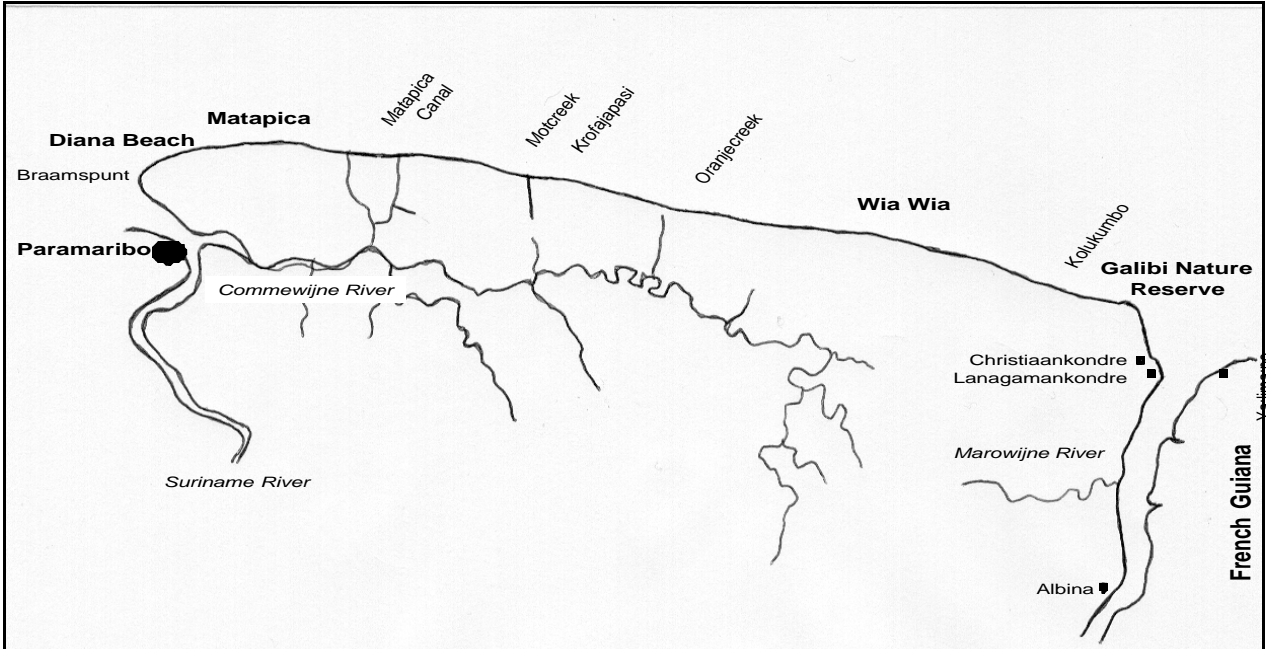
Matapica is eroding at the east side and sand deposition takes place on the west side. Therefore, Matapica is moving to the west with an average speed of approximately 1 to 1.5 kilometer per year. Photos 175-176 (1997) show Matapica in front of the Warapa creek. On photo 125, from 1999, Matapica is still in front of the creek but the vegetation is almost gone, which indicates erosion. On photo 84 (2000) a stretch of sand is still in front of the creek. Later in this nesting season, the Warapa creek became connected with the sea again (photos 31-32 of year 2001).

### **Diana Beach**

This beach (photos 44-46, 95, 135, 136, 178) is getting increasingly important for nesting sea turtles, especially for the olive ridley. In 2001, STINASU has built a camp here during the nesting season.

## Braamspunt

Braamspunt shows some changes every year. In 1997, Braamspunt was a sand ridge with mud behind it (photos 179-180). Only a few houses were built here by shrimp fishermen. In 1999, more sand was deposited and the settlement looks more like a small village (photos 137-138). Except from some more growth of vegetation, the situation compared for the years 2000 and 2001 seems to be quite similar (see photos 47-48, and 96). The beach is sporadically visited by leatherback sea turtles.





**Aerial Survey of the Surinam Coastline  
between the Marowijne and Suriname River**

**2001**



1. Babunsanti, section BS-II



2. Babunsanti, section Thomas



3. Babunsanti, section Thomas



4. Samsambo, section East



5. Samsambo, section East



6. Samsambo, section East



7. Samsambo, section Mid-I



8. Samsambo, section Mid-II



9. Samsambo, section Mid-II



10. Samsambo, section Mid-II and West



11. Samsambo, section West



12. Samsambo, section BGW-I





13. Samsambo, section BGW-I



14. Kolukumbo



15. Kolukumbo



16. Kolukumbo



17. West of Kolukumbo



18. Wia Wia, stretch of sand



19. Wia Wia, stretch of sand



20. Wia Wia, stretch of sand



21. Wia Wia, sandbank



22. Wia Wia, sandbank



23. Wia Wia, sandbank



24. Wia Wia, sandbank





25. Wia Wia, sandbank



26. Wia Wia, sandbank



27. Impression of the muddy coast



28. New forest growth on mud bank



29. Eroded forest edge



30. Matapica Canal



31. Warapa creek



32. Warapa creek



33. Matapica, section 2



34. Matapica, section 3



35. Matapica, section 3



36. Matapica, section 4





37. Matapica, campsite, border of sections 4 and 5



38. Matapica, campsite, border of sections 4 and 5



39. Matapica, campsite, border of sections 5 and 6



40. Matapica, section 6, old shrimp-fishing camp



41. Matapica, section 6



42. Matapica, section 6





43. Matapica, section 6



44. Diana Beach, section 1



45. Diana Beach, camp, border sections 3 and 4



46. Diana Beach, section 5



47. Braampunt



48. Braampunt

**Aerial Survey of the Surinam Coastline  
between the Marowijne and Suriname River**

**2000**



49. Galibi



50. Galibi



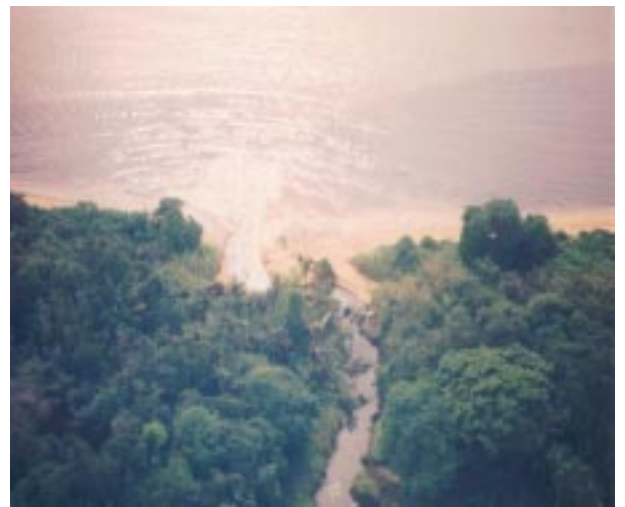
51. NB camp site, border Galibi Nature Reserve



52. Babunsanti, section PB-III



53. Babunsanti, section PB-II



54. Babunsanti, border sections PB-I and PB-II





55. Babunsanti, border sections PB-I and PB-II



56. Babunsanti, campsite, border PB-I and BS-I



57. Babunsanti, campsite, border PB-I and BS-I



58. Babunsanti, border sections BS-I and BS-II



59. Babunsanti, section BS-II



60. Babunsanti, section Thomas



61. Samsambo, section East



62. Samsambo, section East



63. Samsambo, section Parwa



64. Samsambo, section Mid-I



65. Samsambo, section Mid-I



66. Samsambo, campsite, section Mid-II



67. Samsambo, campsite, section Mid-I



68. Samsambo, section Mid-I



69. Samsambo, section Mid-I



70. Samsambo, section Mid-I



71. Samsambo, section West



72. Samsambo, border sections West and BGW-I





73. Kolukumbo



74. Kolukumbo



75. Kolukumbo



76. Kolukumbo



77. Kolukumbo



78. Impression of the muddy coast



79. Wia Wia, stretch of sand



80. Wia Wia, sandbank



81. Wia Wia, sandbank



82. Wia Wia, mud flat with leatherback track



83. Stretch of sand west of Matapica Canal



84. Matapica, Warapa creek, section 1





85. Matapica, section 1



86. Matapica, section 2



87. Matapica, section 4



88. Matapica, campsite, border of sections 4 and 5



89. Matapica, campsite, border of sections 4 and 5



90. Matapica, section 5



91. Matapica, campsite, border of sections 5 and 6



92. Matapica, section 6



93. Matapica, section 6



94. Matapica, section 6



95. Diana Beach, section 1



96. Braamspunt

**Aerial Survey of the Surinam Coastline  
between the Marowijne and Suriname River**

**1999**



97. Lighthouse Galibi



98. East of lighthouse Galibi



99. Babunsanti, section PB-III



100. Babunsanti, section PB-II



101. Babunsanti, section PB-I



102. Babunsanti, border sections PB-I and BS-I





103. Babunsanti, section BS-I



104. Babunsanti, section BS-II



105. Babunsanti, border sections BS-II and Thomas



106. Samsambo, section East



107. Samsambo, section East



108. Samsambo, section East



109. Samsambo, section Mid-I



110. Samsambo, section Mid-II



111. Samsambo, section Mid-II



112. Samsambo, section Mid-II



113. Samsambo, section Mid-II



114. Samsambo, section West



115. Samsambo, section BGW-I



116. Samsambo, section BGW-I



117. Wia Wia



118. Wia Wia, stretch of sand



119. Wia Wia, stretch of sand



120. Wia Wia, stretch of sand





121. Impression of the muddy coast



122. Impression of the muddy coast



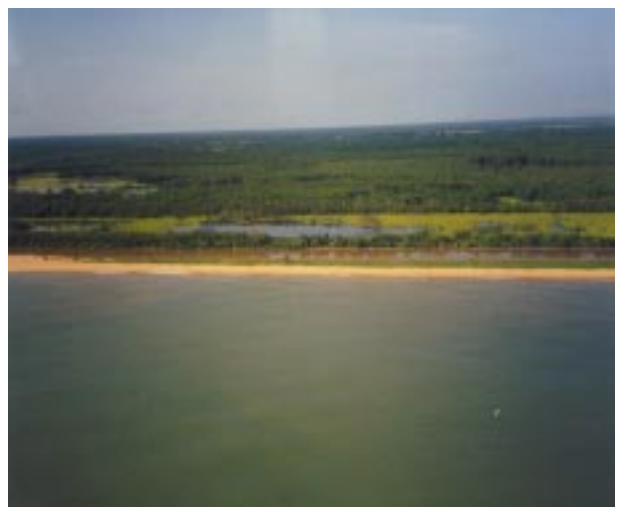
123. Impression of the muddy coast



124. Impression of the muddy coast



125. Matapica, Warapa creek, section 1



126. Matapica, section 1





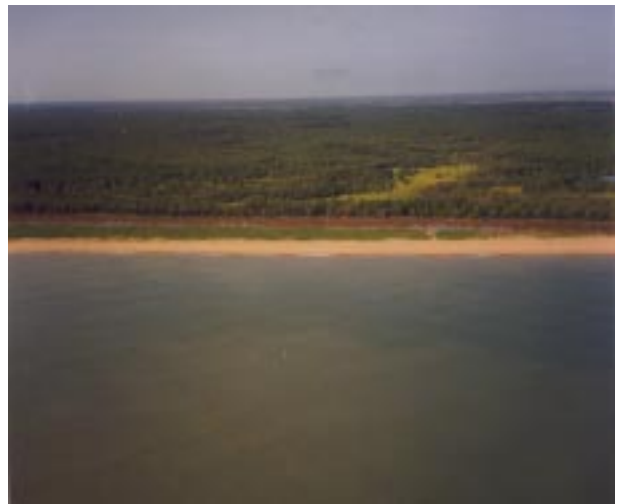
127. Matapica, section 2



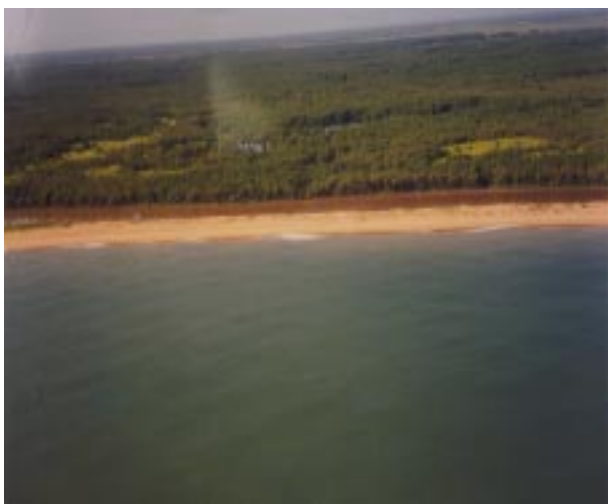
128. Matapica, section 3



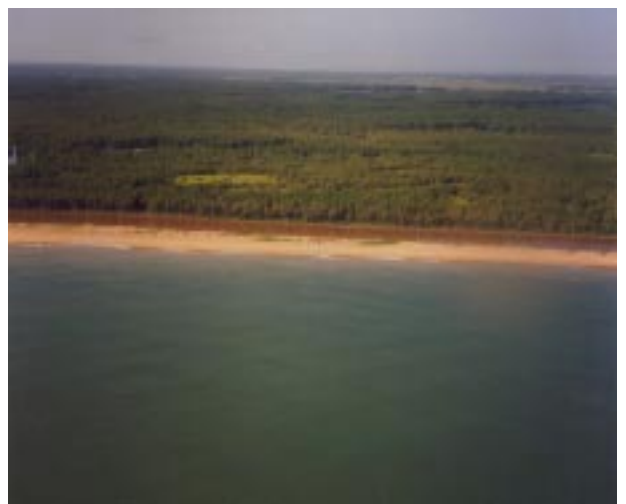
129. Matapica, section 4



130. Matapica, section 4



131. Matapica, section 5



132. Matapica, section 5



133. Matapica, section 6



134. Matapica, section 6



135. Diana Beach



136. Diana Beach



137. Braampunt



138. Braampunt

**Aerial Survey of the Surinam Coastline  
between the Marowijne and Suriname River**

**1997**



139. Galibi



140. Galibi



141. South of NB campsite



142. NB campsite, border Galibi Nature Reserve



143. Lighthouse Galibi



144. Lighthouse Galibi





145. East of lighthouse Galibi



146. Babunsanti, section PB-III



147. Babunsanti, campsite, border PB-I and BS-I



148. Babunsanti, campsite, border PB-I and BS-I



149. Babunsanti, campsite, border PB-I and BS-I



150. Babunsanti, campsite, border PB-I and BS-I



151. Babunsanti, section BS-I



152. Babunsanti, section BS-N



153. Babunsanti, section Thomas



154. Babunsanti, section Thomas



155. Samsambo, section East



156. Samsambo, section East



157. Samsambo, section Parwa



158. Samsambo, section Mid-I



159. Samsambo, section Mid-I



160. Samsambo, section Mid-I



161. Samsambo, section West



162. Samsambo, section BGW-I





163. Wia Wia, stretch of sand



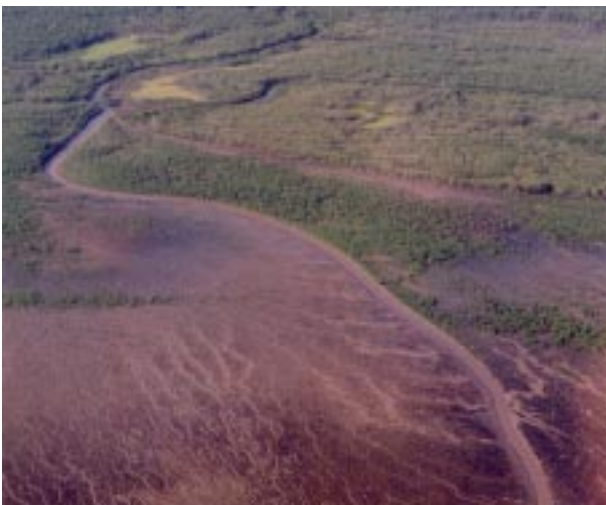
164. Wia Wia, sandbank



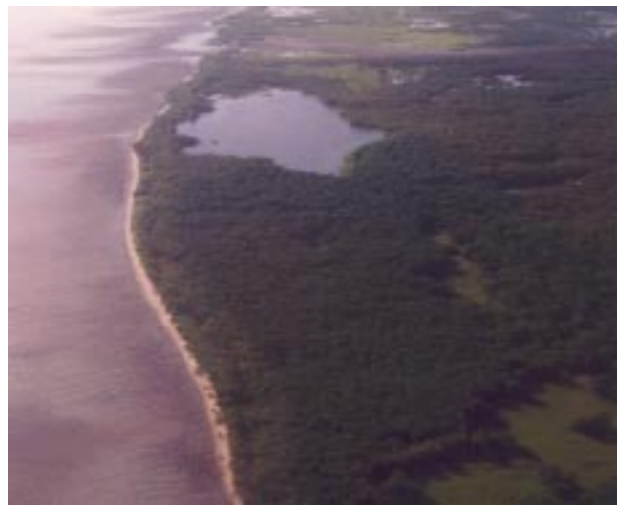
165. Wia Wia, sandbank



166. Impression of the muddy coast



167. Motcreek

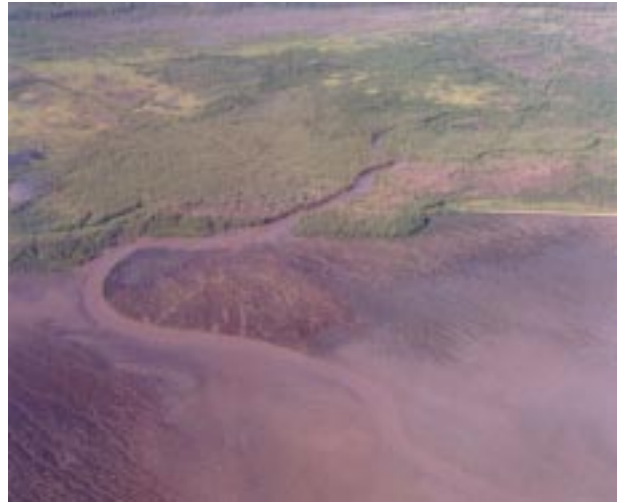


168. Stretch of sand west of Motcreek





169. Krofajapasi creek



170. Krofajapasi creek



171. Stretch of sand east of Matapica Canal



172. Stretch of sand east of Matapica Canal



173. Matapica Canal



174. Matapica Canal



175. Matapica, Warapa creek



176. Matapica, Warapa creek



177. Matapica



178. Diana Beach



179. Braamspunt



180. Braamspunt

### GPS coordinates 2001

North	West	Location
05 45 25	053 54 10	Marowijne River
05 50 66	054 03 90	Samsambo
05 51 36	054 07 63	Kolukumbo
05 53 42	054 13 52	Wia Wia, trees with sand in between
05 54 16	054 15 89	Wia Wia, stretch of sand
05 54 39	054 16 19	Wia Wia, mud bank
05 54 94	054 18 19	Wia Wia, mud bank
05 55 38	054 19 80	Wia Wia, mud bank
05 55 37	054 20 00	Wia Wia, stretch of sand
05 59 07	054 43 37	Oranje creek
05 59 25	054 45 65	Motcreek
05 59 35	054 47 86	Krofajapasio
05 59 37	054 48 76	Matapica Canal
05 59 41	054 51 47	Matapica Canal
05 59 66	054 54 69	Warapa creek
05 59 83	054 59 50	Matapica beach
05 59 84	055 01 05	Diana Beach
05 58 80	055 08 14	Diana Beach
05 56 36	055 10 26	Braamspunt
05 56 33	055 10 29	Braamspunt
05 48 68	055 11 39	Paramaribo

GPS coordinates recorded during the aerial survey on June 7<sup>th</sup> 2001 with the board GPS.

North	West	Location	Remark
05 47 644	054 00 416	Babunsanti, campsite	F
05 47 637	054 00 462	Babunsanti, research building	F
05 48 835	054 00 845	Babunsanti, section BS-N/ mangroves	B
05 49 550	054 01 049	Babunsanti, section Thomas, campsite	B
05 50 033	054 01 490	Babunsanti, section Thomas, western side	B
05 50 419	054 01 860	Samsambo, start section East	B
05 50 553	054 02 875	Samsambo, section East/Parwa	B
05 50 570	054 03 600	Samsambo, section Parwa/Mid-I	B
05 50 808	054 04 701	Samsambo, section Mid-I/Mid-II	B
05 50 812	054 04 875	Samsambo section Mid-I, campsite	F
05 51 075	054 05 599	Samsambo, section Mid-II/West	B
05 51 219	054 06 290	Samsambo, section West/BGW-I	B
05 51 215	054 06 961	Samsambo, section BGW-I/BGW-II	B
05 51 463	054 08 053	Kolukumbo, campsite	F
05 51 763	054 08 756	Kolukumbo, end at western side	F

GPS coordinates recorded by foot (F) or boat (B) with the Garmin GPS at the 27<sup>th</sup> of June 2001.

North	West	Location	Remark
05 59 582	054 56 171	Matapica, section II	F
05 59 590	054 56 371	Matapica, section II/III	B
05 59 598	054 56 575	Matapica, section III	B
05 59 603	054 56 729	Matapica, section III	B
05 59 606	054 56 940	Matapica, section III	B
05 59 618	054 57 194	Matapica, section III/IV	B
05 59 616	054 57 360	Matapica, section IV	B
05 59 625	054 57 800	Matapica, section IV	B
05 59 625	054 58 023	Matapica, section IV	B
05 59 625	054 58 247	Matapica, section IV/V	B
05 59 630	054 58 442	Matapica, section V	B
05 59 630	054 58 668	Matapica, section V	B
05 59 640	054 58 878	Matapica, section V	B
05 59 644	054 59 223	Matapica, section V	B
05 59 630	054 59 455	Matapica, section V/VI, campsite	F
05 59 647	054 59 464	Matapica, section V	B
05 59 696	054 59 780	Matapica, section V/VI, campsite (sea side)	F
05 59 695	055 00 272	Matapica, section VI, transect line at 500 m	F
05 59 697	055 00 544	Matapica, section VI, transect line at 1000 m	F
05 59 697	055 00 750	Matapica, section VI, campsite	B
05 59 558	055 00 895	Matapica, section VI	B
05 59 656	055 01 003	Matapica, section VI	B
05 59 646	055 01 213	Matapica, end section VI	B
05 59 664	055 02 307	Diana Beach, start section I	B
05 59 591	055 02 947	Diana Beach, section I/II	B
05 59 551	055 03 574	Diana Beach, section II/III	B
05 59 451	055 04 513	Diana Beach, section III/IV, campsite	B
05 59 312	055 05 700	Diana Beach, section IV/V	B
05 58 905	055 07 194	Diana Beach, section V/VI	B

GPS coordinates recorded by boat (B) or foot (F) with the Garmin GPS at the 23<sup>d</sup> of July 2001.

## References

- Augustinus, P.G.E.F., 1978. The Changing Shorelines of Suriname (South America). Natuurwetenschappelijke Studiekring voor Suriname en de Nederlandse Antillen, Utrecht, The Netherlands, No. 95, 232p.
- Biotopic, 1997. The Sea Turtles of Suriname, 1997. Aerial Survey. *Draft report*. Biotopic Foundation, Amsterdam, The Netherlands.
- Biotopic, 2000. The Sea Turtles of Suriname, 1999: Coastal Flight. Biotopic Foundation, Amsterdam, The Netherlands.
- Schroeder, B., and S. Murphy, 1999. Population Surveys (Ground and Aerial) on Nesting Beaches. In: K.L. Eckert, K.A. Bjorndal, F.A. Abreu-Grobois, and M. Donnelly (Editors), 1999. Research and Management Techniques for the Conservation of Sea Turtles. IUCN/SSC Marine Turtle Specialist Group Publication No. 4, 235p., pp.45-55.
- Schulz, J.P., 1975. Sea Turtles Nesting in Surinam. Zoologische Verhandelingen. Leiden, E.J. Brill, The Netherlands. No.143.