

# THE NATIONAL REPORT EL REPORTE NACIONAL

FOR THE COUNTRY OF  
POR EL PAIS DE

## VENEZUELA

NATIONAL REPRESENTATIVE / REPRESENTANTE NACIONAL

## HARRY ORTEGA



Western Atlantic Turtle Symposium  
Simposio de Tortugas del Atlantico Occidental

17-22 July / Julio 1983

San José, Costa Rica

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**WESTERN ATLANTIC TURTLE SYMPOSIUM  
San José, Costa Rica, July 1983**

**NATIONAL REPORT FOR THE COUNTRY OF**

**VENEZUELA**

NATIONAL REPORT PRESENTED BY

**Peter C. H. Pritchard for**  
**Harry Ortega**

The National Representative

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With a grant from the U.S. National Marine Fisheries Service, WIDECAST has digitized the databases and proceedings of the **Western Atlantic Turtle Symposium (WATS)** with the hope that the revitalized documents might provide a useful historical context for contemporary sea turtle management and conservation efforts in the Western Atlantic Region.

With the stated objective of serving “as a starting point for the identification of critical areas where it will be necessary to concentrate all efforts in the future”, the first Western Atlantic Turtle Symposium convened in Costa Rica (17-22 July 1983), and the second in Puerto Rico four years later (12-16 October 1987). WATS I featured National Reports from 43 political jurisdictions; 37 presented at WATS II.

WATS I opened with these words: “The talks which we started today have the multiple purpose of bringing our knowledge up to date about the biological peculiarities of the marine turtle populations of the western Atlantic; to know and analyse the scope of the National Reports prepared by the scientific and technical personnel of more than thirty nations of the region; to consider options for the orderly management of marine turtle populations; and in general to provide an adequate forum for the exchange of experiences among scientists, administrators, and individuals interested in making contributions for the preservation of this important natural resource.”

A quarter-century has passed, and the results of these historic meetings have been lost to science and to a new generation of managers and conservationists. Their unique importance in providing baseline data remains unrecognized, and their potential as a “starting point” is neither known nor appreciated.

The proceedings document what was known at the time concerning the status and distribution of nesting and foraging habitat, population size and trend, mortality factors, official statistics on exploitation and trade, estimated incidental catch, employment dependent on turtles, mariculture operations, public and private institutions concerned with conservation and use, legal aspects (e.g. regulations, enforcement, protected areas), and active research projects. In most cases it was the first time a national sea turtle assessment had been conducted.

Despite the potential value of this information to agencies responsible for conducting stock assessments, monitoring recovery trends, and safeguarding critical habitat in the 21st century, the hand-written National Reports, largely illegible in the published proceedings, have slipped into obscurity. To help ensure the legacy of these symposia, we have digitized the entire proceedings, including the National Reports, plenary presentations and panels, and annotated bibliographies of both meetings, and posted them online at <http://www.widecast.org/What/RegionalPrograms.html>.

*Each article has been scanned from the original document. Errors in the scan have been corrected; however, to be true to the original content (as closely as we can discern it), potential errors of content have not been corrected. This article should be cited:*

Pritchard, P.C.H. 1984. National Report for Venezuela, pp.500-514. *In*: Bacon, P., F. Berry, K. Bjorndal, H. Hirth, L. Ogren and M. Weber (Editors), Proceedings of the First Western Atlantic Turtle Symposium, 17-22 July 1983, San José, Costa Rica. Volume III: The National Reports. RSMAS Printing, Miami.

Karen L. Eckert  
WIDECAST Executive Director  
June 2009

## COUNTRY: VENEZUELA

| TABLE 2. COASTAL HABITAT INVENTORY OF MARINE SHORELINE  |                    |             |              |
|---|--------------------|-------------|--------------|
| Marine Shoreline Characteristics*   | Km of Shoreline    |             |              |
|   | Undeveloped<br>*** | Developed** | Total<br>*** |
| 1. Sand Beach (Total)   |                    |             |              |
| A. High Energy  |                    |             |              |
| B. Low Energy   |                    |             |              |
| 2. Reef (exposed)   |                    |             |              |
| 3. Rocks  |                    |             |              |
| 4. Cliffs   |                    |             |              |
| 5. Vegetation (Total)   |                    |             |              |
| A. Vines  |                    |             |              |
| B. Grasses  |                    |             |              |
| C. Mangroves  |                    |             |              |
| D. Coconut Trees  |                    |             |              |
| E. Other Trees or Shrubs  |                    |             |              |
| F. Marshes  |                    |             |              |
| 6. Mouths of Lagoons, Rivers, Canals  |                    |             |              |
| 7. Total Shoreline  |                    |             |              |
| * Refer to SEA TURTLE MANUAL (Aerial Survey)<br>** Human development or use (See MANUAL)<br>*** Please see description of entire shoreline as given in "Turtles of the Spanish Main" (Report to NMFS, 1981) |                    |             |              |

| TABLE 3. NESTING BEACH INVENTORY   |  |   |                                       |
|--|--|---|---------------------------------------|
| List beaches in geographic sequence. Provide additional information on following page. |  |   |                                       |
| Name of Beach  | Length<br>In Km                                | Species Nesting<br>(use abbreviations)* | Months of<br>Recorded Nesting         |
| 1. Isla de Aves  | About 1.3 km                                   | Cm                                      | May-August<br>(mainly August)         |
| 2. Archipelago Los Roques  | Many small beaches. Total length unavailable.  | Cc, Cm, E                               | May-December<br>(mainly July-October) |
| 3. Estado Sucre  | Many small cove beaches. Total length unknown. | Cm, D, E                                | June (at least)                       |
| Species *  | Abbreviation                                   |   |                                       |
| <i>Caretta caretta</i>   | Cc   |   |                                       |
| <i>Chelonia mydas</i>  | Cm   |   |                                       |
| <i>Dermochelys coriacea</i>  | D  |   |                                       |
| <i>Eretmochelys imbricata</i>  | E  |   |                                       |
| <i>Lepidochelys kempi</i>  | Lk   |   |                                       |
| <i>Lepidochelys olivacea</i>   | Lo   |   |                                       |

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 \* *Editor's note (2009)*: Throughout the ms, the editor has used "[--?--]" to indicate that the corresponding text in the original document is indecipherable.

**TABLE 3A. NESTING BEACH INVENTORY (supplementary page)**

Please give additional information about each nesting beach identified in Table 3. Include information on color of sand, particle size, beach profile, backbeach vegetation, artificial lighting, etc.

Almost the entire western part of the coast of Venezuela is sand beach. This shoreline, which starts in the desert coast at the Colombian border and extends to densely forested areas in and east of the Golfo Triste area, extends for many hundreds of kilometers but has very few nesting turtles. A detailed description of the shoreline of Venezuela, as seen from a survey aircraft, is given in the addendum in "Turtles of the Spanish Main". Mainland turtle nesting in Venezuela is concentrated on small, cove beaches between [--?--] headlands in Estado Sucre, and on offshore islands including Los Roques, Isla de Aves, and Isla La Tortuga. The long inland beaches are hardly used at all.

**TABLE 4.1. NESTING CENSUS FOR BEACH: Isla de Aves, 1971**

Table summarizes census data for each beach listed in Table 3. Tables numbered sequentially.

| Species                       | Number of Nests            |                           | Dates of collection |
|-------------------------------|----------------------------|---------------------------|---------------------|
|                               | Nest/Night (average)       | Nest/Season (estimated)   |                     |
| <i>Caretta caretta</i>        |                            |                           |                     |
| <i>Chelonia mydas</i>         | 16 in 3 nights; i.e., 5.35 | 174 pits prior to June 24 | June 24-27          |
| <i>Dermochelys coriacea</i>   |                            |                           |                     |
| <i>Eretmochelys imbricata</i> |                            |                           |                     |
| <i>Lepidochelys kempi</i>     |                            |                           |                     |
| <i>Lepidochelys olivacea</i>  |                            |                           |                     |

**TABLE 4.2. NESTING CENSUS FOR BEACH: Isla de Aves, 1979**

Table summarizes census data for each beach listed in Table 3. Tables numbered sequentially.

| Species                       | Number of Nests   |                         | Dates of collection   |
|-------------------------------|---|-------------------------|-----------------------|
|                               | Nest/Night (average)  | Nest/Season (estimated) |                       |
| <i>Caretta caretta</i>        |   |                         |                       |
| <i>Chelonia mydas</i>         | 470 emergences, 70% estimated to have nests, in 60 days; i.e. 8 per night | 500-1,000; ~ 750        | July, August; 62 days |
| <i>Dermochelys coriacea</i>   |   |                         |                       |
| <i>Eretmochelys imbricata</i> |   |                         |                       |
| <i>Lepidochelys kempi</i>     |   |                         |                       |
| <i>Lepidochelys olivacea</i>  |   |                         |                       |

**TABLE 4.3. NESTING CENSUS FOR BEACH: Isla de Aves, 1980**

Table summarizes census data for each beach listed in Table 3. Tables numbered sequentially.

| Species                       | Number of Nests   |   | Dates of collection |
|-------------------------------|---|---|---------------------|
|                               | Nest/Night (average)  | Nest/Season (estimated)                       |                     |
| <i>Caretta caretta</i>        |   |   |                     |
| <i>Chelonia mydas</i>         | Extremely variable; e.g., 21 nesting turtles on July 27; none the rest of June 20 - July 09 | 76 turtles tagged + 9 re-migrants in 137 days |                     |
| <i>Dermochelys coriacea</i>   |   |   |                     |
| <i>Eretmochelys imbricata</i> |   |   |                     |
| <i>Lepidochelys kempi</i>     |   |   |                     |
| <i>Lepidochelys olivacea</i>  |   |   |                     |

| <b>TABLE 4.4. NESTING CENSUS FOR BEACH: Archipelago Los Roques, 1979</b>                                 |                      |  |                             |
|--|----------------------|--|-----------------------------|
| Table summarizes census data for each beach listed in Table 3. Tables numbered sequentially.             |                      |  |                             |
| Species  | Number of Nests      |  | Dates of collection         |
|  | Nest/Night (average) | Nest/Season (estimated)  |                             |
| <i>Caretta caretta</i>   |                      | 7  | April-June 1979;<br>60 days |
| <i>Chelonia mydas</i>  |                      | 2-3  |                             |
| <i>Dermochelys coriacea</i>  |                      |  |                             |
| <i>Eretmochelys imbricata</i>  | <1                   | April: 1; May: 1; June: 4;<br>July: 10 [--?--] August: 12<br>[--?--]; September: 17;<br>October: [--?--] | April-December;<br>275 days |
| <i>Lepidochelys kemp</i>   |                      |  |                             |
| <i>Lepidochelys olivacea</i>   |                      |  |                             |
| <i>Editor's note (2009):</i> "[--?--]" denotes text that is undecipherable from the original manuscript. |                      |  |                             |

| <b>TABLE 5. AERIAL BEACH SURVEY SUMMARY</b>  |   |                           |    |   |   |    |    |       |
|--|---|---------------------------|----|---|---|----|----|-------|
| Give any additional information available from aerial surveys. Information should include ground truth observation if conducted. |   |                           |    |   |   |    |    |       |
| Date   | Beaches Surveyed  | Numbers of Nesting Tracks |    |   |   |    |    |       |
|  |   | Cc                        | Cm | D | E | Lk | Lo | No ID |
| June 08, 1983  | Coast of Venezuela, part of Peninsula de La Guajira.                    | —                         | —  | — | — | —  | —  | —     |
| June 10, 1983  | Coast of Estado Falcón, starting at Maracaibo. Flew to Isla La Tortuga. | —                         | X  | 1 | 1 | —  | —  | —     |
| June 11, 1983  | Isla la Tortuga   | —                         | —  | — | ? | —  | —  | —     |
| June 12, 1983  | Isla la Tortuga to Isla Margarita                                       | —                         | 1  | — | — | —  | —  | —     |
| June 13, 1987  | Isla Margarita to Isla Blanquilla, via Estado Sucre to Trinidad         | —                         | 6  | 3 | 1 | —  | —  | —     |
| July 18, 1981  | Caracas west to Peninsula de Paraguaná                                  | —                         | —  | — | — | —  | —  | —     |
| July 24, 1981  | Caracas east to Guiria, then to Isla Margarita                          | —                         | 7  | — | — | —  | —  | —     |
| Species  |   | Abbreviation              |    |   |   |    |    |       |
| <i>Caretta caretta</i>   |   | Cc                        |    |   |   |    |    |       |
| <i>Chelonia mydas</i>  |   | Cm                        |    |   |   |    |    |       |
| <i>Dermochelys coriacea</i>  |   | D                         |    |   |   |    |    |       |
| <i>Eretmochelys imbricata</i>  |   | E                         |    |   |   |    |    |       |
| <i>Lepidochelys kemp</i>   |   | Lk                        |    |   |   |    |    |       |
| <i>Lepidochelys olivacea</i>   |   | Lo                        |    |   |   |    |    |       |

**TABLE 5A. AERIAL BEACH SURVEY SUMMARY (supplementary page)**

Give any additional information available from aerial surveys. Information should include ground truth observation if conducted.

Leatherback (*Dermochelys coriacea*) nests seen at:

- 20 km east of San Juan de los Cayos (Falcón)
- Near Puy Puy (Sucre)
- 3 km west Morro de Puerto Santos (Sucre)
- Laguna Totumo (Sucre)

Green turtle (*Chelonia mydas*) nests seen at:

- 15 km west of San Juan de los Cayos (Falcón)
- Near Sabanas Altas (Falcón)
- Near Chuspa (Miranda)
- Near Machurucuto (Miranda)
- Playa de Zalaya (Sucre)
- Puy Puy (Sucre)
- Laguna Totumo (Sucre)
- Punta Cabello Negro (Sucre)
- Punta el Fraile (Sucre)
- Morro de Lebranche (Sucre)

Hawksbill (*Eretmochelys imbricata*) nests seen at:

- 10 km west of San Juan de los Cayos (Falcón)
- Cangua (Sucre)

1981

Turtles, probably green turtles (*Chelonia mydas*), were seen at:

- 30 km Southeast of Higuerote (Miranda) (one)
- North coast of Estado Sucre, as shown on map in "Turtles of the Spanish Main" (six)

**TABLE 6A. ESTIMATED POPULATION OF NESTING FEMALES (supplementary page)**

Please give brief details on methods of estimation for Table 6.

These cannot be given even in preliminary form as actual numbers. However, only Cm (*Chelonia mydas*) and E (*Eretmochelys imbricata*) have significant breeding populations in Venezuela. Cc (*Caretta caretta*) and D (*Dermochelys coriacea*) nest so rarely that only a handful (<10) of confirmed nesting records for either is available for Venezuela, and Lo (*Lepidochelys olivacea*), although not rare in feeding grounds, have never been reported nesting in Venezuela.

The only large nesting "colony" in Venezuela is that of Cm (*Chelonia mydas*) on Isla de Aves. Numbers fluctuate greatly, both from season to season, and from night to night within a season. However, typically 200-300 individuals probably nest in a season, with less than 800 adult females in the whole population. However, this is very preliminary.

The hawksbill nests in Los Roques could be made by fewer than 20 mature females. Numbers nesting on La Tortuga and La Blanquilla are not yet known.

| TABLE 7. FORAGING AREAS INVENTORY     |   |  |   |
|---------------------------------------|---|--|---|
| Name of Area<br>(or give coordinates) | Approx. Area<br>(Km <sup>2</sup> )      | Species Foraging<br>(use abbreviations &<br>approx. numbers) | Nature of Evidence<br>(observation, fishery,<br>incidental catch) |
| 1. Gulf of Venezuela                  | Indeterminate area;<br>limits uncertain | Cm; numbers unknown  | Return of tags by fishermen;<br>Turtles were tagged in Costa Rica |
| 2. Isla Margarita to Trinidad         | Indeterminate area;<br>limits uncertain | Lo; numbers unknown  | Return of tags by fishermen;<br>Turtles were tagged in Surinam    |
| Species                               |   | Abbreviation   |   |
| <i>Caretta caretta</i>                |   | Cc   |   |
| <i>Chelonia mydas</i>                 |   | Cm   |   |
| <i>Dermochelys coriacea</i>           |   | D  |   |
| <i>Eretmochelys imbricata</i>         |   | E  |   |
| <i>Lepidochelys kemp</i>              |   | Lk   |   |
| <i>Lepidochelys olivacea</i>          |   | Lo   |   |

| TABLE 8. TURTLE SPECIES PRESENT ON FORAGING AREAS   |       |   |   |   |   |   |   |   |   |   |   |   |                             |
|---|-------|---|---|---|---|---|---|---|---|---|---|---|-----------------------------|
| Please complete one of these tables for each of the areas identified in Table 7. Number each table as enumerated in Table 7 (7-1, 7-2, etc.). |       |   |   |   |   |   |   |   |   |   |   |   |                             |
| Species   | Month |   |   |   |   |   |   |   |   |   |   |   | Months of Greatest Activity |
|   | J     | F | M | A | M | J | J | A | S | O | N | D |                             |
| <i>Caretta caretta</i>  |       |   |   |   |   |   |   |   |   |   |   |   |                             |
| <i>Chelonia mydas</i>   | X     | X | X | X | X | X | X | X |   |   | X | X | Probably year-round         |
| <i>Dermochelys coriacea</i>   |       |   |   |   |   |   |   |   |   |   |   |   |                             |
| <i>Eretmochelys imbricata</i>   |       |   |   |   |   |   |   |   |   |   |   |   |                             |
| <i>Lepidochelys kemp</i>  |       |   |   |   |   |   |   |   |   |   |   |   |                             |
| <i>Lepidochelys olivacea</i> *  | X     | X | X | X | X |   | X | X | X | X | X |   |                             |
|   |       |   |   |   |   |   |   |   |   |   |   |   |                             |

\* Lo (*Lepidochelys olivacea*) present in Isla Margarita and Trinidad areas in all months except June and December, so presumably year around.

#### TABLE 10A. NATURAL MORTALITY (supplementary page for additional biological data)

Please report below, and on additional pages, if necessary, additional data obtained or available such as measurements (length, width, weight) of adult females, adult males, hatchlings, numbers of eggs per nest, hours of nesting, hours and conditions of hatchlings, etc.

Dimensions of adult females on Isla Aves are in Gómez, J.L. 1980. Informe Final del Proyecto No. 3 (FUDENA, Caracas; 92p.). Mean length of nesting females is 107.7 cm; mean weight 173 kg.

Nesting on all known Venezuelan beaches is purely nocturnal.

Data on natural mortality are not available apart from documentation of loss of all eggs on beaches on Isla Aves by Hurricane David, August 29, 1979. (Loss of an estimated 55,280 eggs).



| TABLE 11. LANDING SITES FOR TURTLES AND TURTLE PRODUCTS |                             |  |                    |                              |
|---|-----------------------------|--|--------------------|------------------------------|
| Name of Port or Site                                    | Species Landed (use abbrev) | Fishing Gear Used  | Months of Landings | Numbers & Weights (estimate) |
| 1. Peninsula de Paraguaná (eastern side)                | Cm                          | Unknown immature and mature turtles caught and sold locally and available in restaurants, etc. in Coro   |                    |                              |
| 2. Isla de Tortuga                                      | Cm; Cc; E                   | Nets, probably nesting females taken also. E taken for shells, sold on Isla Margarita and elsewhere. Cm taken for food. <i>Caretta caretta</i> rare; only one old skull seen |                    |                              |
| Species   |                             | Abbreviation   |                    |                              |
| <i>Caretta caretta</i>                                  |                             | Cc   |                    |                              |
| <i>Chelonia mydas</i>                                   |                             | Cm   |                    |                              |
| <i>Dermochelys coriacea</i>                             |                             | D  |                    |                              |
| <i>Eretmochelys imbricata</i>                           |                             | E  |                    |                              |
| <i>Lepidochelys kempfi</i>                              |                             | Lk   |                    |                              |
| <i>Lepidochelys olivacea</i>                            |                             | Lo   |                    |                              |

| TABLE 12. TOTAL ANNUAL TURTLE LANDINGS IN NUMBERS  |  |  |  |                         |
|--|--|--|--|-------------------------|
| Do not include turtles caught incidental to other fishing operations (e.g., shrimp trawling) |  |  |  |                         |
| Species  |  |  |  | Method of Determination |
| <i>Caretta caretta</i>   |  |  |  | *                       |
| <i>Chelonia mydas</i>  |  |  |  | *                       |
| <i>Dermochelys coriacea</i>  |  |  |  | *                       |
| <i>Eretmochelys imbricata</i>  |  |  |  | *                       |
| <i>Lepidochelys kempfi</i>   |  |  |  | *                       |
| <i>Lepidochelys olivacea</i>   |  |  |  | *                       |
| TOTAL  |  |  |  | *                       |
| * Data not available. Trade is illegal.  |  |  |  |                         |

| TABLE 13. ESTIMATED INCIDENTAL TURTLE CATCH (Give estimated numbers and/or weights)   |      |  |   |   |
|---|------|--|---|---|
| Species   | Year |  | Type of Fishing Activity & Method of Estimation |   |
| <i>Caretta caretta</i>  |      |  |   | * |
| <i>Chelonia mydas</i>   |      |  |   | * |
| <i>Dermochelys coriacea</i>   |      |  |   | * |
| <i>Eretmochelys imbricata</i>   |      |  |   | * |
| <i>Lepidochelys kempfi</i>  |      |  |   | * |
| <i>Lepidochelys olivacea</i>  |      |  |   | * |
| * Overall estimates impossible, but significant numbers of Lo ( <i>Lepidochelys olivacea</i> ) caught by trawlers in Eastern Venezuela. |      |  |   |   |

**TABLE 13A. ESTIMATED TURTLE CATCH BY FOREIGN FISHERMEN (supplementary page)**

Please describe the type of foreign fishing in your waters and provide estimates for:

1. Number of foreign vessels catching turtles
2. Number of foreign fishermen catching turtles
3. Year of estimate

Take of nesting Cm (*Chelonia mydas*) by boats from St. Lucia, Martinique, etc. was significant at Isla de Aves until a permanent military base was placed there in 1979. It has now stopped completely.

**TABLE 15A. OFFICIAL STATISTICS OF TURTLE CATCH AND PRODUCTION (supplementary page)**

Please provide any additional data on turtle products produced in your country. Include manufactured products such as tortoise shell novelties, etc., if such data are available.

Capture of sea turtles is illegal in Venezuela. However, products of locally caught Cm (*Chelonia mydas*) and E (*Eretmochelys imbricata*) are still sold, and some export probably occurs.

**TABLE 17. TURTLE MARICULTURE OPERATIONS \***

This table quantifies activities concerned with turtle culture for either conservation, population enhancement experiments, or commercial use. Activities to be included are "headstarting", re-nesting, incubation and release, etc. Prepare separate table for each year of available data.

| Species                       | Hatchery Operations |  |               |                |            | Holding Live Turtles |               |             |
|-------------------------------|---------------------|--|---------------|----------------|------------|----------------------|---------------|-------------|
|                               | Eggs Collect.       | Eggs Hatch                                     | No. Release   | Age at Release | No. Retain | No. of Juvs.         | Adult Females | Adult Males |
| <i>Caretta caretta</i>        |                     |  |               |                |            |                      |               |             |
| <i>Chelonia mydas</i>         | 4 nests             | 3 nests not viable; only 1 produced hatchlings | Not available |                |            |                      |               |             |
| <i>Dermochelys coriacea</i>   |                     |  |               |                |            |                      |               |             |
| <i>Eretmochelys imbricata</i> |                     | About 5,000                                    | About 4,000   | 11-18 months   |            |                      |               |             |
| <i>Lepidochelys kemp</i>      |                     |  |               |                |            |                      |               |             |
| <i>Lepidochelys olivacea</i>  |                     |  |               |                |            |                      |               |             |
|                               |                     |  |               |                |            |                      |               |             |

\* 1979-1982 aggregate data. Head-starting at Los Roques

**TABLE 18. PUBLIC AND PRIVATE INSTITUTIONS CONCERNED WITH TURTLE CONSERVATION / MANAGEMENT / UTILIZATION**

| Institution or Organization Name And Address | No. of Active Members | Activities in Progress  |
|--|-----------------------|---|
| Fundacion Los Roques<br>Caracas<br>Venezuela |                       | Sea turtle studies and headstarting in Archipelago Los Roques |

|  |  |                                       |
|--|--|---------------------------------------|
| FUDENA<br>Fundacion para la Defensa<br>de La Naturaleza<br>Caracas<br>Venezuela  |  | Sea turtle monitoring on Isla de Aves |
| Instituto Nacional de Parques<br>Ministerio del Ambiente y de Los<br>Recursos Naturales Renovables<br>Caracas<br>Venezuela |  |                                       |

**TABLE 19. SANCTUARIES AND REFUGES**

| Name and Location   | Area Km <sup>2</sup> | Reason(s) for Protection   | Type and Effectiveness of Enforcement |
|---|----------------------|--|---------------------------------------|
| Médanos de Coro<br>(base of Peninsula de Paraguaná)   | 902.8<br>(90,280) *  | National park; mainly for huge sand dune formations. Some green turtles. |                                       |
| Morrocoy National Park<br>(Estado Falcon)   | 460<br>(46,000) *    | National park for coral reefs and islands. Hawksbill habitat.            |                                       |
| Mochima National Park<br>(Estados Anzoátegui y Sucre)   | 949.4<br>(94,935) *  | National park  |                                       |
| Laguna de Tacarigua<br>(Estado Miranda)   | 184<br>(18,400) *    | National park  |                                       |
| Henri Pittier<br>(Estados Aragua y Carabobo)  | 1078<br>(107,800) *  | National park; mainly for rain/cloud forest but including coastline.     |                                       |
| Laguna de la Restinga<br>Isla Margarita   | 107<br>(10,700) *    | National park  |                                       |
| Isla de Aves  |                      | Sea turtle nesting. Wildlife refuge.                                     |                                       |
| * <i>Editor's note (2009):</i> Area values in original report given in hectares; values converted to square kilometers by editor. |                      |  |                                       |

**TABLE 20. REGULATORY AUTHORITY**

Indicate all entities with statutory responsibilities (e.g., Fisheries Departments and Ministries, Police, Coast Guard, etc.)

| Name and Address of Organization  | Budget Allocation to Turtles | No. of Staff Assigned to Turtles | Comments on Levels of Enforcement |
|---|------------------------------|----------------------------------|-----------------------------------|
| MARNR<br>Ministerio del Ambiente y de Los Recursos Naturales Renovables |                              |                                  |                                   |

**TABLE 20A. REGULATORY AUTHORITY (supplementary page)**

Please list National, regional, and local legislation concerning turtle management and conservation. List title, date, and stated purpose.

- Ley de Proteccion de la Fauna silvestre (August 11, 1970).  
(Turtles included under reptiles in Article 2, Annex 1)

- CITES (Venezuela is a signatory)
- "Lista Oficial de Animals de Caza" (Resolution No. 276 of the Ministry of Agriculture and Livestock; November 13, 1970) includes all sea turtles which receive complete protection as of November 28, 1979.

| <b>TABLE 21. NATIONAL RESEARCH PROJECTS</b>                 |                           |     |  |
|---|---------------------------|-----|--|
| List turtle research activities funded within your country. |                           |     |  |
| Project Title   | Date                      |     | Name and Address of Institution & Chief Investigator   |
|   | Start                     | End |  |
| Study of turtles on Isla de Aves                            | Seasonal (April-August)   |     | FUDENA.<br>José Láiz Blanco<br>José L. Gomez Carredano   |
| Study of turtles on Islas Los Roques                        | Seasonal (April-December) |     | Fundación Los Roques   |
| Aerial survey of nesting beaches                            | 1981, 1983                |     | NMFS contract to Peter C. H. Pritchard<br>Florida Audubon Society<br>1101 Audubon Way<br>Maitland<br>Florida 32751 USA |

## REPORTS AND PUBLICATIONS

The following is a list of the major reports and publications concerned with national turtle resources (list author, date, title, and publisher).

1. Pritchard, P. C. H. 1981. Turtles of the Spanish Main. Unpublished. 24pp.
2. Anon. 1980. Protección y Recuperación de Poblaciones de Tortugas Marinas en el Archipiélago Los Roques. Fund. Los Roques. 5pp.
3. Brownell W, Guzmán C. 1974. Ecología de la isla de Aves con especial referencia a los peces. Mem. Soc. Cienc. Nat. La Salle 34: 93-158. \*
4. Buitrago, J. 1981. Las Tortugas Marinas de Los Roques, Venezuela. Cría en Cautiverio con Fines de Repoblación. Mimeo. 24 pp.
5. Caribbean Conservation Corp. 1980. Survey and Preliminary Census of Marine Turtle Populations in the Western Atlantic. Final Report to National Marine Fish Service. Mimeo. 78 pp and 12 maps.
6. Carr, A. F., Carr, M. and Meylan, A. B. 1978. The ecology and migrations of sea turtles. 7. The west Caribbean green turtle colony. Bulletin of the American Museum of Natural History 162(1):1-46. \*\*
7. Donoso-Barros, R. 1964a. Nota sobre *Lepidochelys kempfi* en las costas de Cumaná. Lagena no. 2: 20-21. Instituto Oceanográfico, U.D.O., Cumaná, Venezuela.
8. Donoso-Barros, R. 1964b. Anotaciones sobre las Tortugas marinas de Venezuela. Lagena no. 3: 26-31. Instituto Oceanográfico, U.D.O., Cumana, Venezuela.
9. Flores, C. 1966. Nuevos registros de *Lepidochelys kempfi* (Garman) en la costa oriental de Venezuela. Lagena no. 12; 37-39. Instituto Oceanográfico, U.D.O., Cumana, Venezuela.

10. Flores, C. 1969. Nota sobre reptiles acuáticos de Venezuela y su importancia económica. Lageno no. 21-22: 1-19 and 6 figs.
11. Flores, C. and D.E. Hoit. 1965. Nota sobre la tortuga verde o de sopa en los alrededores de Cumaná (Edo Sucre), Venezuela Lageno no. 8: 37-39.
12. Maldonado, B. 1981. Proyecto Tortugas. Actividades Nov-Dic 1980. Mimeo, 11pp.
13. Ogren, L. 1980. Trip Report-Costa Rica, Venezuela, Guyana. February 28-March 11, 1980. 16pp.
14. Roze, J. 1955. Las Tortugas Marinas de Venezuela. Rev. Pecuaria, April 1955: 9-11.

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\* *Editor's note (2009)*: The original National Report listed publication pages as 91-168. Editor corrected publication pages (to 93-158) as per website:  
[http://www.scielo.org.ve/scielo.php?script=sci\\_arttext&pid=S0378-18442008000200006&lng=en&nrm=iso&tlng=es](http://www.scielo.org.ve/scielo.php?script=sci_arttext&pid=S0378-18442008000200006&lng=en&nrm=iso&tlng=es), on 24 June 2008.

\*\* *Editor's note*: The original National Report listed the publication volume and number as 162(1). Editor corrected publication volume and number to 62(1) as per website:  
[http://assets.panda.org/downloads/caribbean\\_hawksbills.pdf](http://assets.panda.org/downloads/caribbean_hawksbills.pdf), on 24 June 2008.

## Appendix B <sup>1</sup>

### TURTLE CONSERVATION REGULATIONS IN VENEZUELA

Wildlife protective regulations in Venezuela are promulgated under the “Ley de Protección a la Fauna Silvestre” (Wildlife Protection Law), passed 11 August 1970. Although turtles are not specifically named in the text of the law, they are included in the section on Reptiles in Article 2, Annex 1.

Venezuela became a signatory to the convention on international Trade in endangered Species of Fauna and Flora (CITES) in 1976. The Convention prohibits international trade in species listed in its Appendix I and requires exporting countries to issue permits and determine that such trade is not likely to jeopardize the species for export of species listed under Appendix I. The categories correspond roughly to “endangered” and “threatened” lists of the U.S. Department of Interior or the International Union for the Conservation of Nature. Currently, all of the marine turtles (*Cheloniidae* and *Dermochelyidae*) are listed under Appendix I, and all tortoises and *Podocnemis expansa* and *P. unifilis* are in Appendix II.

The Official List of Game Animals (Lista Oficial Animales de Caza) was published as Resolution no. 276 of the ministry of Agriculture and livestock (Ministerio de Agricultura y Cría) on 13 November 1970. This list included the following turtle species: *Lepidochelys olivacea*; *Eretmochelys imbricata*; *Dermochelys coriacea*; *Caretta caretta*; *Chelonia mydas*; *Peltocephalus dumerilianus*; *Geochelone carbonaria*; and *G. denticulata*. This list presumably represents all those turtles that are large, common, and palatable enough to be worth hunting; it excludes the chelids *Kinosternon*, *Pseudemys*, *Rhinoclemmys* and *Podocnemis erythrocephala*.

Although resolution no. 276 did not in itself establish protection for listed species, on November 28, 1979 the Ministry of the Environment and Renewable Natural Resources (Ministerio de Ambiente y de los Recursos Naturales Renovables, hereafter MARNR) established complete protection for all of the above species except for *Podocnemis unifilis* and *P. vogli*. MARNR established a hunting season of February 1 to March 31 for these two species, for holders of licenses of type A and C, and a season of February 15 to March 31 for holders of license type B. A daily limit of one animal and a bag limit of two was established. The total closed season on *Podocnemis expansa* was extended for five years (until 1983) by MARNR Resolution no. 103, passed on May 22, 1978.

Green turtles (*Chelonia mydas*) in Venezuela received substantially improved protection under the designation of Isla Aves, the principal national nesting ground (see plate P 44D), as a wildlife refuge (Refugio de Fauna Silvestre) on November 30, 1972. The establishment of a permanent military garrison within a hurricane proof structure on the island although aesthetically unfortunate, also ensured enforcement of the protective legislation. Historically, turtles on Isla Aves have been raided regularly by crews of small boats arriving without permission from various islands of the Lesser Antilles.

In addition, turtles in Venezuela receive protection under various protected lands designations. These include 26 national parks (totaling 7,317,663 hectares), 13 national monuments (20,745 ha), ten forest reserves (11,678,267 ha), three faunal refuges (56,328 ha), and one faunal reserve (227, 795 ha). All exploitative activities are prohibited in the first, second and fourth categories above; such activities may be permitted, under controls and permits, in forest and faunal reserves.

National parks and other protected lands in Venezuela are currently being inventoried under a joint Nature Conservancy (Fundación para la Defensa de la Naturaleza) program. Under the direction of Carlos Gremone, this study is to determine the percentage of each major ecosystem type in Venezuela that is within the boundaries of protected lands, and to make recommendations for further acquisition of under-represented ecosystem types. Existing national parks cover a wide variety of ecosystems. By far the largest is Parque Nacional Canaima in south western Venezuela, which includes many dramatic “tepui” (known as “mesas” in North America). This park includes several turtle species within its borders, including *Phrynops geoffroanus* and both species of tortoise.

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<sup>1</sup> Editor's note (2009): The original national report exhibited no Appendix A.

**TURTLES OF THE SPANISH MAIN**  
**BY**  
**Peter C. H. Pritchard, Ph.D.**

Summary of knowledge and results of surveys of sea turtle and their nesting beaches in Venezuela

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DESCRIPTION OF THE COAST

The mainland coast of Venezuela follows an approximately east-west course and extends between the longitudes of 60°W and 71°W.<sup>2</sup> The coast lies entirely within the tropics being between 10° and 12° north of the Equator, and it comprises the eastern half of the southern boundary of the Caribbean Sea. The coast of eastern Venezuela is very arid, and is dominated by the huge, paired, narrow-necked, desiccated peninsulas of Guajira and Paraguana, which enclose the Gulf of Venezuela. The Gulf has an open connection at its southern end with the freshwater Lake Maracaibo, the largest lake in South America. East of Paraguana Peninsula, whose southern base is composed of sterile, rolling sand dunes reminiscent of the Sahara Desert, the climate becomes progressively more moist; several permanent rivers reach the sea in the short stretch of the coast between Tucacas and Puerto Cabello, and between Tucacas and Chichiriviche the otherwise nearly continuous beach is interrupted by a spectacular complex of mangrove islands, some of which have small beaches, that together comprise the Morrocoy National Park.

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<sup>2</sup> *Editor's note (2009):* The original National Report misrepresented the geographic coordinates of Venezuela, stating "extends between the latitudes of 60°W and 71°W". Editor corrected this to read "extends between the longitudes of 60°W and 71°W".

In the Central Part of the Venezuelan coast, the coastal mountains reach to the seashore. In this area, which lies between Puerto Cabello and Higuero, there are numerous small beaches but few large ones. The rainfall is not uniform, but in parts the hills are covered with dense forest growth, while others that receive less rain have bare areas of red soil between the trees and shrubs.

East of Higuero, as far as Barcelona, the coast is flat, although low hills reach increasingly near the coast as one proceeds east. The entire coast is marked by an almost continuous beach, with sporadic towns and cities of variable size, and huge areas immediately behind the beach dedicated to the monoculture of coconuts. In places natural vegetation still exists.

Between Barcelona and Cumaná, the coast is hilly and very dry, much of the soil appearing bare. A number of hilly islands are found along this stretch of coast, and a few small beaches may be seen on both the islands and mainland.

East of Cumaná, the Gulf of Cariaco extends eastward for about 75 kilometers, being bounded on the northern side by the Araya Peninsula. The water in the Gulf of Cariaco is dark blue and deep, the Araya Peninsula is composed of red, eroded hills with extremely sparse vegetation. Towards the base of the Peninsula, however, the hills are more vegetated and fertile. There are a few small gravelly beaches on the southern shore of the Araya Peninsula. To the east, the lagoon peters out into a complex of mangrove swamps with inflowing brown-water rivers, followed by dense tropical forest. As one approaches the Gulf of Paria from the eastern end of the Gulf of Araya, the forest continues, in places dominated by palms, and elsewhere very swampy. The Peninsula of Paria, forming the north shore of the Gulf of Paria, is a relatively narrow but rather high mountain ridge thickly clad with tropical rainforest. Along the gulf coast of the peninsula, the shoreline is dominated by mangrove forests but there are occasional small beaches.

The east-west coast of about 300 km that forms the northern shore of the combined peninsulas of Araya and Paria has steep forest-clad hills with no coastal plain, but the ragged, serrated coast includes numerous fishing villages and small beaches.

From the western corner of the Gulf of Paria to the Guyana border about 400 km to the southeast, the coast is dead flat for miles inland, and is totally dominated by the huge estuary and delta of the Orinoco River. This extremely complex coast is primarily fringed by mangroves, which in many areas show evidence of drastic erosion and natural changes in the coastline. There are no sand beaches in this area (though, as mentioned above, there are some small ones on the northern shore of the Gulf of Paria), and the water is very muddy and of reduced salinity.

In striking contrast to all other countries of northern South America, the offshore waters of Venezuela are dotted with islands, many of large size. The principal islands and archipelagos, from west to east are as follows: Aruba, Curaçao, Bonaire, Aves; Los Roques; Orchila; La Tortuga; Blanquilla and Los Hermanos; Margarita; Cubagua and Coche; Los Frailes; Los Testigos, and Trinidad. Aruba, Curaçao, and Bonaire are not politically Venezuelan but are included in the Netherlands Antilles, and Trinidad is part of the British Commonwealth. These islands, with the exception of Trinidad, are rather or very arid. The smaller islands are all very flat, but the larger ones, including Trinidad, Margarita, and the Netherlands Antilles, have significant elevation.

Politically included with Venezuela, and one of the most important turtle nesting islands in the Atlantic system, is tiny Aves Island, located about 500 km to the north of Carúpano (Estado Sucre). Aves is a mere sandbank of negligible altitude, and has a coastline that changes from year to year and that may even be split in two after hurricanes. Aves is the only emergent point of the Aves Ridge, a vast submarine geological formation in the eastern Caribbean.



## SEA TURTLE POPULATIONS IN VENEZUELA

Although nesting of sea turtles on the mainland coast of Venezuela is sparse, the waters and islands of Venezuela provide either feeding or breeding habitats for several populations of a number of species of sea turtles. According to presently available knowledge, these may be summarized as follows:

- i. The nesting population of the nesting green turtle, *Chelonia mydas*, on Aves Island. This population appears to migrate to feeding grounds in the Lesser Antilles and the Dominican Republic.
- ii. A feeding population of the green turtle, *Chelonia mydas*, in the Gulf of Venezuela, derived from the breeding population at Tortuguero, Costa Rica. Although generally separated, members of populations i) and ii) may occasionally be found in the same areas.
- iii. A feeding population of the olive ridley, *Lepidochelys olivacea*, in western Venezuela (Sucre, Nueva Esarata, and Delta Amacuro) derived from nesting grounds in Surinam.
- iv. Populations of the hawksbill turtle, *Eretmochelys imbricata*, both breeding on and feeding near many of the islands off the Venezuelan coast, especially the smaller and less inhabited ones.
- v. A low density breeding population of the green turtle, *Chelonia mydas*, of unknown migratory habits, in Estado Sucre.
- vi. A very small breeding population of the loggerhead, *Caretta caretta* in the Los Roques Archipelago, and with rare nesting elsewhere on the islands and the mainland of Venezuela.

In addition to the above, the leatherback, *Dermochelys coriacea*, nests in quite good numbers in Trinidad and is caught sporadically in Venezuelan waters but no nesting in Venezuelan territory has been recorded. It has, however, been found nesting in both Guyana and Colombia, and in great numbers in Surinam and French Guiana.

### I. Green Turtles Nesting on Aves Island

Aves Island is a tiny, rock-cored, footprint-shaped sandbar located almost 600 km north of the coast of Estado Sucre, Venezuela, and about 200 km west of Guadeloupe, its coordinates being 15°40'N, 63°36'W. The island is of fluctuating form. It is only about 520 meters long and 200 meters wide at its widest part (at the northern tip). The green turtle colony on Aves Island has been discussed in a considerable body of literature, relevant references include Hummelinck (1952), Lazell (1967), Maloney and Schubert (1968), Zuloaga (1955), Rainey (1955), Brownell and Guzman (1974), and Laiz Blanco (1979).

While Aves has been visited by voyagers for decades, the first systematic study of the Aves Island green turtle colony was that of Rainey in 1971-74. Rainey found turtles nesting on Aves from June through August, as is typical of the northern hemisphere marine turtle colonies.

In 1971, he counted 174 nest pits made prior to his arrival on June 24, and tagged 16 nesting turtles during the subsequent three nights. Mean carapace length was found to be 42.4" (107.7 cm) and mean weight 380 lbs (173 kg). The Aves Island turtles are thus distinctly larger than those nesting at Tortuguero, Costa Rica, and close in size to the South American mainland nesters in Surinam and Guyana.

After a hiatus of several seasons, FUDENA re-initiated an Aves Island turtle tagging program in 1979. In that year, the research team spent 89 days on the island, arriving in July and departing in October, but being forced to leave for a time by the passage of hurricane David on August 29. Maps were drawn showing the change in form of the island before, immediately after, and 44 days after the passage of the hurricane, which denuded the island of sand, washed away all turtle eggs, and uprooted the narrow isthmus connecting the northern and southern parts of the island so that for a brief period Aves consisted of two separate islands.

Various turtles tagged in earlier years by Rainey and his co-workers were found, but these turtles have not been analyzed. 670 nesting emergences were recorded in July and August, the vast majority in

the latter month, and an estimated 70% of these resulted in nestings. Laiz Blanco (1979) estimated that as many as 55,280 eggs were destroyed by the hurricane on August 29. The nesting took place all around the island, with only moderate variation in density from one section to another. A few hatchling emergences were witnessed during July and August, corresponding to early-season nesting in May and June.

Long distance recoveries of green turtles tagged while nesting on Aves Island are summarized by Carr, Carr, and Meylan (1978) and by Caribbean Conservation Corporation (1980). Recovery locations recorded include: Miskito Keys, Nicaragua (2); Isla Mujeres (Mexico); Dominican Republic (several); Isla Tortuga; Grenada; Grenadines; Martinique (2); and Guadeloupe. The possibility cannot be discounted that some of the recoveries reported from Lesser Antillean islands such as Martinique and Guadeloupe were in fact made from vessels poaching in waters and beaches of Aves Island itself, with the recovery location falsified by the finders to prevent self-incrimination.

## II. Green Turtles in the Gulf of Venezuela

Although green turtle nesting has not been reported in the Gulf of Venezuela, the species is often encountered there, and is caught for human consumption in both the Guajira and Paraguana Peninsulas. Both immature and mature turtles are caught; a number of the mature females found have borne tags indicating that they had previously nested at Tortuguero, Costa Rica. Western Venezuela thus appears to be an outlying feeding area for the Tortuguero breeding colony, which is the largest breeding congregation of green turtles in the Caribbean and which primarily utilizes feeding grounds off the coasts of Nicaragua, Panama, and Colombia with occasional recoveries of tagged animals as far away as Campeche, Key West, and Puerto Rico (Carr, Carr, and Meylan, 1978).

During the period of 1956-1976, seventeen Tortuguero green turtles were recovered in the Gulf of Venezuela, and eight more on the central Venezuelan coast, between Los Roques off Caracas and Guiria on the south coast of the Paria Peninsula (Carr, Carr, and Meylan, op. cit.). Specific localities recorded as of 30 June 1977 for these Tortuguero-Venezuela migrants were:

| <b>SPECIFIC LOCALITIES RECORDED AS OF 30 JUNE 1977 FOR TORTUGUERO-VENEZUELA MIGRATING GREEN TURTLES *</b> |                   |   |                  |
|---|-------------------|---|------------------|
| Tag**   | Date Tagged       | Place of Recovery                                   | Date of Recovery |
| 1178  | 04 July 1970      | Isla de Margarita                                   | 16 June 1972     |
| 1667  | 17 August 1961    | Castillete, Venezuela                               | 25 July 1963     |
| 1726  | 02 August 1961    | Between Colombian and Venezuelan coasts             | 07 May 1966      |
| 1958  | 08 September 1961 | Las Costas de Cojoro, Venezuela                     | January 1963     |
| 2698  | 02 August 1963    | 2 m S of Isla El Gran Roque                         | June 1968        |
| 3254  | 19 August 1964    | Isla de Margarita                                   | November 1965    |
| 4421  | 09 September 1967 | Isla de Tortuga                                     | 22 November 1969 |
| 4437  | 10 August 1967    | 3 m N of Zapara Island, Gulf of Venezuela           | 24 April 1968    |
| 5680  | 24 July 1969      | Coastal waters of western Gulf of Venezuela         | 22 February 1971 |
| 5818  | 27 July 1969      | Isla de Tortuga                                     | 15 July 1970     |
| 6369  | 11 September 1968 | Guiria, Golfo de Paria                              | 08 April 1973    |
| 6836  | 29 August 1970    | Cojoro, Peninsula Guajira                           | July 1972        |
| 6836  | 04 August 1972    | Cojoro  | Summer 1973      |
| 6870  | 11 September 1970 | Castillete, Peninsula de la Guajira                 | 08 April 1971    |
| 7028  | 16 September 1970 | Punta Salina, Los Roques                            | 16 March 1972    |
| 7629  | 10 August 1971    | Punta Salina, Península de Paraguaná, Estado Falcon | 02 January 1972  |
| 7963  | 21 August 1972    | Cojoro, Guajira Peninsula                           | 12 December 1972 |
| 9036  | 17 August 1972    | Cojoro, Guajira Peninsula                           | 12 December 1972 |
| 8403  | 31 July 1972      | Cojoro  | Summer 1973      |

|  |                   |  |                 |
|--|-------------------|--|-----------------|
| 8538   | 01 August 1972    | Cojoro                                       | Summer 1973     |
| 8953   | 14 August 1973    | Cojoro, Peninsula Guajira, Gulf of Venezuela | 02 January 1973 |
| 9870   | 10 September 1973 | Eastern part of the Paraguana Peninsula      | 09 August 1974  |
| H135   | 26 August 1972    | Cojoro                                       | Summer 1973     |
| <p>* <i>Editor's note (2009):</i> This table in the original National Report did not have a title. Editor provided the title for the table in this version of the report.</p> <p>** <i>Editor's note (2009):</i> The order of appearance of the individual tag numbers in this table does not correspond to the order presented in the original National Report. Editor listed the tag numbers in increasing numerical sequence.</p> |                   |  |                 |

The occurrence of the green turtle and other marine turtles on the Paraguana Peninsula was discussed in an undated newspaper article by Arteaga entitled "Las Tortugas de Adicora"<sup>3</sup> (El Nacional, Caracas). I made a visit to the Peninsula in February 1978, and found several carapaces of green turtles that had been caught and butchered locally. Two of these that had been preserved measured 104.1 x 77.5 cm (i.e., mature) and 84.1 x 63.3 cm (i.e., immature). I also found six intact shells near a ghost town on the mouth of the lagoon opposite Santa Rita. One was adult (105.4 x 83.2 cm), while the remainder were immature (somewhat distorted, but generally 60.75 cm in length).

Interviews were conducted with local inhabitants regarding turtle nesting in the area. Long-time German residents in Punta Fijo said that turtles were not found in significant numbers on the western side of the Paraguana Peninsula, and if they nested there at all there could not be many. In Adicora, on the eastern side of the peninsula, great confusion was found with common names of turtles, cawana being used for either the loggerhead or the leatherback, and carey being applied to both the hawksbill and the male green turtle. This confusion of common names was also apparent in the popular article by Arteaga cited above. Nevertheless, one Adicora resident convincingly described the nesting of a green turtle nearby, and he had two shells in his yard to confirm his species identification. Another informant reported that the penis of the male green turtle is sometimes dried and used for medicinal and aphrodisiac purposes, and he showed us one such dried organ.

Concentrations of foraging sea turtles of unreported species have also been recorded from the Golfo Triste area south of Cayo Sombrero (near the city of Tucacas), according to G. Cuellar (pers. comm. to L. Ogren, 1980).

### III. Feeding Grounds of the Olive Ridley, *Lepidochelys Olivacea*, in Eastern Venezuela

*Lepidochelys olivacea*, (mistakenly identified as *Lepidochelys kempfi*) was first recorded in Venezuela by Donosco-Barros (1964a, 1964b) who cites the only locality record available to him for the country as "Cumaná". Subsequently, Flores (1966) reported three Venezuelan specimens, including two carapaces from Piritu de Barlovento and a nearly mature live female from Isla La Tortuga, though he persisted in the misidentification as *L. kempfi*; the correct identification is immediately apparent from photographs, which show a turtle with seven left costals and six right costals, a condition common in *olivacea* but unknown in *kempfi*. Flores cited local vernacular names for *olivacea* as "Tortuga manila" and "Tortuga bestia". The subadult female specimen had carapace dimensions of 57.5 x 55.5 cm and the stomach contained traces of vegetation, bony fish, cartilaginous fish, and gastropods.

At about the same time as these discoveries, I first encountered and recorded the nesting of *Lepidochelys olivacea* in Guyana, and Schulz found the same species nesting in larger numbers in eastern Surinam (Pritchard, 1966; Schulz, 1964). Subsequently Schulz and I cooperated in a tagging program for *olivacea* on the Surinam beaches that resulted in considerable data on migratory destinations

<sup>3</sup> *Editor's note (2009):* The original National Report spelled this area as "Adicoa". Editor changed the spelling to "Adicora" based on the alternative spelling cited in the subsequent paragraph and the editor's research.

of post-nesting females; 3,359 tagged animals yielding a total of 72 long-distance recoveries (Pritchard, 1973, 1976). Recoveries from Venezuela are listed in the table below.

| VENEZUELAN RECOVERIES OF TAGGED <i>LEPIDOCHELYS OLIVACEA</i> AS OF JULY 1977         |                        |   |                   |
|--|------------------------|---|-------------------|
| Tag  | Date Tagged<br>Surinam | Place of Recovery   | Date of Recovery  |
| E135   | 07 June 1965; Ei*      | 10 m from NE part of Isla Margarita                             | 03 August 1970    |
| E300   | 31 May 1967; Ei        | Punta Barima (8°15'N, 60°20'W)                                  | 01 August 1967    |
| E332   | 02 June 1967; Ei       | Puerto Santo, Estado Sucre ; “en la playa”                      | ca. August 1975   |
| E543   | 13 June 1967; Ei       | Golfo de Paria, 3 m SE Güiria, Estado Sucre                     | 05 October 1972   |
| E585   | 13 June 1967; Ei       | 3 m W of Los Testigos   | 18 May 1970       |
| E593   | 13 June 1967; Ei       | 2 m off Soldado Rock, in Cedros Current off E coast of Trinidad | 04 February 1969  |
| E823   | 13 June 1968; Ei       | Near Isla Margarita   | 10 May 1969       |
| E936   | 17 June 1968; Ei       | 25 m N of Trinidad  | 13 February 1969  |
| E981   | 17 June 1968; Ei       | 15 m S of Punta Espada, Golfo de Venezuela                      | 04 November 1971  |
| E1120  | 25 June 1968; Ei       | 1 ½ m N of Carupano   | 18 September 1968 |
| E1164  | 28 June 1968; Ei       | Las Casitas de Punta Piedras, Nueva Esparta                     | 20 January 1970   |
| E1209  | 23 June 1969; Ei       | 8 m N Cabo Negro, Margarita                                     | 28 October 1970   |
| E1280  | 23 June 1969; Ei       | 11°22'N, 63°43'W (near Carupano)                                | 22 January 1971   |
| E1336  | 10 July 1969; Ei       | Boca de Serpiente   | 19 April 1975     |
| E1628  | 25 May 1969; K.P.*     | Boca de Serpiente   | 25 March 1975     |
| E2666  | 15 June 1969; Ei       | 1 m off S coast of Trinidad (S of Siparia)                      | ca. January 1973  |
| E2764  | 10 June 1969; Ei       | 10 m N Isla Los Frailes (11°34'N, 63°45'W)                      | 23 July 1970      |
| E2953  | 22 April 1969; Bab*    | Los Frailes Archipelago   | 12 November 1969  |
| E4348  | 25 May 1979; Ei        | 2 m off NW coast of Trinidad                                    | 28 October 1972   |
| E5090  | 26 June 1970; Ei       | ½ m off E coast of Isla Margarita                               | ca. May 1972      |
| E5148  | 10 June 1970; Ei       | Few m off Toco Toco, Trinidad                                   | 12 July 1971      |
| E5283  | 27 June 1970; Ei       | Off Las Cuevas, NW of Trinidad                                  | April 1977        |
| E5286  | 27 June 1970; Ei       | 1 m E of Pt. Galera, Trinidad                                   | 09 March 1972     |
| E5589  | 01 July 1979; Ei       | 12 m SE Isla Margarita  | 10 January 1972   |
| E5648  | 14 July 1971; Ei       | 11°15'N, 63°55'W (near Carupano)                                | March 1972        |
| E5654  | 02 June 1971; Ei       | 10°58'N, 63°30'W (near Carupano)**                              | September 1971    |
| E5719  | 30 June 1971; Ei       | Trinidad  | March 1974        |
| E5816  | 07 July 1971; Ei       | Gulf of Paria; several m off Point Fortin                       | 26 November 1971  |
| E7123  | 20 June 1972; Ei       | Pampatar, Isla Margarita  | 26 February 1976  |
| * Ei= Elanti; K.P.=Krotaja Pasi; Bab=Baboonsanti                                     |                        |   |                   |
| ** Editor's note (2009): Original National Report listed location as 63°30'N 10°58'N |                        |   |                   |

Flores (1969) reports this species (which he erroneously identified as *Lepidochelys kempî*) from the vicinity of Cumaná (Estado Sucre); La Tortuga; and Islas Piritu (Estado Anzoátegui).

These recoveries are clearly concentrated in the area around the Orinoco delta and areas to the north and west to which the Orinoco waters are carried by the Equatorial Current. There is only one Venezuelan recovery west of Isla La Tortuga, but the specimen (E981) reached as far as the mouth of the

Gulf of Venezuela, only fifteen miles from the Colombian border. Occasional specimens have been caught in Colombian waters; Nicéforo Maria ((1953) and Tufts (1972) report on the same individual, initially misidentified as *kempi*, from Cartagena, Colombia. Other outlying olive ridleys have been recorded from 3 miles west of San Juan Harbor, Puerto Rico (Caldwell, 1969), and from Gibara, Cuba (Aguayo, 1953). An immature olive ridley has been recorded from Martinique and reports have been received of migrating individuals between Isla Saona and the Dominican Republic (Caribbean Conservation Corporation, 1980).

An important factor relevant to the potential study of olive ridley distribution by means of aerial surveys is that the Western Atlantic populations do not seem to share the East Pacific *olivacea* habit of floating or sleeping on the surface for extended periods. This habit makes East Pacific ridleys particularly easy to survey (and to capture) but I have never seen Atlantic *olivacea* floating or sleeping on the surface, and I know of no known published record of others having made such observations. The floating habit may possibly represent an attempt by ridleys in relatively cool East Pacific waters to elevate their body temperature by allowing the central part of the carapace to be held above the surface of the water and thus received unfiltered insolation. The characteristic high, flat topped shell of the *olivacea* would appear to be well-adapted for this stratagem.

Olive ridleys have never been recorded nesting in Venezuela. However, Bacon (1973) summarizes nesting information for this species in Trinidad as follows:

1. Tracks on Matura Beach (animal not seen). August 1969.
2. Hatchling found on Manzanilla Beach. August 1969.
3. Tracks and nest on Matura Beach (animal not seen). March 1970.
4. Adult female nesting on Matura Beach. May 1970.
5. Immature ridleys are sometimes caught around Isla Margarita. A carapace of a specimen from the north coast seen in the collection Isla Margarita, Instituto Oceanografico was 69.3 cm wide and had seven pairs of costal scutes.

#### IV. Populations of the Hawksbill Turtle *Eretmochelys Imbricata*

In Venezuela, the populations of this species appear to be concentrated on offshore islands, from which the quality and quantity of information available ranges from very good to non-existent.

In the Netherland Antilles, hawksbills are almost extinct (de Boer et al., 1973) though they may have existed in somewhat greater abundance in the past.

In the Los Roques Archipelago (a complex of mangrove, beach and reef islands about 150 km due north of Caracas), extensive studies have been conducted in the last two or three years on hawksbill populations, and these have included an ambitious "head-starting" program. These islands are a National Park and scientific studies here are administered by the Fundacion Los Roques, based in Caracas; there is a field research station in the archipelago, the Estacion de Biologia Marina Dos Mosquises. Intensive studies of the sea turtle population were initiated in 1979 and continue. Several mimeographed reports are available on the first season's work (Maldonado, 1981; Buitrago, 1981; Anon, 1980). Findings may be summarized as follows:

Hawksbill nests in modest numbers on many islands in the Archipelago; nesting takes place from May to December but with the great majority of emergences taking place in July to October (peak month September). Absolute numbers are low; in 1979 one nest was recorded in April, one in May, four in June, ten in July, twelve in August, seventeen in September, ten in October, four in November, and one in December. The most used nesting islands were identified as: Dos Mosquises, La Pelona, Cayo de Agua, Bekeve, Selesky, Carenero, Cayo del Sal, and Crasky. These islands are concentrated in the western side of the archipelago; the islands in the east, although much larger, are extensively mangrove bordered with little beach.

Although the area is a National Park there are still resident fishermen who constitute an ongoing threat to turtle nests; most nests that are not found almost immediately by the research and conservation team are raided by egg collectors. The preferred course of action by the conservation team in finding a fresh nest is to camouflage or dig a small hole to give the impression that the eggs have already been taken. Broken egg shells scattered around the nest complete the impression of a "raided" nest. Other nests are taken to the research station for artificial incubation and head-starting. In 1979, 21 nests were camouflaged and only two of these were robbed. Of 20 nests found in 1980, 16 had already been robbed (2 green turtles, 12 hawksbills).

There have been two long-distance recoveries of turtles "head-started" at the Los Roques facility. One of these was a hawksbill hatched on Los Roques 08/11/74 and released 27/12/75 when it measured 30.2 x 21.4 cm and weighed 3.35 kg. It was captured in Jamaica on October 21, 1976.

The other was an Aves Island green turtle, artificially incubated and hatched at Los Roques 10/11/73 and released 15/01/74 when it measured 19.8 x 15.9 cm and weighed 875 g.; it was caught at Santos, São Paulo, Brazil on 28/08/76, at which time it measured 33 x 28 cm and weighed 4 kg. It was retained for the Santos aquarium. This is one of the longest turtle movements on record; however, whether a turtle would naturally embark on a journey of that nature is uncertain, since the turtle entered the sea at an unnatural location and age.

Isla Blanquilla, a flat, arid island about 100 km NNW of Isla Margarita, is likely to be another nesting site for the hawksbill. This island has no permanent inhabitants, though fishermen camp there from time to time. It is surrounded by superb reefs and many fine beaches. During a very brief visit to the island on February 21, 1978, with no more than an hour on the ground, I was able to find the remains of several hawksbill turtles that had been killed by visiting fishermen. An attempt to survey the island more thoroughly in the 1981 survey was thwarted by mechanical problems with the aircraft (which fortunately took place on the flight to Isla Margarita rather than the scheduled next leg of the flight to uninhabited and waterless Isla Blanquilla). However, Blanquilla should be considered a high priority for a hawksbill nesting and feeding habitat survey.

Roze (1954) reports that the hawksbill comes to the beaches of Isla Margarita on occasion for purposes of egg laying, and the hawksbills, caught in the waters around the island provide the basis for a local Carey industry. Roze (1955) offers an earlier comment on this industry, with thoughts on the relative merits of extracting the Carey from live and from killed hawksbill.

It is vital that studies be conducted of turtle nesting (particularly hawksbill nesting) on other islands of the Venezuelan coast, including Orchila (east of Los Roques) and La Tortuga, due west of Isla Margarita. La Tortuga island lacks permanent inhabitants, is of large size (about 11 x 22 km), and has a beach along its entire northern shore.

Hawksbill nesting on the Venezuelan mainland is extremely sparse. However, an informant at Guiria on the Gulf of Paria coast of eastern Estado Sucre, stated that the hawksbill was one of two species that regularly nested in that area in August. Bjorndal (in Caribbean Conservation Corporation, 1980) similarly heard reports of hawksbill nesting on the beaches of the Gulf of Paria. This coincides in a general way with the peak nesting of hawksbills at Shell Beach, in Guyana, some 70 km from the Venezuelan border (Pritchard, 1969), although the other species that use the beach (greens, leatherbacks, ridleys) do so considerably earlier in the year. It is interesting that this extremely atypical habitat (muddy, estuarine water) should provide habitat for the hawksbill, a species typical of coral reefs, but Shell Beach may be the best nesting ground for this species on the South American mainland.

Very small numbers of hawksbills have been found on Aves Island. Brownell and Guzman (1974) reported having encountered six specimens in Aves Island waters in the course of four expeditions, though none had been seen nesting. All were immature, weighing 10 and 20 kilos each. Laiz Blanco (1978) mentioned another Aves Island hawksbill, 1,905 g in weight and 265 mm in carapace length.

#### V. Breeding Colony of the Green Turtle, *Chelonia mydas*, in Estado Sucre.

Several published reports draw attention to the nesting of green turtles in Estado Sucre. Flores and Hoit (1965) mention an individual that was captured while nesting at 2 A.M. on October 18, 1965 at Playa Naiguata, near Cumaná. It laid 160 eggs and the carapace measured about 112 x 90 cm; the estimated weight was 150 kg.

Laiz Blanco (1978) reported on an aerial survey of the beaches of the Península de Paria, and found a single turtle track and three beaches that appeared suitable for nesting.

Ogren (1980) mentioned an aerial survey in Estado Sucre in August 1979, reported to him by G. Cuellar, head of projects for FUDENA. This survey took place between Carupano and San Juan de las Galdonas, and only a single turtle track was seen. The coast was reported to consist of small stretches of beach, separated by rocky cliffs.

In the course of my 1981 aerial survey, the northern coast of Estado Sucre was the only place we found regular turtle tracks. Seven fresh tracks were seen, nearly all on beaches immediately east of Cabo Tres Puntas. The three beaches at the eastern end of the peninsula mentioned by Laiz Blanco (op. cit.) were not surveyed.

Detailed information on the location of the nests seen and the beaches along the coast of Estado Sucre may be obtained from the flight log and maps appended herewith. Although identification of the species that made the nest is uncertain, my judgment is that they were made by green turtles; they were certainly not leatherback or ridley nests.

A few green turtles nest in northern and western Trinidad, which is a geological extension of the Península de Paria, separated by just a few miles of ocean at Boca del Dragon. Bacon (1973) records green turtle nesting from Mayaro, Matura, Matelot, and Big Bay, Trinidad. Following the mainland coast to the south-east from the Gulf of Paria, the next beaches of any kind are in northwestern Guyana (Shell Beach) where moderately dense nesting by green turtles takes place (Pritchard, 1969).

A fisherman interviewed on Isla Margarita on 21 February 1978 declared that he considered the following beaches on Isla Cubagua (between Isla Margarita and the mainland) to be possible nesting sites for *Chelonia mydas*: La Caldera; Corral el Barlovento; Corral del Sotavento, and possibly Puntarenas.

Several shells of immature green turtles were seen for sale in Isla Margarita; three of them had the following dimensions; 61.3 x 52 cm; 41.9 x 36.5 cm; 47.0 x 37.5 cm. Prices ranged from 25 to 40 Bolívars.

Some turtle nesting was reported to take place on Playa Manzanilla, Isla Margarita, but the species was uncertain.

#### VI. Nesting by the Loggerhead Turtle, *Caretta caretta*, in Venezuela.

The loggerhead is rather scarce in Venezuela and only a few nesting records are available. This contrasts with the Colombian coast where *Caretta* is the commonest nesting turtle; however, east of Venezuela, in the Guianas, the loggerhead has never been recorded nesting in Guyana or French Guiana, and only a single specimen has been found nesting among thousands of leatherbacks, olive ridleys, and green turtles in Surinam. In Trinidad, Bacon and Maliphant (1971) report a single nesting by a loggerhead, at Las Cuevas Beach, in 1971; however, the photograph of this turtle, although somewhat indeterminate, looks more like a hawksbill, and the carapace length (85 cm) is more typical of that of a nesting hawksbill than a loggerhead.

A few loggerheads nest in the Los Roques Archipelago, though the predominant turtles there are hawksbills. Buitrago (ms) recorded seven loggerhead nestings in Los Roques during the 1979 season-five in May, one each in April and June.

Flores (1969) reported that the loggerhead is frequently observed in the waters of Sucre and Isla Margarita, Venezuela, and that it nests on sandy shorelines of coasts and the islands of eastern Venezuela. I saw three loggerhead skulls in the collections of the Instituto La Salle on Isla Margarita; the largest of these 27.6 cm wide and 24.5 cm in basicranial length, equal to the largest skull of this species that I have seen.

## AERIAL SURVEYS

Two major aerial surveys were conducted in the course of the consultancy reported herein. The first of these started from Caracas and proceeded west, maintained high altitude until Puerto Cabello, then followed the coast at a low level to Coro and completely around the Paraguana Peninsula. No sign of turtles nesting was seen on this on this flight; because of this and extreme turbulence the journey from Punto Fijo to Maracaibo was completed at high altitude. The second flight started from Caracas, again maintaining high altitude for some time following take off, and descended to low survey altitude at Higuerote. The survey continued to the east, passing along the southern shore of the Península de Paria. A landing was made in Guiria, after which we crossed to the north coast of the peninsula, and flew west along the coast, finally crossing the narrow water separation to Isla Margarita where a landing was made and the flight abandoned because of battery failure in the aircraft. One turtle nest was seen on the coast of Anzoategui and several in Sucre, described in detail in the flight log. It is unfortunate that aircraft failure prevented survey of the coasts of Isla Blanquilla and Tortuga as had been intended.

Certain other data are available from Venezuelan surveys other than these two. On March 25 1977, Pedro Trebbau and I flew the coast of the Orinoco delta and onward to Guyana at an altitude of about 300 feet in search of the reputed beach of "Punta Playa", on which leatherback nesting was supposed to occur. However, the entire coast was composed of mud and eroding mangrove forests throughout the delta area and the first beach encountered was Shell Beach, Guyana. The latter is a uniquely important nesting area, not so much for the absolute number of turtles utilizing it as for the fact that it is an important site for no fewer than four species (leatherback, green, olive ridley, and hawksbill).

Pedro Trebbau also reported to me that he had flown the coast of Aragua and the Distrito Federal west of Caracas on Feb. 19, 1981, in search of downed aircraft. The flight covered the shoreline from Maiquetia to Puerto Cabello. However, despite an intensive visual search of the coast and water surface from a low altitude, no traces of sea turtles or their nests was seen.

A more positive observation was reported by Leopoldo Garcia of the Parque Zoologico "El Pinar" in Caracas. Garcia reported that in course of an aerial survey in May 1981, he had observed a group of green turtles swimming in and out of a trench through a limestone reef offshore from Las Salinas, in the Distrito Federal between Chichiriviche and Catia La Mar. The turtles were estimated to be between 50 and 100 cm. in carapace length, and were between 9 and 15 inch in number, at least five being of adult size.

## SUMMARY OF FLIGHT LOG

Caracas east to Guiria, west to Paraguana Peninsula

Date: July 18, 1981

Pilot: Luis Arturo Ayala, M.D.

Copilot: Pedro Trebbau, D.V.M.

Observers: Peter C. H. Pritchard, Ph.D.

J. Robert McMorris

Luis Arturo Ayala, Jr.

Aircraft: Piper Twin-engine Low-wing monoplane; Registration YV-1562P

(This type of aircraft was less than ideal for aerial surveys, being rather fast and with low wings, so observers were forced to sit in the rearmost seats and look backward).



- 9.26 a.m. Take-off, El Centro Airport, Caracas. Required by air traffic regulations to fly over high mountainous section west of Caracas; descend to observation altitude near Puerto Cabello.
- 9.46 Cliffs and forest-covered hills, with occasional yellow sand beaches, relatively or completely inaccessible; some pebble beaches.
- 9.48.18 Puerto de Cata. Sandy bay with development including two high-rises.
- 9.48.50 Longer beach but with town behind.
- 9.49.20 Another curved beach, isolated. Still forest-covered behind coast. Bahia de Turiamo -some beaches in bay, but small; shoreline mostly rocks. Steep cliffs.
- 9.53.15 Mangrove inlet with complex border. Isla Larga and Isla Alcatraz: beaches along southern shores, with yachtsmen and vacationers.
- 9.55.45 Puerto Cabello. Large port city.
- 9.57.20 Beaches extend outside city, but in many areas fronted by rocks (on seaward side).
- 9.58.23 Cement factory.
- 9.58.45 Refinery. Beach starts after refinery.
- 9.59.25 Power station with riprap-bordered cooling water channels.
- 10.01.18 Boca de Yaracuy (small town at river mouth). Beachfront development; bathers. Beach huts until 10.03.21.
- 10.06.00 Boca de Aroa-beachfront town. Beachfront development, highway. Developed all the way to Tucacas.
- 10.07.20 Tucacas. Mangroves and small beaches. Flew over Morrocoy National Park-extensive complex of mangrove islands, coral reefs, and small beaches; small groups of people seen on most of the best beaches.
- 10.11.30 Cliffs with more beach, and extensive coconut groves. Passed beach in front of the Chichiriviche Lagoon.
- 10.12.42 Chichiriviche-coastal town. Long, empty beach after the town, with coconut plantations.
- 10.15.30 More beach and coconut plantations. Much driftwood on shore.
- 10.16.10 Boca de Tocuyo (coastal town). Muddy water west of river mouth; much driftwood on beach. Beach flat, continuous with flat land behind beach. Highway ½ mile inland. One scarlet ibis seen.
- 10.19.40 San Juan de los Cayos (coastal town). Beachfront development. Very wide beach beyond town, with development. Coconut plantation. Two scarlet ibis seen.
- 10.21.50 Beach with natural vegetation (low, scrub forest); eroding cliffs; muddy water.

|          |   |
|----------|---|
| 10.25    | Long beach with few huts, and coconut grove.  |
| 10.26.10 | High cliffs, narrow beach. Water still muddy.   |
| 10.27 ½  | Small town. Circled until 10:29. Five scarlet ibis.   |
| 10.30.24 | Cliffs.   |
| 10.32    | Beach with human footprints.  |
| 10.32.40 | Huge coconut grove on point.  |
| 10.35    | Beach with huge coconut grove.  |
| 10.36.40 | Good beach.   |
| 10.38    | Good beach, with hill behind; some coconut palms.   |
| 10.39    | Long beach, high dunes, coconuts; some muddy water.   |
| 10.41    | More beach, coconuts. Streaks of muddy water in sea. point.   |
| 10.44    | Puerto Cumarebo (coastal city with airport). Much beach. Flight becoming turbulent. Cliffs, cactus.   |
| 10.54.30 | Landed at Coro airport.   |
| 11.30.15 | Took off from Coro; headed north along Paraguana Peninsula Flight still rough and turbulent. Long, rock-bordered beach along neck of peninsula, much sand, dunes, etc. Highway about 300 yards inland (4-lane with medium). |
| 11.37    | More beach, without rock frontage; highway becomes single.  |
| 11.39    | Dry salt lagoons inland. Endless beach. Looks good for turtles, but no tracks.  |
| 11.40.55 | Houses and huts on beach.   |
| 11.41.30 | More houses and huts; also off-road vehicle tracks.   |
| 11.42.50 | Adicora (coastal town); beachfront development.   |
| 11.44    | Town; beach development; lagoon.  |
| 11.45.23 | Offshore rocks and reef. Town on coast. Whole peninsula visible-all flat except two isolated peaks of great altitude (2,723 feet).  |
| 11.47    | Huge sand flats, reef-fronted-beaches.  |
| 11.48    | Town. Turbulence getting worse.   |
| 11.48.50 | Beach gives way to rock.  |
| 11.51.40 | Wide beach, sandy point. Isolated rocky patches. Tracks of vehicles and people. Huts on beach.  |
| 12.02    | Beachfront development.   |

12.09           Climb to cross Golfete de Coro; no turtles seen and too turbulent for notes so continued fast and at high altitude to Maracaibo.

#### SUMMARY OF FLIGHT LOG

Caracas east to Guiria, west to Isla Margarita

Date: July 24, 1981

Pilot: Carlos Palmer

Observers: Peter C. H. Pritchard, Ph.D.

Ledy Cecilia Acosta

Aircraft: Cessna 182 High-wing, four seat monoplane

Take off time: La Carlota (Caracas) 8:43 a.m.

Required by flight traffic regulations to fly over mountains east of Caracas directly to Higuerote. Much light cloud at 5,000 feet, scattered higher cloud.

|                      |   |
|----------------------|---|
| 9.03 a.m.            | Descending to Higuerote. Long beach extended from point north of Higuerote, with considerable beachfront development.   |
| 9.05.30              | Wide beach with much driftwood. Sea brown and muddy with effluent from rivers. Inland flat, undeveloped, with scattered green trees near the coast becoming thicker inland.                           |
| 9.07.10              | River mouth; muddy effluent. Beach otherwise continuous.  |
| 9.07.45              | Small coastal town, low density, with recreational beach. One or two high-rises, scattered development, several beach access roads.   |
| 9.08.50              | River mouth. Recreational beach, extensive coconut groves.  |
| 9.09.50 <sup>4</sup> | End of beachfront development. Some young coconuts planted behind beach. Wheel tracks on beach. Swamp inland with many dead trees.  |
| 9.11.25              | Town of entrance to lagoon. More beach. Water now less muddy. Some coconut groves. Dune vegetation and open water in alternating parallel strips behind beach with a lagoon full of mangrove islands. |
| 9.13.25              | Coconut groves continue, with some beach houses. Many frigate bird and boobies aircraft.  |
| 9.17                 | Lagoon ends in a series of mangrove islands in long strips. Beach and coconut plantations continue.   |
| 9.17                 | Fresh turtle track seen, possibly green turtle.   |
| 9.19                 | Many frigate birds.   |
| 9.19.15              | Small town situated on a river mouth.   |

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<sup>4</sup> *Editor's note (2009):* The time was listed as "09.50" in the original National Reported. Editor changed it to "9.09.50" based on the previous and succeeding entries in the flight log.

- 9.20 River mouth, more coconut groves. Tractor tracks on beach.
- 9.21 Shrimp boat seen about one mile offshore. Huge coconut grove extends about one mile inland. Plane getting too high, descends from 600 feet to 400 feet.
- 9.26.10 Playa Pintada airport. Small city. More beach (medium energy wave action, yellow sand).
- 9.27.15 Lagoon begins. Narrow beach strip between lagoon and sea with development and recreation; many swimmers
- 9.30 Development ends but coconut grove continues.
- 9.30.20 Coconut grove ends.
- 9.30.50 Sandbar at entrance to lagoon, with brown and muddy water.
- 9.34.30 River mouth, muddy effluent. Next lagoon begin. Beach continues with scattered coconut palms, narrow strip of vegetated dunes between the sea and lagoon. No development; cattle tracks.
- 9.37.30 Aircraft forced to attend to higher altitudes over Puerto Piritu. Beach continues uniformly.
- 9.39 Puerto Piritu. Lagoon mouth with effluent of muddy water. Had to fly still higher as we approached Barcelona (Military Regs).
- 9.41 Beach continues with undisturbed bush behind.
- 9.42 Old beach ridges visible inland from present beach. Beach looks excellent but we were too high to see in detail.
- 9.50 Barcelona Aircraft at 6,700 feet. Big port city with complex islands offshore. Beach ends at Barcelona.
- 9.53 Hilly islands, with very little beach and what beach does exist covered with huts. Island looks dry and sterile, with sparse vegetation.
- 9.59 Passing "Isla Caracas" with some small uninhabited crescent beaches. Islands again hilly and arid.
- 10.02 A few isolated crescent beaches visible before Cumaná,
- 10.05.30 Flying over tip of Peninsula de Araya. A few beaches around tip but sporadic development and very dry inland. Flight path along southern shore of Peninsula de Araya.
- 10.07.02 Town with boats and pier. Coast with dry hills; water dark blue and looks deep. Some dark, gravelly beaches-do not look suitable for turtle nesting. Red, eroded hills with extremely sparse vegetation.
- 10.11.10 Entrance to small inlet or bay. Water still looks dark blue and deep.
- 10.14 Hills becoming more densely vegetated and fertile. Occasional grayish, gravelly, narrow beaches; occasional coves with boats.
- 10.17 Beaches getting longer and sand becoming more yellow. Very low energy system, well protected with no visible waves.

- 10.17.50 Small fishing village.
- 10.19 Hills becoming lower; occasional lagoon. Shoreline made up of beaches and mangroves.
- 10.21.30 River mouth, small town, many fishing boats (small, open type).
- 10.21.44 White sandy point with salt lagoon. Lagoon terminates in mangroves. Brown water with inflowing rivers and muddy marshes.
- 10.26.31 Overland crossing to Gulf of Paria. Some excellent rainforest visible to left.
- 10.37 Carupano Airport visible several mile due north. Countryside hilly, covered with nice forest.
- 10.41.10 Flying over El Pilar.
- 10.44 Dense forest dominated by a species of tall palm. Hills to left.
- 10.45 Extensive swamps.
- 10.47 Coastal swamp forests, intact on right side of aircraft (i.e., to south), with brown estuaries. Gulf of Paria -muddy, brown water. Mangrove and hardwood bordering shorelines. Intact for miles inland on both sides. Very nice.
- 10.53.45 Flying along south side of Península de Paria. Signs of coastal erosion- tall mangroves leaning over at shoreline.
- 10.54 Mud flats. Cloud very low (1,000 feet).
- 10.56.30 Dramatic line in water between muddy river water and dark, clear, tea-colored sea water.
- 10.58 First small beach seen.
- 10.59 Several small sandy beaches, several outflows of very muddy water.
- 11.00 Narrow yellow beach fairly continuous.
- 11.02 Coastal village.
- 11.03 Another village. Continuous narrow sandy beach, with swamp forest behind. Port of Guiria visible, with breakwaters to create harbor. Forest surrounds, with tall Cereus cacti visible.
- 11.08 Landed at Guiria. Talked with a one eared informant at airport who said that there were a lot of turtles around Guiria, and both the Carry and one other species nested in the area around August.
- 11.24 Take off from Guiria; went north across peninsula to north coast. Peninsula is thickly covered with rain forests and slopes up to a ridge near the north coast which plunges abruptly into the sea. Thick clouds over the hills. Occasional, totally isolates thatched huts.
- 11.33 Reach north coast. Small cove beaches with wave action visible even from high altitude. Water deep and clear.
- 11.34 .13 Turtle track (fresh). Several beaches with small villages behind.

- 11.36.51 Another turtle track.
- 11.38 Another turtle track. These appear to be medium-sized fresh nesting tracks, probably greens but possibly hawksbills.
- 11.38.25 Another track.
- 11.39.50 Another track.
- 11.39.50 Long beach with huts at point. Hills behind; mainly rock cliffs behind beach.
- 11.41 Small town, beaches. Still steep hills plunging down to the sea.
- 11.43 Fresh nest at end of beach.
- 11.43.30 Village.
- 11.44.30 Large village, beach, steep rocky islands.
- 11.46.40 Small village, beach.
- 11.48 Village and beach, with rocks; many boats (about 30) offshore in tight group, presumably fishing.
- 11.49 Beach.
- 11.50.35 Five beaches, two with houses. Cliffs behind.
- 11.53 Large town, beach in cove.
- 11.54.30 El Morro de Puerto Santo (town at base of narrow-necked peninsula); lots of boats in harbor in western side of neck.
- 11.57 Passing Carupano offshore.
- 11.59 Passing long beach behind Carupano. Some rocky outcrops. 3-4 very long beaches (1 - 3 miles each).
- 12.02 Deep cove with three beaches. Steep hills with sparse cactus forest.
- 12.03 Town In cove.
- 12.05 Turtle track on end of beach. Two boats at sea operating a large circle net, about 80 yards in diameter.
- 12.05.42 Town in deep, wide cove.
- 12.08.30 Several beaches separated by rocks. Passed over Morro de Chacopata (peninsula) and gained height for flight to Isla Margarita. Severe acidic, burning smell developed during this flight. On landing at Margarita it transpired that the battery was dry, burned out and so hot that the plastic fittings were melting. Peter Pritchard and the other observer abandoned the flight at this point. Pilot called for a pickup truck for a boost to start his engine, and returned to Caracas.

For many decades, the Aves Island green turtle nesting colony was subject to sporadic, perhaps sometimes intensive, poaching of breeding adults and eggs by fishermen and sailors from the Lesser Antilles. This caused an almost certain major decline in the breeding populations over the years, though quantification is difficult-especially since the number of adult green turtles that reach breeding condition in any given season is variable and impossible to predict, so that "good" and "bad" nesting years may have little bearing on the overall status of the population. The colony was probably headed for extinction had it not been for the establishment of a permanent military base, the "Base Científico Naval Simon Bolívar", on Aves Island in early 1979. This construction, built on high pilings on the reef to avoid disturbance to the terrestrial ecosystem, is described and illustrated by Branch ((1981); a permanent garrison ensures that poaching of turtles and eggs on the island no longer takes place, and prospects appear to be good. There is still capture of turtles on the feeding grounds, and tag may allow this loss to be quantified, but the intensity is unlikely to be disastrous. Natural constraints on recruitment, such as the ghost crabs on Aves Island that eat hatchling turtles, and periodic removal of sand on the island by hurricanes, continue but should be tolerable. However, the island is constantly changing in size and shape, and if at any time the sand beaches were to disappear permanently, the turtle colony would doubtless disappear, though what the egg-bearing female turtles would do in an eventuality of that nature is interesting to contemplate.

The turtle colonies that feed partially in Venezuelan waters, the Tortuguero green colony and the Surinam ridley colony, are both currently well protected on their nesting grounds. The ridleys are probably principally threatened by incidental capture by shrimp trawlers that abound in the waters off the Guianas; whether the decline in numbers on the nesting beach at Eilanti, Surinam, during the last fifteen years is attributable to this, to recruitment failure during the many years of total egg exploitation, or to a shift of the nesting turtles away from the eroding beaches at Eilanti to better nesting sites, is still not determined. However, according to the usual index of numbers of females nesting on known grounds, the olive ridley colony in northern South America is in serious trouble. The Tortuguero green turtle colony is no longer subject to industrial-level exploitation anywhere in its range, as far as known, and it is probable that the subsistence and village-level take from Nicaragua to Guajira (and Paraguana) is tolerable., though one should not be complacent.

Prospects for the hawksbill colonies nesting in Venezuela (principally on the islands) are poor. Even in the Los Roques Archipelago, which is a national park, virtually all nests are raided by local resident fishermen unless the conservation crew from FUDENA is able to get them first. Displacement of all residents to areas outside the national park is a major desideratum, but may be difficult to achieve. The situation on the other Venezuelan islands where hawksbills nest remains to be determined; some islands are protected by their isolation, or by the very low numbers of nesting turtles that make them unprofitable to hunt, but wherever there are people there is likely to be egg robbing.

The small nesting colony of green turtles in Estado Sucre appears to be subject to significant predation, but this has yet to be quantified. The area is remote and difficult to patrol, but there are numerous small villages along the north coast of the Península de Paria where the turtles nest, and this juxtaposition is unlikely to be beneficial to the turtles.

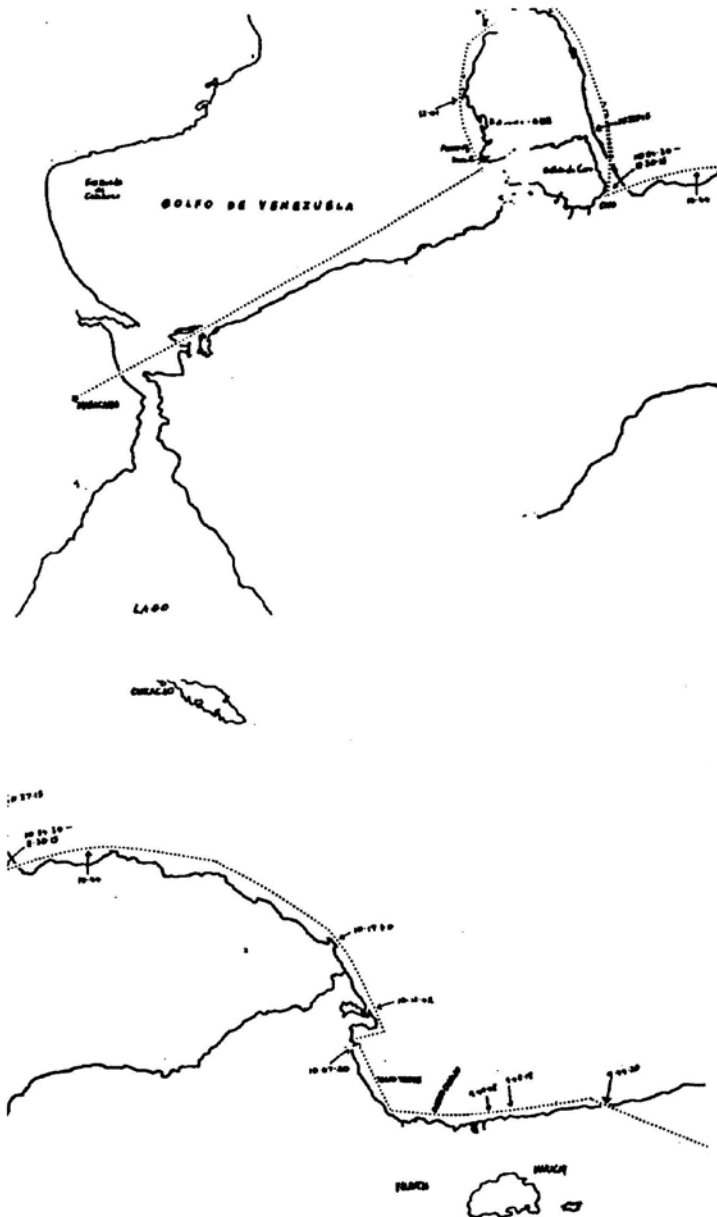
## RECOMMENDATIONS FOR FUTURE WORK

It is unlikely that the central Venezuelan coast will yield significant numbers of nesting sea turtles, and it is therefore not recommended that resources be committed to ongoing aerial surveys there except on an opportunistic basis. However, the Guajira Peninsula remains unsurveyed on either the Venezuelan or Colombian sides, and this should be done, both aerially and on ground, as soon as feasible.

The beaches of the Península de Paria require further investigation. Surveys so far have revealed that both green turtles and hawksbills nest there, and efforts should be made to quantify this. Such studies will need to rely initially upon aerial surveys, since the large number of small beaches on the peninsula are separated from each other by difficult terrain. Aerial identification of prime beaches and interviews with local villagers and fishermen is the recommended procedure.

A high priority is survey of the islands of Blanquilla, La Tortuga, and Orchila. These remote islands have much apparently undisturbed beach and aquatic habitat for sea turtles, and preliminary information suggests that turtles are there.

It is also strongly recommended that the existing study and conservation programs on the islands of Aves and Los Roques be continued and augmented as necessary.



*Editor's note (2009):* Maps and figures are reprinted exactly as they appear in the original WATS I Proceedings (Bacon et al. 1984); we regret the poor quality exhibited in some cases.





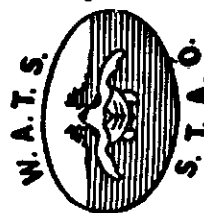
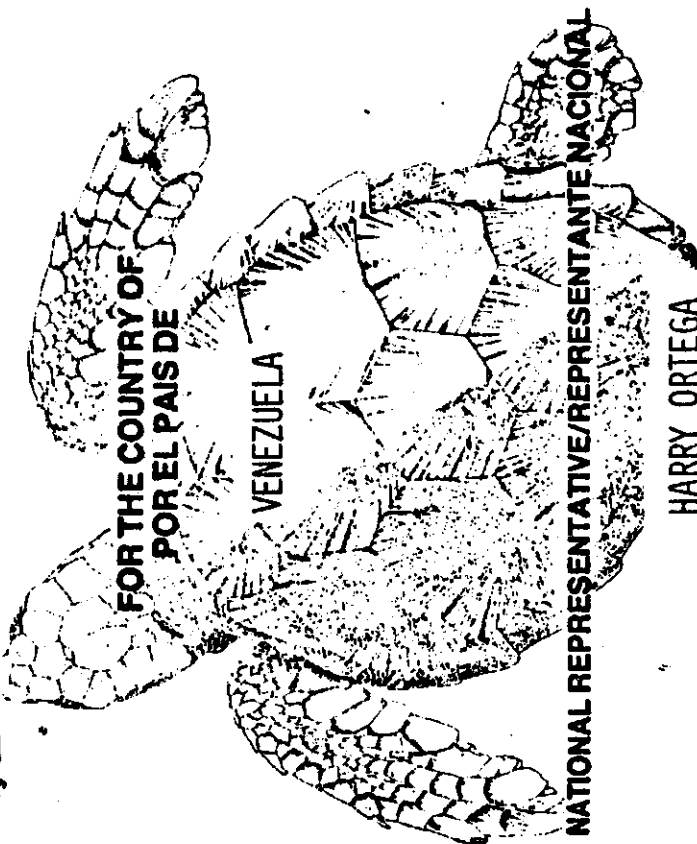
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# THE NATIONAL REPORT EL REPORTE NACIONAL



Western Atlantic Turtle Symposium  
Simposio de Tortugas del Atlantico Occidental

17-22 July/Julio 1983  
San Jose, Costa Rica



WESTERN ATLANTIC TURTLE SYMPOSIUM

San Jose, Costa Rica  
July 1983

NATIONAL REPORT FOR THE COUNTRY OF

VENEZUELA

NATIONAL REPORT PRESENTED BY  
Peter C. H. Pritchard for

Harry Ortega  
The National Representative

Address: Director  
Direccion General Sectorial  
de Administracion del Ambiente  
Ministerio del Ambiente y de los Recursos  
Naturales  
Torre Sum. - Piso 28, Centro Simon Bolivar  
Caracas, Venezuela

NATIONAL REPORT PREPARED BY

Peter C. H. Pritchard

Maitland, Florida

DATE SUBMITTED: July 17, 1983



| SPECIES                         | NUMBER OF NESTS          |                             | DATES OF DATA COLLECTION |
|---------------------------------|--------------------------|-----------------------------|--------------------------|
|                                 | Nests/Night<br>(Average) | Nests/Season<br>(Estimated) |                          |
| <i>Caretta caretta</i>          |                          | 500-1000                    | July, August 62 days     |
| <i>Chelonia mydas</i>           |                          |                             |                          |
| <i>Bombachelus carolinensis</i> |                          |                             |                          |
| <i>Eretmochelys imbricata</i>   |                          |                             |                          |
| <i>Lepidochelys kemel</i>       |                          |                             |                          |
| <i>Lepidochelys olivacea</i>    |                          |                             |                          |

TABLE 4 - 1977 NESTING COUNTS FOR BIRCH ISLAND, LA AVES

Please complete one of these tables to summarize census data for each beach listed in Table 3. Number tables sequentially (1-1, 4-2, 4-3, etc.) as enumerated in Table 3.

| SPECIES                         | NUMBER OF NESTS          |                             | DATES OF DATA COLLECTION |
|---------------------------------|--------------------------|-----------------------------|--------------------------|
|                                 | Nests/Night<br>(Average) | Nests/Season<br>(Estimated) |                          |
| <i>Caretta caretta</i>          |                          |                             |                          |
| <i>Chelonia mydas</i>           |                          |                             |                          |
| <i>Bombachelus carolinensis</i> |                          |                             |                          |
| <i>Eretmochelys imbricata</i>   |                          |                             |                          |
| <i>Lepidochelys kemel</i>       |                          |                             |                          |
| <i>Lepidochelys olivacea</i>    |                          |                             |                          |

TABLE 4 - 1978 NESTING COUNTS FOR BIRCH ISLAND, LA AVES

Please complete one of these tables to summarize census data for each beach listed in Table 3. Number tables sequentially (1-1, 4-2, 4-3, etc.) as enumerated in Table 3.

| SPECIES                         | NUMBER OF NESTS          |                             | DATES OF DATA COLLECTION |
|---------------------------------|--------------------------|-----------------------------|--------------------------|
|                                 | Nests/Night<br>(Average) | Nests/Season<br>(Estimated) |                          |
| <i>Caretta caretta</i>          |                          | 7                           | APRIL-JUNE 1979 86       |
| <i>Chelonia mydas</i>           |                          | 2-3                         |                          |
| <i>Bombachelus carolinensis</i> |                          |                             |                          |
| <i>Eretmochelys imbricata</i>   |                          |                             |                          |
| <i>Lepidochelys kemel</i>       |                          |                             |                          |
| <i>Lepidochelys olivacea</i>    |                          |                             |                          |

TABLE 4 - 1979 NESTING COUNTS FOR BIRCH ISLAND, LA AVES

Please complete one of these tables to summarize census data for each beach listed in Table 3. Number tables sequentially (1-1, 4-2, 4-3, etc.) as enumerated in Table 3.

| DATE        | BEACHES SURVEYED                         | NUMBER OF NESTING TURTLES |    |   |   |    |    |    |    |    |    |
|-------------|--|---------------------------|----|---|---|----|----|----|----|----|----|
|             |  | Ca                        | Ch | B | E | Lk | La | Lo | Li | Lo | Lo |
| JUNE 8 '79  | COAST OF NEARSHAW MARSH OF GUANAJA       | -                         | -  | - | - | -  | -  | -  | -  | -  | -  |
| JUNE 10 '79 | COAST OF EDO. FALCON, STARTING IN MARAHO | -                         | 4  | 1 | 1 | -  | -  | -  | -  | -  | -  |
| JUNE 11 '79 | FLY TO LA TORTUGA ISLAND                 | -                         | -  | - | 7 | -  | -  | -  | -  | -  | -  |
| JUNE 12 '79 | LA TORTUGA ISLAND                        | -                         | -  | - | - | -  | -  | -  | -  | -  | -  |
| JUNE 13 '79 | LA TORTUGA ISLAND                        | -                         | 1  | - | - | -  | -  | -  | -  | -  | -  |
| JUNE 14 '79 | LA TORTUGA ISLAND                        | -                         | 6  | 3 | 1 | -  | -  | -  | -  | -  | -  |

TABLE 5. AERIAL BEACH SURVEY SUMMARY  
Give any additional information available from aerial surveys. Information should include ground truth observation if conducted.

Species Abbreviations:  
Ca *Caretta caretta*  
Ch *Chelonia mydas*  
B *Bombachelus carolinensis*  
E *Eretmochelys imbricata*  
Lk *Lepidochelys kemel*  
La *Lepidochelys olivacea*

Give any additional information available from aerial surveys. Information should include ground truth observation if conducted.

Latitude (D) north east = 20 km. S. 200 m. de las Cajas (P. Lago)  
 Near ART PUY (SUCRE)  
 3. km. W. Finca del Inca de Puerto Santo (SUCRE)  
 LA AGUJA TUPATO (SUCRE).

Green-Turtle (Cm) with some of: New Arrivals, Falcón  
 15 km. W. San Juan de los Rios, Falcón  
 New Sabanas Altas, Falcón.

NEW CAUSPA (MOLANDA).  
NEW MACULAGUAYO (MILANDA).

NEW MACSURUCUTO (MIRANDA).  
PLAYA DE ZALAYA }

PLAYA DE ZALAMA  
PUY PUY  
LAMIDA TORO

LAUNA TORINO  
PUNTA CARILLONERO

PUNTA CAPELLO NEGRO  
PUNTA EL PLAZA

WOLFE LAURENCE

Handsville (O.E.I.) with area of: 10 sq. mi. Saw some of the cliffs, fossils  
- and a - gravel.

Give any additional information available from serial surveys.  
Information should include ground truth observation if conducted.

1981  
TUFFE WATS (PROBABLY C.A.) WERE SEEN AT 30 km.  
SE of HIGUAYOTE (Edu. MIRANDA). (DMS)  
N. east of Rio. SURELY AS SHOWN ON MAP IN  
"THE COUNTRY OF THE CHANISH MAIN" (SIX).

Please give brief details on methods of estimation for Table 6.

These cannot yet be given, even in preliminary form, as critical numbers. However, only E.i. and C.m. have significant breeding populations in Venezuela. C.a. and D.c. nest so rarely there—only a handful (10) of confirmed nesting records for either in available psi Venezuela, and L.o., although not rare in feeding grounds, has never been reported nesting in Venezuela.

The only large nesting colony "in Venezuela" is that of C. m. in Maricao Ave. Nuders feed birds greatly both from dawn to dusk, and from night to night within a season. However, typically 200-300 individuals probably nest in a season, with less than 500 adults feeding in the whole population. However, this is ~~the~~ preliminary.

The backside units on L.A. Express could be made by less than 20 minutes faster. Number sitting on L.A. Express was 1. A Blomfield was not good here.

[illegible]

**TABLE 6.**  
**AERIAL BOUCE SURVEY SUMMARY**  
Give any additional information available from aerial surveys. Information should include ground truth observation if conducted.

**Species Abbreviations:**  
*Larella corella*  
*Chelonia mydas*  
*Dermodactylus coriaceus*  
*Eretmochelys imbricata*

| NAME OF AREA<br>(or give coordinates) | SPICES, AGE<br>(year)       | SPECIES FUNCTION<br>(type observations<br>species, numbers) | NATURE OF EVIDENCE<br>(Observation, fishery, incident, catch) |
|---------------------------------------|-----------------------------|---|---|
| GULF OF<br>VENEZUELA                  | maximum<br>known<br>unknown | C. m.<br>(number unknown).                                  | Plum of eggs by plume Tuffin water<br>found in Costa Rica.    |
| ISLA MARCARITA<br>to TRINIDAD         | -<br>-                      | L.O.<br>(number unknown).                                   | Adults of eggs by plume Tuffin water<br>found in SUNDARI      |
| 3.                                    |                             |   |   |
| 4.                                    |                             |   |   |
| 5.                                    |                             |   |   |

Species Aberrations:  
 Chelonia mydas  
 Eretmochelys imbricata  
 Lepidochelys kemel  
 Lepidochelys olivacea

TABLE 7. POORING AREAS INVENTORY

TABLE 10. NATURAL MORTALITY  
 (Supplementary maps for additional biological data)

Please report below, and on additional pages if necessary,  
 additional data obtained or available such as measurements  
 (length, width, weight) of adult females, adult males,  
 hatchlings, numbers of eggs per nest, hours of nesting,  
 hours and conditions of hatching, etc.

INFORMATION OF ADULT FEMALE ON ISLA AVB NEC  
 IN COMES, G.L., 1980: INHABITANT FROM DEL PROYECTO A.V.B.  
 (FUBENA, CARMEN; 92 ft). MEAN LENGTH OF NESTING  
 93 in 107.7 cm; mean weight 173 lbs.  
 NESTING IN ALL KNOWN VENEZUELAN BEACHES  
 NOCTURNAL.

DATA ON NATURAL MORTALITY AGE NOT AVAILABLE, MANY  
 FROM DOWNCOMING OF LOSS OF ALL EGGS IN BEACHES AT  
 ISLA AVB AT MURACALDE DAVID, AUG. 29 1979. (LOSS OF  
 ESTIMATED 55,280 EGGS).

| SPICES                        | J | P | M | A | M | J | J | A | S | O | N | D | MONTHS OF<br>GREATEST ACTIVITY |
|-------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|--------------------------------|
| <i>Dermochelys</i>            |   |   |   |   |   |   |   |   |   |   |   |   |                                |
| <i>Chelonia mydas</i>         | ✓ |   | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | PEAKS YEAR<br>ROUND.           |
| <i>Eretmochelys imbricata</i> |   |   |   |   |   |   |   |   |   |   |   |   |                                |
| <i>Lepidochelys kemel</i>     |   |   |   |   |   |   |   |   |   |   |   |   |                                |
| <i>Lepidochelys olivacea</i>  |   |   |   |   |   |   |   |   |   |   |   |   |                                |

TABLE 8. 1. TURTLE SPECIES PRESENT ON POORING AREAS.  
 Please complete one of these tables for each of the  
 areas identified in Table 7. Number each table as  
 enumerated in Table 7 (1-1, 2-2, etc.).

8-2: 1. *Chelonia mydas* present in MARACALDE / TRINIDAD area  
 in all months, except June and December,  
 so primarily year-round

| NAME OF PORT OR SITE                          | SPECIES<br>LIMITED<br>(see above) | FISHING BEAR USED   | MONTHS OF<br>LARGEST<br>ESTIMATE | MONTHS OF<br>GREATEST ACTIVITY |
|---|-----------------------------------|---|----------------------------------|--------------------------------|
| Removal to <i>Chelonia</i><br>1. (number 1-2) | C. m.                             | UNKNOWN: MARACALDE AREA<br>TURTLES CAUGHT, BUT LOCALLY<br>are common in REMACALDE, 2-11<br>MAY, 1980. NESTING PERIOD<br>TURTLES ALSO, 2-11. TURTLES<br>SPEAKS - 1000 on ISLA MARACALDE<br>2-11. TURTLES, C. m. 1000 on ISLA<br>2-11. TURTLES, C. m. 1000 on ISLA<br>2-11. TURTLES, C. m. 1000 on ISLA |                                  |                                |
| 2. (do 1-2)                                   | C. m.                             |   |                                  |                                |
| 3.  | C. m.                             |   |                                  |                                |
| 4.  | C. m.                             |   |                                  |                                |
| 5.  | C. m.                             |   |                                  |                                |
| 6.  | C. m.                             |   |                                  |                                |
| 7.  | C. m.                             |   |                                  |                                |
| 8.  | C. m.                             |   |                                  |                                |

TABLE 11. LARGING SITES FOR TURTLES & TURTLE PRODUCTS

Species Aberrations:  
 Chelonia mydas  
 Chelonia mydas  
 Eretmochelys imbricata  
 Eretmochelys imbricata  
 Lepidochelys kemel  
 Lepidochelys olivacea



| SPECIES                       | YEAR |      | METHOD OF DETERMINATION                  |
|-------------------------------|------|------|--|
|                               | 1967 | 1968 |  |
| <u>Geochelone carolina</u>    |      |      | DATA NOT AVAILABLE<br>(TRADE IS ILLEGAL) |
| <u>Geochelone media</u>       |      |      |  |
| <u>Desmarestia carolina</u>   |      |      |  |
| <u>Desmarestia hirtellata</u> |      |      |  |
| <u>Leiodon hirtellata</u>     |      |      |  |
| <u>Leiodon olivaceus</u>      |      |      |  |

TABLE 12. TOTAL ANNUAL TURTLE LANDINGS BY SPECIES AND EXTENTS (1967) by net fishing turtles caught incidentally to other fishing operations (e.g., shrimp trawling).

TABLE 13. ESTIMATED TURTLE CATCH BY FOREIGN FISHERMEN (Supplementary page)

Please describe the type of foreign fishing in your waters and provide estimates for:

1. Number of foreign vessels entering waters.
2. Number of foreign fishermen entering waters.
3. Year of estimate.

TAKE OF NETTING C.A. BY BOATS FROM SK. LUCIA, MARTINIQUE ETC. WAS SIGNIFICANT AT ISLAND AVES UNTIL PERMANENT MILITARY BASE RASED THERE IN 1979. IT WAS NOW STOPPED COMPLETELY.

| SPECIES                       | YEAR |      | TYPE OF FISHING ACTIVITIES & METHOD OF ESTIMATION  |
|-------------------------------|------|------|--|
|                               | 1967 | 1968 |  |
| <u>Geochelone carolina</u>    |      |      | OVERALL ESTIMATES IMPOSSIBLE<br>BUT SIGNIFICANT NUMBERS OF<br>L.O. CATCHED BY TRAWLERS IN EASTERN<br>VENEZUELA |
| <u>Geochelone media</u>       |      |      |  |
| <u>Desmarestia carolina</u>   |      |      |  |
| <u>Desmarestia hirtellata</u> |      |      |  |
| <u>Leiodon hirtellata</u>     |      |      |  |
| <u>Leiodon olivaceus</u>      |      |      |  |

TABLE 15. ESTIMATED ANNUAL TURTLE CATCH Give estimated numbers and/or weights.

TABLE 16. OFFICIAL STATISTICS OF TURTLE CATCH AND PRODUCTION (Supplementary page)

Please provide any additional data on turtle products produced in your country. Include manufactured products such as tortoise shell novelties, etc., if such data are available.

CAPTURED SEA TURTLES IS ILLEGAL IN VENEZUELA  
WOUNDS, PRODUCED OF LOCALLY-CATCHED C.A. AND E.C.  
ARE STILL SOLD, AND SOME EXPORT PROBABLY  
OCCURS.

| SPECIES                          | RECOVERY OPERATIONS |              |               |                | HOLDING LIVE TURTLES |               |
|----------------------------------|---------------------|--------------|---------------|----------------|----------------------|---------------|
|                                  | EGGS COLLECTED      | EGGS MATCHED | NO. RELEASED  | AGE AT RELEASE | NO. OF ADULT TURTLES | ADULT TURTLES |
| <i>Caretta caretta</i>           |                     |              |               |                |                      |               |
| <i>Chelonia mydas</i>            | 4 nests             | 4 nests      | NOT AVAILABLE |                |                      |               |
| <i>Demochelonia variegata</i>    |                     |              |               |                |                      |               |
| <i>Endemichelys insculpta</i>    |                     | Ca. 5000     | Ca. 4000      | 11-18 MONTHS   |                      |               |
| <i>Leatherstocking turtle</i>    |                     |              |               |                |                      |               |
| <i>Leatherstocking alligator</i> |                     |              |               |                |                      |               |

TON 1174-92 (AVERAGE DATA.) HEAD-STARTING AT LOS ROQUES.

TABLE 17 - TURTLE RECOVERY OPERATIONS  
This table quantifies activities concerned with turtle capture for either conservation, population enhancement experiments, or commercial use. Activities to be included are "head-starting", rearing, incubation and release, etc.  
Prepare separate table for each year of available data.

| NAME AND LOCATION                              | AREA SQ. KM.    | REASON (S) FOR PROTECTION   | TYPE AND EFFECTIVENESS OF ENFORCEMENT |
|--|-----------------|---|---------------------------------------|
| MONTE DE COLO (BASE OF PENINSULA DE PARAGUANÁ) | 9,250 HECTARES  | NAT. PARK, MAINLY FOR WOOD SAND DUNE FORMATION (SOME LARGE TURTLES) |                                       |
| MORROCOY NAT. PARK (CAR. FALÓN)                | 46,000 HECTARES | NAT. PARK FOR CORAL REEFS AND ISLANDS (HAWKSHILL HABITAT)           |                                       |
| MOCHIMA (SUAREZ AGROCOMUNIDAD)                 | 94,955 H.       | NAT. PARK   |                                       |
| L. Agua de Tachiragua (Parana)                 | 18,400 H.       | NAT. PARK   |                                       |
| Yagui Pitier (Parana)                          | 107,800 H.      | NAT. PARK, MAINLY FOR CAV/CAVAD FOREST BUT INCLUDING NAT. PARK      |                                       |
| L. Agua de la Estrella (L. de la Estrella)     | 19,700 H.       | NAT. PARK   |                                       |
| ISLA de AVES.                                  |                 | SEA TURTLE NESTING (WILDLIFE RESERVE)                               |                                       |

TABLE 18. SANCTUARIES AND RESERVES

| INSTITUTION OR ORGANIZATION NAME AND ADDRESS                     | NO. OF ACTIVE TURTLES | ACTIVITIES IN PROGRESS  |
|--|-----------------------|---|
| FUNDACION LOS ROQUES (CARACAS)                                   |                       | SEA TURTLE STUDIES AND HEAD-STARTING IN ALMACENADO LOS ROQUES |
| FUNDACION PARA LA DEFENSA DE LA NATURALEZA (CARACAS)             |                       | SEA TURTLE MONITORING ON ISLA DE AVES                         |
| INSTITUTO NACIONAL DE PARQUES                                    |                       |   |
| MINISTERIO DEL AMBIENTE DE LA REPUBLICA BOLIVARIANA DE VENEZUELA |                       |   |
|  |                       |   |

TABLE 19. PUBLIC AND PRIVATE INSTITUTIONS CONCERNED WITH TURTLE CONSERVATION/MANAGEMENT/UTILIZATION

| NAME AND ADDRESS OF ORGANIZATION   | BUDGET ALLOCATION TO TURTLES | NO. OF STAFF ASSIGNED TO TURTLES | COMMENTS ON LEVELS OF ENFORCEMENT |
|--|------------------------------|----------------------------------|-----------------------------------|
| MINISTERIO DEL AMBIENTE y de los RECURSOS NATURALES RECOMENDACIONES (MARENA) |                              |                                  |                                   |
|  |                              |                                  |                                   |
|  |                              |                                  |                                   |
|  |                              |                                  |                                   |

TABLE 20. REGULATORY AGENCY  
Indicate all entities with statutory responsibilities (e.g., Fisheries Department and Ministerio, Police, Coast Guard, etc.)

Please list Bureau's, regions', and local legislation concerning wildlife management and conservation. List title, date, and stated purpose.

THE VENEZUELA IS A SIGNATURE -  
(TARTES INCLUDES EDITIONS)

CITEB (VENEZUELA IS A SIGNATORY)-  
-LOSTA ORIGEN DE ANIMALES DE CASA" (PARTITION NO. 276  
OF MIN. OF AG. AND LIVESTOCK; NOV. 13 1970) INCLUDES ALL 667 PARTIES,  
WHICH RESERVE COMPLETE PARTITION AS OF NOV. 28, 1979.

The following is a list of the major reports and publications concerned with national article resources (list author, date, title, and publisher).

- [illegible]

| PROJECT TITLE                            | DATES                  |     | NAME & ADDRESS OF INVESTIGATOR & OTHER INVESTIGATOR   |
|--|------------------------|-----|---|
|  | START                  | END |   |
| (STUDY OF TURTLES<br>ON ISLA DE AGUA)    | 1960-<br>(APR-<br>MAY) |     | FUDENA. José Luis ALANCA,<br>Dr. José L. GÓMEZ CALABRANO  |
| (STUDY OF TURTLES<br>ON ISLA LOS ROQUES) | 1960-<br>(APR-<br>JUL) |     | FUNDACION LOS ROQUES.   |
| AGUAL. SURVEY OF MARINE<br>BENTHOS       | 1961,<br>1963          |     | NATS. COM. INT. TO AREA C.M. RIVERO<br>FLORIDA AUDUBON SOCIETY<br>1101 AUDUBON WAY<br>MILWAUKEE, WIS. 53211, USA. |
|  |                        |     |   |
|  |                        |     |   |

**TABLE VI.**  
**INTERNATIONAL RESEARCH PROJECTS**  
List turtle research activities funded within your country.

## TURTLE CONSERVATION REGULATIONS IN VENEZUELA

Wildlife protective regulations in Venezuela are promulgated under the "Ley de Protección a la Fauna Silvestre" (Wildlife Protection Law), passed August 1, 1970. Although turtles are not specifically named in the text of the law, they are included in the section on Reptiles in Article 2, Annex 1.

Visitors became a specialty to the Commission on International Trade in Endangered Species of Fauna and Flora (CITES) in 1976. This Convention prohibits international trade in such species as Appendix I and requires exporting countries to issue permits and determine the such trade is not likely to jeopardize the species for export of species listed under Appendix I. The categories considered roughly as "endangered" are the "threatened" of the U.S. Department of the Interior and the "endangered" of the U.S. Department of Commerce. Native groups, all of the marine turtles (Chelonia and Dermochelys), are "endangered" under Appendix I, and all mammals and birds are "threatened" under Appendix II.

**The Official List of Game Animals** ("Liste Océale des Animaux de Chasse") was published as *Rapport sur les 70% de la Faune de l'Agriculture et de la Pêche* (Ministère de l'Agriculture et de la Pêche) November 13, 1970. This list included all following turtle species: *Dermochelys coriacea*, *Erymnochelys albertana*, *Dermochelys olivacea*, *Caretta caretta*, *Caretta mydas*, *Pseudocaretta agassizii*, *P. uropia*, *P. chelonia*, *Pseudocaretta demissa*, *Gastrophysalis carolinensis*, and *G. demissa*. The list also presumably represented all those turtles that are being consumed, and perhaps capable to be so, in the future. It includes the shells, Eschscholtz, Pennington, Broadhurst, and Peabody.

Although Redwood has 27% and not as much assemblability as the other two species, on November 26, 1979 the Ministry of the Environment and Renewable Natural Resources (Ministerio de Recursos Naturales Renovables) issued a Resolution (Resolución) No. 14,000, signed by Ambrósio y de las Rozas, Minister of Natural Resources, in which MARNR established the protection for all of the above species except *Procyonides urivillei* and *P. urocyon*. MARNR established a hunting season of February 1 to March 31 for these two species, for holders of a license type A and C, and a season of February 15 to March 31 for holders of licenses type B. A dark, thin, and long tail of a black color was established for one animal and a long tail of two was established for the other animal. The total closed season on *Procyonides* was extended for two years from 1982; by MARNR Resolution no. 102, passed on May 22, 1979.

Green turtles (*Chelonia mydas*) in Venezuela received substantially improved protection under the designation of life Aves, the principal national breeding ground (see Page 403), as a Wildlife Refuge (Refugio de Fauna Silvestre) on November 9, 1972. The establishment of a permanent military reservation within a hurricane proof structure on the island, although aesthetically unfortunate, also assured enforcement of the protective legislation. Moreover, turtles on Isla Aves have been spared recently by crimes of small boats arriving without permission from various islands of the Lesser

**Available.** In addition, turtles in Venezuela receive protection under various protected lands designations. National parks include the following: Los Hornos, northern, 13,500 hectares (33,200 acres), 1,517,463 hectares (3,710,000 acres); Los Hornos, central, 154,328 ha., and one forest reserve (127,795 ha.). All exclusive activities are prohibited in the latter, and the fourth category above, such activities as hunting, logging, and mining, are permitted in forest and forest reserves.

National parks and other protected lands in Venezuela are currently being recovered under a joint Nature Conservancy-Fundación para la Defensa del Ambiente program, which lists the first seven as follows: Canaima National Park, the first in Venezuela that is within the boundaries of protected lands, and to many recommendations for further acquisition of undermanaged ecosystems and ecotones. By far the largest is Parque Nacional Canaima, in southeastern Venezuela, which includes many different "types," known as "insular" in North America. The main entrance, where the road to the world-famous Angel Falls is, is a magnificent and lush tropical rain forest.

BY

Peter C. H. Pritchard, Ph.D.

Summary of knowledge and results of surveys of  
sea turtles and their nesting beaches in Venezuela

## FLORIDA AUDUBON SOCIETY

1101 Audubon Way  
Maitland, Florida 32751

## DESCRIPTION OF THE COAST

The mainland coast of Venezuela follows an approximately east-west course and extends between the latitudes of 80° W and 71° 30' W. The coast lies entirely within the tropics, being between 10° and 12° north of the Equator, and it comprises the eastern half of the southern boundary of the Caribbean Sea. The coast of eastern Venezuela is very arid, and is dominated by the huge, paired, narrow-necked, desiccated peninsulas of Guajira and Paraguaná, which enclose the Gulf of Venezuela. The Gulf has an open connection at its southern end with the freshwater Lake Maracaibo, the largest lake in South America. East of Paraguaná Peninsula, whose southern base is composed of sterile, rolling sand dunes reminiscent of the Sahara Desert, the climate becomes progressively more moist; several permanent rivers reach the sea in the short stretch of coast between Tucacas and Puerto Cabello, and between Tucacas and Chichiriviche the otherwise nearly continuous beach is interrupted by a spectacular complex of mangrove islands, some of which have small beaches, that together comprise the Morrocoy National Park.

In the Central Part of the Venezuelan coast, the coastal mountains reach to the seashore. In this area, which lies between Puerto Cabello and Higuera, there are numerous small beaches but few large ones. The rainfall is not uniform, but in parts the hills are covered with dense forest growth, while others that receive less rain have bare areas of red soil between the trees and shrubs.

East of Higuera, as far as Barcelona, the coast is flat, although low hills reach increasingly near the coast as one proceeds east. The entire coast is marked by an almost continuous beach, with sporadic towns and cities of variable size, and huge areas immediately behind the beach dedicated to the monoculture of coconuts. In places natural vegetation still exists.

Between Barcelona and Cumana, the coast is hilly and very dry, much of the soil appearing bare. A number of hilly islands are found along this stretch of coast, and a few small beaches may be seen on both the islands and mainland.

East of Cumana, the Gulf of Cariaco extends eastward for about 75 kilometers, being bounded on the northern side by the Araya Peninsula. The water in the Gulf of Cariaco is dark blue and deep. The Araya Peninsula is composed of red, eroded hills with extremely sparse vegetation. Towards the base of the Peninsula, however, the hills are more vegetated and fertile. There are a few small, gravelly beaches on the southern shore of the Araya Peninsula. To the east, the lagoon peters out into a complex of mangrove swamps with inflowing brown-water rivers, followed by dense tropical forest. As one approaches the Gulf of Paria from the eastern end of the Gulf of Araya, the forest continues, in places dominated by palms, and elsewhere very swampy. The Peninsula de Paria, forming the north shore of the Gulf of Paria, is a relatively narrow but rather high mountain ridge, thickly clad with tropical rainforest. Along the Gulf coast of the peninsula, the shoreline is dominated by mangrove forests but there are occasional small beaches.

The east-west coast of about 300 km that forms the northern shore of the combined peninsulas of Araya and Paria has steep forest-clad hills with no coastal plain, but the rugged, serrated coast includes numerous fishing villages and small beaches.

From the western corner of the Gulf of Paria to the Guyana border about 400 km to the south-east, the coast is dead flat for miles inland, and is totally dominated by the huge estuary and delta of the Orinoco River. This extremely complex coast is primarily fringed by mangroves, which in many areas show evidence of drastic erosion and natural changes in the coastline. There are no sand beaches in this area (though, as mentioned above, there are some small ones on the northern shore of the Gulf of Paria), and the water is very muddy and of reduced salinity.

In striking contrast to all other countries of northern South America, the offshore waters of Venezuela are dotted with islands, many of large size. The principal islands and archipelagos, from west to east, are as follows: Aruba, Curaçao, Jan Aire, Aves, Los Roques, Orchila, La Tortuga, Blanquilla and Los Hermanos; Margarita, Cubagua and Coche, Los Frailes, Los Testigos, and Trinidad. Aruba, Curaçao, and Bonaire are not politically Venezuelan but are included in the Netherlands Antilles, and Trinidad is part of the British Commonwealth. These islands, with the exception of Trinidad, are rather or very arid. The smaller islands are all very flat, but the larger ones, including Trinidad, Margarita, and the Netherlands Antilles, have significant elevation.

Politically included within Venezuela - and one of the most important turtle nesting islands in the Atlantic system - is tiny Aves Island, located about 500 km to the north of Curaçao (Edo. Sucre). Aves is a mere sandbank of negligible altitude, and has a coastline that changes from year to year and that may even be split in two after hurricanes. Aves is the only emergent point of the Aves Ridge, a vast submarine geological formation in the eastern Caribbean.

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## SEA TURTLE POPULATIONS IN VENEZUELA

Although nesting of sea turtles on the mainland coast of Venezuela is sparse, the waters and islands of Venezuela provide either feeding or breeding habitat for several populations of a number of species of sea turtles. According to presently available knowledge, these may be summarized as follows:

- The nesting population of the green turtle, *Chelonia mydas*, on Aves Island. This population appears to migrate to feeding grounds in the Lesser Antilles and the Dominican Republic.
- A feeding population of the green turtle, *Chelonia mydas*, in the Gulf of Venezuela, derived from the breeding population at Tortuguero, Costa Rica. Although generally separated, members of populations i) and ii) may occasionally be found in the same areas.
- A feeding population of the olive ridley, *Lepidochelys olivacea*, in western Venezuela (Sucre, Nueva Esparta, and Delta Amacuro) derived from nesting grounds in Surinam.
- Populations of the hawksbill turtle, *Eretmochelys imbricata*, both breeding on and feeding near many of the islands off the Venezuelan coast, especially the smaller and less inhabited ones.
- A low density breeding population of the green turtle, *Chelonia mydas*, of unknown migratory habits, in Estado Sucre.
- A very small breeding population of the loggerhead, *Caretta caretta*, in the Los Roques Archipelago, and with rare nesting elsewhere on the islands and the mainland of Venezuela.

In addition to the above, the leatherback, *Dermochelys coriacea*, nests in quite good numbers in Trinidad and is caught sporadically in Venezuelan waters but no nesting in Venezuelan territory has been recorded. It has, however, been found nesting in both Guyana and Colombia, and in great numbers in Surinam and French Guiana.

## i) Green turtles nesting on Aves Island.

Aves Island is a tiny, rock-cored, footprint-shaped sandbar located almost 500 km north of the coast of Estado Sucre, Venezuela, and about 200 km west of Guadeloupe, its coordinates being 15° 40' N, 63° 36' W. The island is of fluctuating form. It is only about 520 meters long, and 200 meters wide at its widest part (at the northern tip). The green turtle colony on Aves Island has been discussed in a considerable body of literature, relevant references include Mummel (1952), Lessell (1957), Maloney and Schubert (1958), Zuloaga (1955), Rainey (1971), Brownell and Gorman (1974), and Laiz Blasco (1978).

White Aves has been visited by voyagers for decades, the first systematic study of the Aves Island green turtle colony was that of Rainey in 1971-74. Rainey found turtles nesting on Aves from June through August, as is typical of the northern hemisphere marine turtle colonies.

In 1971 he counted 174 nest pits made prior to his arrival on June 24, and tagged 18 nesting turtles during the subsequent three nights. Mean carapace length was found to be 42.4" (107.7 cm) and mean weight 380 lbs. (173 kg). The Aves Island turtles are thus distinctly larger than those nesting at Tortuguero, Costa Rica, and closer in size to the South American mainland nesters in Surinam and Guyana.

After a hiatus of several seasons, FUDENA re-initiated an Aves Island turtle tagging program in 1978. In that year, the research team spent 89 days on the island, arriving in July and departing in October but being forced to leave for a time by the passage of Hurricane David on August 28. Maps were drawn showing the change in form of the island before, immediately after, and 44 days after the passage of the hurricane, which obliterated the island of sand, washed away all turtle eggs, and ruptured the narrow isthmus connecting the northern and southern parts of the island to that for a brief period Aves consisted of two separate islands.

Worldwide turtles tagged in earlier years by Rainey and his co-workers were found, but 1988 results have not been analyzed. 670 nesting emergencies were recorded in July and August, the vast majority in the latter month, and an estimated 70% of these resulted in nestlings. Luis Blanco (1979) estimated that as many as 55,280 eggs were destroyed by the hurricane on August 28. The nesting took place all around the island, with only modest variation in density from one section to another. A few hatching emergencies were witnessed during July and August, corresponding to early-season nesting in May and June.

Long distance recoveries of green turtles tagged while nesting on Aves Island are summarized by Carr, Carr and Maylen (1978) and by Caribbean Conservation Corporation (1980). Recovery locations recorded included Miskito Keys, Nicaragua (2); Isla Mujeres (Mexico); Dominican Republic (several); Isla La Tortuga; Grenada; Grenadines, Martinique (2); and Guadeloupe. The possibility cannot be discounted that some of the recoveries reported from Lesser Antillean islands such as Martinique and Guadeloupe were in fact made from vessels poaching in waters and beaches of Aves Island itself, with the recovery location falsified by the finders to prevent self-incrimination.

#### (f) Green turtles in the Gulf of Venezuela.

Although green turtle nesting has not been reported in the Gulf of Venezuela, the species is often encountered there, and is caught for human consumption in both the Guajira and Paraguaná Peninsulas. Both immature and mature turtles are caught, a number of the mature females found have borne tags indicating that they had previously nested at Tortuguero, Costa Rica. Western Venezuela thus appears to be an outlying feeding area for the Tortuguero breeding colony, which is the largest breeding assemblage of green turtles in the Caribbean and which primarily utilizes feeding grounds off the coasts of Nicaragua, Panama, and Colombia with occasional recoveries of tagged animals as far away as Campeche, Key West, and Puerto Rico (Carr, Carr and Maylen, 1978).

During the period of 1958-1976, seven men Tortuguero green turtles were recovered in the Gulf of Venezuela, and eight more on the Central Venezuelan coast, between Las Roques off Caracas and Guiria on the south coast of the Paria Peninsula (Carr, Carr and Maylen, op. cit.). Specific localities recorded as of 30 June 1977 for these Tortuguero-Venezuelan migrants were:

| Tag No. | Date Tagged   | Place of Recovery                                   | Date of Recovery |
|---------|---------------|---|------------------|
| 1958    | 8 Sept. 1951  | Las Caimas de Cajiao, Venezuela                     | January 1953     |
| 1057    | 17 Aug. 1951  | Casillero, Venezuela                                | 25 July 1953     |
| 3254    | 18 Aug. 1954  | Isla de Margarita                                   | Nov. 1955        |
| 1726    | 2 Aug. 1951   | Between Colombian and Venezuelan coasts             | 7 May 1958       |
| 2089    | 2 Aug. 1953   | 12 mi. south of Isla El Gran Roque                  | June 1958        |
| 4437    | 10 Aug. 1957  | 3 mi. north of Zapara Island, Gulf of Venezuela     | 24 April 1958    |
| 5050    | 24 July 1958  | Coastal waters of western Gulf of Venezuela         | 22 Feb. 1971     |
| 5870    | 11 Sept. 1970 | Casillero, Peninsula de la Guajira                  | 8 April 1971     |
| 7529    | 19 Aug. 1971  | Punta Salina, Peninsula de Paraguaná, Estado Falcón | 2 Jan. 1972      |
| 7028    | 18 Sept. 1970 | Punta Salina, Las Roques                            | 16 Mar. 1972     |
| 6836    | 29 Aug. 1970  | Cajiao, Peninsula Guajira                           | July 1972        |
| 6853    | 14 Aug. 1972  | Cajiao, Guajira Pen., Gulf of Venezuela             | 2 Jan. 1973      |
| 8350    | 11 Sept. 1968 | Guiria, Golfo de Paria                              | 8 April 1973     |
| 8036    | 17 Aug. 1972  | Cajiao, Guajira Pen.                                | 12 Dec. 1972     |
| 7852    | 21 Aug. 1972  | Cajiao, Guajira Pen.                                | 12 Dec. 1972     |
| 5536    | 1 Aug. 1972   | Cajiao  | Summer 1973      |
| 6403    | 21 July 1972  | Cajiao  | Summer 1973      |
| 4135    | 26 Aug. 1972  | Cajiao  | Summer 1973      |
| 6836    | 4 Aug. 1970   | Cajiao  | Summer 1973      |
| 5870    | 10 Sept. 1972 | Eastern part of Paraguaná Pen.                      | 8 Aug. 1974      |
| 1178    | 4 July 1959   | Isla de Margarita                                   | 16 June 1972     |
| 4421    | 9 Sept. 1957  | Isla de Tortuga                                     | 22 Nov. 1959     |
| 5910    | 27 July 1958  | Isla de Tortuga                                     | 18 July 1970     |

#### VENEZUELAN RECOVERIES OF TAGGED *LEPIDOCHELYS OLIVACEA* AS OF JULY 1977

| Tag     | Date Tagged      | Place of Recovery   | Date of Recovery |
|---------|------------------|---|------------------|
| Surinam |                  |   |                  |
| 5138    | June 7 '68; E    | 10 m. from NE part of Isla Margarita                                | Aug. 2, 1970     |
| 2300    | May 21 '67; E    | Punta Salina 05° 34'N, 60° 30'W                                     | Aug. 1, 1967     |
| 5332    | June 2 '67; E    | Puerto Salina, Edo. Sucre; "on la playa"                            | 28 Aug. 1975     |
| 5843    | June 12 '67; E   | Golfos de Paria, 3 m. SE Guiria, Edo. Sucre                         | Oct. 5, 1972     |
| 5385    | June 12 '67; E   | 3 m. W of Las Trinitas  | May 18, 1970     |
| 2503    | June 12 '67; E   | 2 miles off Bolivada Road in Cochon Current off E coast of Trinidad | Feb. 4, 1968     |
| 5922    | June 12 '68; E   | near Isla Margarita   | May 10, 1969     |
| 5926    | June 17 '68; E   | 25 m. north of Trinidad   | Feb. 13, 1968    |
| 5951    | June 17 '68; E   | 16 m. E of Punta Espada, Golfo de Venezuela                         | Nov. 4, 1971     |
| 51120   | June 25 '68; E   | 1 1/2 m. NE of Carupano   | Sept. 10, 1968   |
| 51154   | June 26 '68; E   | Las Caimas de Punta Piedra, Edo. Nueva Esparta                      | Jan. 26, 1970    |
| 21209   | June 22 '68; E   | 8 m. N Cabo Negro Margarita   | Oct. 25, 1970    |
| 21280   | June 22 '68; E   | 17° 22'N, 63° 43'W (near Carupano)                                  | Jan. 22, 1971    |
| 51335   | July 10 '68; E   | Baño de Serpiente   | April 18, 1975   |
| 51620   | May 5 '68; E.P.  | Baño de Serpiente   | March 26, 1975   |
| 52885   | June 15 '68; E   | 1 m. off south coast of Trinidad N. of Spanish                      | 28 Jan. 1972     |
| 52794   | June 10 '68; E   | 18 m. N Isla Las Perlas (17° 34'N, 63° 45'W)                        | July 23, 1969    |
| 52853   | Apr. 22 '68; Sub | Las Perlas Archipelago  | Mar. 12, 1969    |
| 54248   | May 25 '68; E    | 2 m. off NE coast of Trinidad                                       | Oct. 28, 1972    |
| 55090   | June 25 '68; E   | 1/2 m. off eastern coast of Margarita I.                            | 28 May 1972      |
| 55148   | June 10 '68; E   | 5 m. off Yaco Yaco, Trinidad  | July 12, 1971    |
| 55259   | June 27 '68; E   | off Las Caimas, N. coast of Trinidad                                | April 1977       |
| 55288   | June 27 '68; E   | 1 m. E Pt. Salina, St. Trinidad                                     | March 2, 1972    |
| 55688   | July 1 '70; E    | 12 m. SE Isla Margarita   | Jan. 10, 1972    |
| 55648   | July 14 '71; E   | 50° 55'N on 17° 15'W (near Carupano)                                | March 1972       |

The occurrence of the green turtle and other marine turtles on the Paraguaná Peninsula was discussed in an undated newspaper article by Arceaga entitled "Las Tortugas de Adicora" (El Nacional, Caracas). I made a visit to the Peninsula in February 1978, and found several carapaces of green turtles that had been caught and butchered locally. Two of these that had been preserved measured 104.1 x 77.5 cm (i.e. mature) and 84.1 x 63.8 cm (i.e. immature). I also found six intact shells near a ghost town on the mouth of the lagoon opposite Santa Rita. One was adult (108.4 x 83.2 cm), while the remainder were immature (somewhat distorted, but generally 90-75 cm in length).

Interviews were conducted with local inhabitants regarding turtle nesting in the area. Long-time German residents in Punta Fija said that turtles were not found in significant numbers on the western side of the Paraguaná Peninsula, and if they nested there at all there could not be many. In Adicora, on the eastern side of the Peninsula, great confusion was found with common names of turtles, *cazaca* being used for either the loggerhead or the leatherback, and *caja* being applied to both the hawksbill and the male green turtle. This confusion of common names was also apparent in the popular article by Arceaga cited above. Nevertheless, one Adicora resident convincingly described the nesting of a green turtle nearby, and he had two shells in his yard to confirm his species identification. Another informant reported that the penis of the male green turtle is sometimes dried and used for medicinal and aphrodisiac purposes, and he showed us one such dried organ.

Concentrations of foraging sea turtles of unrecorded species have also been recorded from the Golfo Triunfo area south of Caya San Mateo (near the city of Tucucani), according to G. Chaffin (pers. comm. to L. Ogden, 1980).

#### (h) Feeding grounds of the olive ridley, *Lepidochelys olivacea*, in eastern Venezuela.

*Lepidochelys olivacea* (mistakenly identified as *Lepidochelys Kemp*) was first recorded in Venezuela by Duroso-Surra (1954a, 1954b), who cites the only locality record available to him for the country as "Cumaná". Subsequently, Flores (1956) reported three Venezuelan specimens, including two carapaces from Pirhu de Barlovento and a nearly mature female from Isla La Tortuga, though he persisted in the misidentification as *L. Kemp*; the correct identification is immediately apparent from the photographs, which show a turtle with seven light scutes and six right scutes, a condition common in *olivacea* but unknown in *Kemp*. Flores cited local vernacular names for *olivacea* as "Tortuga marile" and "Tortuga bueña". The subadult female specimen had carapace dimensions of 57.5 x 55.5 cm and the stomach contained traces of vegetation, bony fish, cartilaginous fish, and gastropods.

At about the same time as these discoveries, I first encountered and recorded the nesting of *Lepidochelys olivacea* in Guyana, and Schultz found the same species nesting in larger numbers in eastern Surinam. Pritchard, 1965, Schultz (1964). Subsequently Schultz and I cooperated in a tagging program for *olivacea* on the Surinam beaches that resulted in considerable data on migratory distributions of post-nesting females. 3,358 tagged animals yielding a total of 72 long-distance recoveries (Pritchard, 1972, 1976). Recoveries from Venezuela are listed in the table below.

|       |                |                              |               |
|-------|----------------|------------------------------|---------------|
| E6854 | June 2 '71, E  | 83° 30'N, 10° 58'W           | Sept. 1971    |
| E6719 | June 30 '71, E | near Carupano                | March 1974    |
| E6815 | July 7 '71, E  | Gulf of Paria, several m off | Nov. 26, 1971 |
| E7123 | June 20 '72, E | Point Fortin                 | Feb. 26, 1975 |
|       |                | Pampasar, Isla Margarita     |               |

(E1 = El Estero, K.P. = Krotzaj Pasi, Bab. = Baboonantii)

Flores (1969) reports this species (which he erroneously identified as *Lepidochelys kempi*) from the vicinity of Cumana (Estado Sucre), La Tortuga; and Isla Paritu (Estado Anzoategui).

These recoveries are clearly concentrated in the area around the Orinoco delta and the area to the north and west to which the Orinoco waters are carried by the Equatorial Current. There is only one Venezuelan recovery west of Isla La Tortuga, but this specimen (E681) reached as far as the mouth of the Gulf of Venezuela, only fifteen miles from the Colombian border. Occasional specimens have actually been caught in Colombian waters; Niciforo Maria (1953) and Tufts (1972) report on the same individual, initially misidentified as *kempi*, from Cartagena, Colombia. Other outlying olive ridleys have been recorded from 3 miles west of San Juan Harbor, Puerto Rico (Caldwell, 1969), and from Gibara, Cuba (Aguayo, 1953). An immature olive ridley has been recorded from Martinique and reports have been received of migrating individuals between Isla Soane and the Dominican Republic (Caribbean Conservation Corporation, 1980).

An important factor relevant to the potential study of olive ridley distribution by means of aerial surveys is that the Western Atlantic populations do not seem to share the East Pacific olive's habit of floating or sleeping on the surface for extended periods. This habit makes East Pacific ridleys particularly easy to survey (and to capture), but I have never seen Atlantic olive's floating or sleeping on the surface, and I know of no published record of others having made such an observation. The floating habit may possibly represent an attempt by ridleys in relatively cool East Pacific waters to elevate their body temperature by allowing the central part of the carapace to be held above the surface of the water and thus receive unfiltered insolation; the characteristic high, flat topped shell of olive's would appear to be well adapted for this strategy.

Olive ridleys have never been recorded nesting in Venezuela. However, Bacon (1973) summarizes nesting information for this species in Trinidad as follows:

1. Tracks on Matura Beach (animal not seen), August 1969.
2. Hatching found on Manzanilla Beach, August 1969.
3. Tracks and nest on Matura Beach (animal not seen), March 1970.
4. Adult female nesting on Matura Beach, May 1970.

Immature ridleys are sometimes caught around Isla Margarita. A carapace of a specimen from the north coast seen in the Collection, Isla Margarita, Instituto Oceanografico was 69.3 cm wide, and had seven pairs of costal scutes.

Isla Blanquilla, a flat, arid island about 100 km NNW of Isla Margarita, is likely to be another significant nesting site for the hawksbill. This island has no permanent inhabitants, though fishermen camp there from time to time. It is surrounded by superb reefs and many fine beaches. During a very brief visit to the island, on Feb. 21, 1978, with not more than an hour on the ground, I was able to find the remains of several hawksbill turtles that had been killed by visiting fishermen. An attempt to survey the island more thoroughly in the 1981 survey was thwarted by mechanical problems with the aircraft (which fortunately took place on the flight to Isla Margarita rather than the scheduled next leg of the flight to uninhabited and waterless Isla Blanquilla). However, Blanquilla should be considered a high priority for a hawksbill nesting and feeding habitat survey.

Roze (1954) reports that the hawksbill comes to the beaches of Isla Margarita on occasion for purposes of egg laying, and hawksbills caught in the waters around the island provided the basis for a local caviary industry. Roze (1955) offers an earlier comment on this industry, with thoughts on the relative merits of extracting the caviary from live and from killed hawksbills.

It is vital that studies be conducted of turtle nesting (particularly hawksbill nesting) on other islands of the Venezuelan coast, including Orchila (east of Los Roques) and La Tortuga, due west of Isla Margarita. La Tortuga island lacks permanent inhabitants, is of large size (about 11 x 22 km), and has a beach along its entire northern side.

Hawksbill nesting on the Venezuelan mainland is extremely sparse. However, an informant at Güirao, on the Gulf of Paria coast of eastern Estado Sucre, stated that the hawksbill was one of two species that regularly nested in that area in August. Bjorndal (in Caribbean Conservation Corporation, 1980) similarly heard reports of hawksbill nesting on beaches of the Gulf of Paria. This coincides in a general way with the peak nesting of hawksbills at Shell Beach, in Guyana some 70 km from the Venezuelan border (Pritchard, 1969), although the other species that use the beach (greens, leatherbacks, and ridleys) do so considerably earlier in the year. It is interesting that this extremely atypical habitat (muddy, estuarine water) should provide habitat for the hawksbill, a species typical of coral reefs, but Shell Beach may be the best nesting ground for this species on the South American mainland.

Very small numbers of hawksbills have been found in Aves Island, Brownell and Guzman (1974) reported having encountered six specimens in Aves Island waters in the course of four expeditions, though none had been seen nesting. All were immature, weighing between 10 and 20 kilos each. Laiz Blanco (1979) mentioned another Aves Island hawksbill, 1,805 g in weight and 26.5 mm in carapace length.

#### iv) Populations of the Hawksbill turtle, *Eretmochelys imbricata*

In Venezuela, populations of this species appear to be concentrated on offshore islands, from which the quality and quantity of information available ranges from very good to non-existent.

In the Netherlands Antilles, hawksbills are almost extinct (de Boer et al., 1973), though they may have existed in somewhat greater abundance in the past.

In the Los Roques Archipelago (a complex of mangrove, beach and reef islands about 150 km due north of Caracas) extensive studies have been conducted in the last two or three years on hawksbill populations, and these have included an ambitious "head-starting" program. The islands are a National Park and scientific studies here are administered by the "Fundacion Los Roques", based in Caracas; there is a field research station in the archipelago, the Estacion de Biologia Marina Dos Mosquises. Intensive studies on the sea turtle population were initiated in 1979, and continue. Several mimeographed reports are available on the first season's work (Maldonado, 1981; Buitrago, 1981; Anon, 1980). Findings may be summarized as follows:

Hawksbills nest in modest numbers on many islands of the Archipelago, nesting taking place from May to December but with the great majority of emergences taking place in July to October (peak month September). Absolute numbers are low; in 1979, one nest was recorded in April, one in May, four in June, ten in July, twelve in August, seventeen in September, ten in October, four in November, and one in December. The most used nesting islands were identified as Dos Mosquises, La Pelona, Cayo de Agua, Bekave, Salsky, Caranero, Cayo de Sal, and Cansky. These islands are concentrated in the western side of the archipelago, the islands in the east, although much larger, are extensively mangrove bordered with little beach.

Although the area is a National Park there are still resident fishermen who constitute an ongoing threat to turtle nests; most nests that are not found almost immediately by the research and conservation team are robbed by egg collectors. The preferred course of action by the conservation team in finding a fresh nest is to camouflage it or dig a small hole to give the impression that the egg has already been taken. Broken eggshells scattered around the nest complete the impression of a "robbed" nest. Other nests are left alone, but station for artificial incubation and head-starting. In 1979, 21 nests were camouflaged and only two of these were robbed. Of 26 nests found in 1980, 18 had already been robbed (2 green turtle nests, 12 hawksbills).

There have been two long-distance recoveries of turtles "head-started" at the Los Roques facility. One of these was a hawksbill, hatched on Los Roques 8/11/74 and released 2/12/75 when it measured 30.2 x 21.4 cm and weighed 3.35 kg. It was captured in Jamaica on October 21, 1976.

The other was an Aves Island green turtle, artificially incubated and hatched at Los Roques 10/11/73 and released 15/9/74 when it measured 19.8 x 15.8 cm and weighed 875 g. It was caught in Santos, São Paulo, Brazil, on 28/8/76, at which time it measured 33 x 28 cm and weighed 4 kg. It was retained for the Santos Aquarium. This is one of the longest turtle movements on record, however, whether a turtle would naturally embark on a journey of that nature is uncertain, since the turtle entered the sea at an unnatural location and age.

#### v) Breeding colony of the green turtle, *Chelonia mydas*, in Estado Sucre.

Several published reports draw attention to the nesting of green turtles in Estado Sucre. Flores and Hoyt (1965) mention an individual that was captured while nesting at 2 a.m. on October 18, 1965 at Playa Niqueta, near Cumana. It laid 160 eggs and the carapace measured about 112 x 90 cm; the estimated weight was 160 kg.

Laiz Blanco (1979) reported on a aerial survey of the beaches of the Peninsula de Paria, and found a single turtle track and three beaches that appeared suitable for nesting.

Ogren (1980) mentioned an aerial survey in Estado Sucre in August 1979, reported to him by G. Cuellar, Head of Projects for FUDENA. This survey took place between Carupano and San Juan de los Rios, and only a single turtle track was seen. The coast was reported to consist of small stretches of beach, separated by rocky cliffs.

In the course of my 1981 aerial survey, the northern coast of Estado Sucre was the only place in which we found regular turtle tracks. Seven fresh nests were seen, nearly all on beaches immediately east of Cabo Tres Puntas. The three beaches at the eastern end of the peninsula mentioned by Laiz Blanco (op. cit.) were not surveyed.

Detailed information on the location of the nests seen and the beaches along the coast of Estado Sucre may be obtained from the flight log and the maps appended herewith. Although identification of the species that made the nests is uncertain, my judgment is that they were made by green turtles; they were certainly not leatherback or ridley nests.

A few green turtle nests in northern and western Trinidad, which is a geological extension of the Peninsula de Paria, separated by just a few miles of ocean at Boca del Dragon. Bacon (1973) records green turtle nesting from Mayaro, Matura, Metelat, and Big Bay, Trinidad. Following the mainland coast to the south-east from the Gulf of Paria, the next beaches of any kind are in north-western Guyana (Shell Beach, where moderately dense nesting by green turtles takes place (Pritchard, 1969)).

A fisherman interviewed on Isla Margarita on 21 February 1979 declared that he considered the following beaches on Isla Cubagua between Isla Margarita and the mainland) to be possible nesting sites for *Chelonia mydas*: La Calavera; Corral el Barlovento; Corral del Sotavento, and possibly Puntarenas.

Several shells of immature green turtles were seen for sale on Isla Margarita; three of them had the following dimensions: 61.3 x 52 cm, 41.9 x 36.5 cm, 47.0 x 37.5 cm. Prices ranged from 25 to 40 Bolívares.

Some turtle nesting was reported to take place on Playa Manzanilla, Isla Margarita, but the species was uncertain.

#### vi) Nesting by the loggerhead turtle, *Caretta caretta*, in Venezuela.

The loggerhead is rather scarce in Venezuela, and only a few nesting records are available. This contrasts with the Colombian coast, where *Caretta* is the common nesting turtle, however, east of Venezuela, in the Guianas, the loggerhead has never been recorded nesting in Guyana or French Guiana, and only a single

specimen has been found nesting among thousands of leatherbacks, olive ridleys, and green turtles in Surinam. In Trinidad, Bacon and Maliphant (1971) report a single nesting by the loggerhead, at Las Cuevas Beach, in 1970; however, the photograph of this turtle, although somewhat indeterminate, looks more like a hawksbill, and the carapace length (85 cm) is more typical of that of a nesting hawksbill than a loggerhead.

A few loggerheads nest in the Los Roques Archipelago, though the predominant turtles there are hawksbills. Suñtrago (ms) recorded seven loggerhead nestings in Los Roques during the 1979 season - five in May, one each in April and June.

Fieras (1968) reported that the loggerhead is frequently observed in the waters of Sucre and Isla Margarita, Venezuela, and that it nests on sandy shorelines of coasts and the islands of eastern Venezuela. I saw three loggerhead skulls in the collections of the Instituto La Salle on Isla Margarita; the largest of these 27.5 cm wide and 24.5 cm in basiscranial length, is equal to the largest skull of this species that I have seen.

#### AERIAL SURVEYS

Two major aerial surveys were conducted in the course of the consultancy reported herein. The first of these started from Caracas and proceeded west, maintained high altitude until Puerto Cabello, and then followed the coast at a low level to Coro and completely around the Paraguana Peninsula. No sign of turtles nesting was seen on this flight; because of this and extreme turbulence the journey from Punto Fijo to Maracaibo was completed at high altitude. The second flight started from Caracas, again maintaining high altitude for some time following take off, and descended to low survey altitude at Niqueroe. The survey continued to the east, passing along the southern shore of the Peninsula de Parí. A landing was made in Güiria, after which we crossed to the north coast of the peninsula, and flew west along the coast, finally crossing the narrow water separation to Isla Margarita where a landing was made and the flight abandoned because of battery failure in the aircraft. One turtle nest was seen on the coast of Antioquegui and several in Sucre, described in detail in the flight log. It is unfortunate that aircraft failure prevented survey of the coasts of Isla Blanquilla and Tortuga as had been intended.

Certain other data are available from Venezuelan surveys other than those two. On 25 March 1977 Pedro Trebbau and I flew the coast of the Orinoco delta and onward to Guyana at an altitude of about 300 feet, in each of the required beach of "Punta Playa", on which leatherback nesting was supposed to occur. However, the entire coast was composed of mud and eroding mangrove forest throughout the delta area and the first beach encountered was Shell Beach, Guyana. The latter is a uniquely important nesting area, not so much for the absolute number of turtles utilizing it, as for the fact that it is an important site for no fewer than four species (leatherback, green, olive ridley, and hawksbill).

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#### SUMMARY OF FLIGHT LOG: Caracas west to Paraguana Peninsula

DATE: July 18, 1981

PILOT: Luis Arturo Ayala M.D.

COPLOT: Pedro Trebbau D.V.M.

OBSERVERS: Peter C.M. Pritchard, Ph.D.  
J. Robert McMorris  
Luis Arturo Ayala Jr.

AIRCRAFT: Piper Twin-Engine Low-wing Monoplane; Registration YV-1562P

(This type of aircraft was less than ideal for aerial surveys, being rather fast and with low wings, so observers were forced to sit in the rear-most seats and look backwards).

0.26 a.m. Take-off, El Centro Airport, Caracas. Required by air traffic regulations to fly over high mountainous section west of Caracas; descended to observation altitude near Puerto Cabello.  
0.48 Cliffs and forest covered hills, with occasional yellow sand beaches, relatively or completely inaccessible; some pebble beaches.  
0.48.18 Puerto de Cota. Sandy Bay with development including two highways.  
0.48.50 Larger beach but with town behind.  
0.48.50 Another curved beach, behind. Still forest-covered behind.  
0.53.18 Bahía de Turiamo - some beaches in bay, but small; shoreline mostly rocks. Steep cliffs.  
0.53.18 Mangrove inlet with complex border. Isla Larga and Isla Alcatraz: beaches along southern shores, with yachmen and vacationers.  
0.55.45 Puerto Cabello. Large port city.  
0.57.30 Beaches extend outside city, but in many areas fringed by rocks (on seaward side).  
0.57.53 Wrecked ship.  
0.58.23 Cement factory.  
0.58.45 Refinery. Beach starts after refinery.  
0.59.25 Power station with riprap-bordered cooling water channels.  
0.59.25 More beach; another refinery.  
10.01.18 Boca de Yaracuy (small town at river mouth). Beach front development, bathers. Beach runs until 10.03.21.  
10.05.00 Boca de Arca - beachfront town. Beachfront development, highway. Developed all the way to Tucacas.  
10.07.20 Tucacas. Mangroves and small beaches. Fly over Morrocoy National Park - extensive complex of mangrove islands, coral

Pedro Trebbau also reported to me that he had flown the coast of Aragua and the Distrito Federal west of Caracas on Feb. 19, 1981, in search of a downed aircraft. The flight covered the shoreline from Maiquetia to Puerto Cabello. However, despite an intensive visual search of the coast and water surface from a low altitude, no traces of sea turtles or their nests were seen.

A more positive observation was reported by Leopoldo Garcia of the Parque Zoológico "El Pinar" in Caracas. Garcia reported that in the course of an aerial survey in May 1981, he had observed a group of green turtles swimming in and out of a trench through a limestone reef offshore from Las Salinas, in the Distrito Federal between Chichiriviche and Cota La Mar. The turtles were estimated to be between 50 and 100 cm. in carapace length, and were between 9 and 15 in number, at least five being of adult size.

10.11.30 reefs, and small beaches; small groups of people seen on most of the best beaches.  
10.12.42 Cliffs with more beach, and extensive coconut groves. Passed beach in front of the Chichiriviche Lagoon.  
10.15.30 Chichiriviche - coastal town. Long, empty beach after the town, with coconut plantations.  
10.16.10 More beach and coconut plantations. Much driftwood on shore.  
10.16.10 Boca de Tuyuco (coastal town). Muddy water west of river mouth; much driftwood on beach. Beach flat, continuous, with flat land behind beach. Highway 1/2 mile inland.  
10.19.40 One scarlet ibis seen.  
10.19.40 San Juan de los Cayos (coastal town). Beachfront development. Very wide beach beyond town, with development. Coconut plantation. Two scarlet ibis seen.  
10.21.50 Beach with natural vegetation (low scrub forest); eroding cliffs; muddy water.  
10.25 Long beach with few huts, and coconut grove.  
10.26.10 High cliffs, narrow beach. Water still muddy.  
10.27 1/2 Small town. Circled until 10.29. Five scarlet ibis.  
10.30.24 Cliffs.  
10.32 Beach with human footprints.  
10.32.40 Huge coconut grove on point.  
10.35 Beach with huge coconut grove.  
10.36.40 Good beach.  
10.38 Good beach, with hill behind; some coconut palms.  
10.38 Long beach, high dunes, coconuts, some muddy water.  
10.38 More beach, coconuts. Streaks of muddy water in sea.  
10.41 Puerto Cumanaco (coastal city with airport). Much beach.  
10.44 Flight becoming turbulent. Cliffs, cactus.  
10.54.30 Landed at Coro airport.  
11.30.15 Took off from Coro; headed north along Paraguana Peninsula. Flight still rough and turbulent. Long rock-bordered beach along neck of peninsula, much sand, dunes, etc. Highway about 300 yards inland (4-lane with median).  
11.37 More beach, without rock fringing; highway becomes single.  
11.38 Dry old lagoons inland. Endless beach - looks good for turtles, but no tracks.  
11.40.55 Houses and huts on beach.  
11.41.30 More houses and huts; also off-road vehicle tracks.  
11.42.50 Adicora (coastal town); beachfront development.  
11.44 Town, beach development, lagoon.  
11.46.23 Offshore rocks and reef. Town on coast. Whole peninsula visible - all flat except for two isolated peaks of great altitude (2722 feet).  
11.47 Huge sand dune, reef-fringed beach.  
11.48 Town. Turbulence getting worse.  
11.48.50 Beach gives way to rock.  
11.51.40 Wide beach, sandy point. Isolated rocky patches. Tracks of vehicles and people. Huts on beach.  
12.02 Beach front development.  
12.09 Climb, to cross Boquete de Coro; no turtles seen and too turbulent for more, so continued fast and at high altitude to Maracaibo.

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SUMMARY OF FLIGHT LOG: Caracas east to Guiria, west to Isla Margarita

Date: July 24, 1981

Pilot: Carlos Palmer

Observers: Peter C.H. Pritchard, Ph.D.  
Ledy Cecilia Acosta

Aircraft: Cessna 182 High-wing, four seat monoplane.

Take Off Time: La Carlota (Caracas) 9:43 a.m.

Required by flight traffic regulations to fly over mountains east of Caracas directly to Higuerote. Much light cloud at 5,000 feet, scattered higher cloud.

8.03 a.m. Descending to Higuerote. Long beach extended from point north of Higuerote, with considerable beachfront development.

8.05.30 Wide beach with much driftwood. Sea brown and muddy with effluent from rivers. Inland flat, undeveloped, with scattered green trees near the coast becoming thicker inland.

8.07.10 River mouth; muddy effluent. Beach otherwise continuous.

8.07.45 Small coastal town, low density, with recreational beach. One or two high-rises, scattered development, several beach access roads.

8.08.50 River mouth. Recreational beach, extensive coconut groves.

08.50 End of beachfront development. Some young coconuts planted behind beach. Wheel tracks on beach. Swamp inland, with many dead trees.

8.11.25 Town at entrance to lagoon. More beach. Water now less muddy. Some coconut groves. Dense vegetation and open water in alternating parallel strips behind beach, with lagoon full of mangrove islands.

8.13.25 Coconut groves continue, with some beach houses. Many frigate birds and boobies around aircraft.

8.17 Lagoon ends in a series of mangrove islands in long strips. Beach and coconut plantations continue.

8.17 Fresh turtle track seen, possibly green turtle.

8.18 Many frigate birds.

8.19.15 Small town situated on a river mouth.

8.20 River mouth, more coconut groves. Tractor tracks on beach.

8.21 Shrimp boat seen about one mile offshore. Huge coconut grove extends about one mile inland. Plane getting too high - descends from 600 feet to 400 feet.

8.26.10 Playa Pineda airport. Small city, more beach (medium - energy wave action, yellow sand).

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10.37 Carupano Airport visible several miles due north. Countryside hilly, covered with nice forest.

10.41.10 Flying over El Pilar.

10.44 Dense forest dominated by a species of tall palm. Hills to left.

10.45 Extensive swamps.

10.47 Coastal swamp forests, intact on right side of aircraft (i.e. to south), with brown estuaries. Gulf of Paria - muddy, brown water. Mangrove and hardwood bordering shorelines, intact for miles inland on both sides. Very nice.

10.53.45 Flying along south side of Peninsula de Paria. Signs of coastal erosion - tall mangroves leaning over at shoreline.

10.54 Mud flats. Cloud very low (1,000 feet).

10.56.30 Dramatic line in water between muddy river water and dark, clear, sea-colored sea water.

10.58 First small beach seen.

10.59 Several small sandy beaches, several outflows of very muddy water.

11.00 Narrow yellow beach fairly continuous.

11.02 Coastal village.

11.03 Another village. Continuous narrow sandy beach, with swamp forest behind. Port of Guiria visible, with breakwaters to create harbor. Forest surrounds, with tall *Cereus cacti* visible.

11.08 Landed at Guiria. Talked with a one-eyed informant at airport, who said that there were a lot of turtles around Guiria, and both the Carey and one other species nested in the area around August.

11.24 Take-off from Guiria; went north across peninsula to north coast. Peninsula is thickly covered with rain forest and slopes up to a ridge near the north coast which plunges abruptly into the sea. Thick clouds over the hills. Occasional, totally isolated thatched huts.

11.33 Beach north coast. Small cove beaches with wave action visible even from high altitude. Water deep and clear.

11.34.13 Turtle Track (fresh). Several beaches with small villages behind.

11.38.51 Another Turtle Track.

11.38 Another Track. These appear to be medium-sized fresh nesting tracks, probably green but possibly hawksbills.

11.38.25 Another Track.

11.39.50 Another Track.

11.39.50 Long beach with huts at point. Hills behind, mainly rock cliffs behind beach.

11.41 Small town, beaches. Still steep hills plunging down to the sea.

11.43 Fresh nest at end of beach.

11.43.30 Village.

11.44.30 Large village, beach, steep rocky islands.

11.46.40 Small village, beach.

11.48 Village and beach, with rocks, many boats (about 30) off shore in tight group, presumably fishing.

- 16 -

8.27.15

8.30

8.30.20

8.30.50

8.34.30

8.37.30

8.39

8.41

8.42

8.50

8.53

8.59

10.02

10.05.30

10.07.02

10.11.10

10.14

10.17

10.17.50

10.18

10.21.30

10.22.44

10.26.30

Lagoon begins. Narrow beach strip between lagoon and sea, with development and recreation, many swimmers. Development ends but coconut grove continues.

Coconut grove ends.

Sandbar at entrance to lagoon, with brown and muddy water.

River mouth, muddy effluent. Next lagoon begins. Beach continues with scattered coconut palms, narrow strip of vegetated dunes between the sea and lagoon. No development, cattle tracks.

Aircraft forced to ascend to higher altitudes over Puerto Piritu. Beach continues uniformly.

Puerto Piritu. Lagoon mouth with effluent of muddy water. Had to fly still higher as we approached Barcelona (Military Reg).

Beach continues, with undisturbed bush behind.

Old beach ridges visible inland from present beach. Beach looks excellent, but we were too high to see in detail.

Barcelona. Aircraft at 6700 feet. Big port city, with complex islands offshore. Beach ends at Barcelona.

Hilly islands, with very little beach and what beach does exist covered with huts. Islands look dry and sterile, with sparse vegetation.

Passing "Isla Caracas" with some small uninhabited crescent beaches. Islands again hilly and arid.

A few isolated crescent beaches visible before Cumand.

Flying over tip of Peninsula de Araya. A few beaches around tip but sporadic development and very dry inland. Flight path along southern shore of Peninsula de Araya.

Town with boats and pier. Coast with dry hills; water dark blue and looks deep. Some dark, gravelly beaches - do not look suitable for turtle nesting. Red, eroded hills with extremely sparse vegetation.

Entrance to small inlet or bay. Water mill looks dark blue and deep.

Hills becoming more densely vegetated and fertile. Occasional greyish, gravelly, narrow beaches, occasional coves with boats.

Beaches getting longer and sand becoming more yellow. Very low energy system, well protected, with no visible waves.

Small fishing village.

Hills becoming lower, occasional lagoons, shoreline made up of beaches and mangroves.

River mouth, small town, many fishing boats (small, open type).

White sandy point with salt lagoon. Lagoon terminates in mangroves. Brown water with inflowing rivers and muddy marshes.

Overland crossing to Gulf of Paria. Some excellent intact rainforest visible to left.

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11.49

11.50.35

11.53

11.54.30

11.57

11.58

12.02

12.03

12.05

12.05.42

12.08.30

Beach.

Five beaches, two with houses. Cliffs behind.

Large town, beach in cove.

El Morro de Puerto Santo town at base of narrow-necked peninsula; lots of boats in harbor in western side of neck.

Passing Carupano offshore.

Passing long beach behind Carupano. Some rocky outcrops.

3-4 very long beaches (1-3 miles each).

Deep cove with three beaches. Steep hills with sparse cactus forest.

Town in cove.

Turtle Track on end of beach. Two boats at sea operating a large circle net, about 80 yards in diameter.

Town in deep, wide cove.

Several beaches separated by rocks. Passed over Morro de Chicopata (peninsula) and gained height for flight to Isla Margarita.

Severe acids, burning smell developed during this flight, on landing in Margarita it transpired that the battery was dry, burned out, and so hot that the plastic fittings were melting. Peter Pritchard and the other observer abandoned the flight at this point; pilot called for a pickup truck for a boost to start his engine, and returned to Caracas.



# SURVIVAL OUTLOOK FOR VENEZUELAN TURTLES

For many decades, the Araya Island green turtle nesting colony was subject to specific, perhaps sometimes intensive, poaching of breeding adults and eggs by fishermen and sailors from the Lamer Arayas. This caused an almost certain major decline in the breeding population over the years, though quantification is difficult. Any given season is variable and impossible to predict, so that "good" and "bad" nesting years may have little bearing on the overall status of the population. The colony was probably headed for extinction had it not been for the establishment of a permanent military base, the "Base Cientifica Island Simon Bolivar", on Araya Island in early 1975. This construction, built on high dunes on the reef to avoid disturbance to the terrestrial ecosystem, is described and illustrated by Branch (1981); a permanent garrison ensures that poaching of turtles and eggs on the island no longer takes place, and prospects appear to be good. There is still concern of turtles on the feeding grounds, and egg may allow this to be ascertained, but the likelihood is clearly to be decreased. Several concerns on recruitment, such as the great crash on Araya Island that hit breeding turtles, and periodic removal of the sand on the island by hurricanes, continue but should be tolerable. However, the island is constantly changing in size and shape, and it is at any time the sand dunes were to disappear permanently, the turtle colony would certainly disappear, though until the egg-laying female turtles would do in an immensity of the means it is interesting to contemplate.

The turtle colonies that had partially in Venezuelan waters, the Tortuguero green colony and the Serrano colony, are both currently well protected on their nesting grounds. The colonies are probably principally threatened by human disturbance by the shrimp trawlers that abound in the waters off the Galapagos; whether the decline in numbers is attributable to this, to recruitment failure during the many years of total egg exploitation, or to a shift of the nesting turtles away from the breeding beach at El Estero to better sites to the west, is still not determined. However, according to the usual belief of numbers of females nesting on Tortuguero grounds, the other colony in Northern South America is in serious trouble. The Tortuguero green turtle colony is no longer subject to industrial-scale exploitation anywhere in its range, at least as far as known, and it is probable that the subsistence and village-level take from Nicaragua to Guadalupe (and Paraguay) is tolerable, though one should not be complacent.

Prospects for the headstart colonies nesting in Venezuela specifically on the island are probably poor. Even in the Los Rioses Archipelago, which is a national park, virtually all nests are raided by local resident fishermen unless the conservation crew from FUNDECMA is able to get them first. Checkpointing of all residents to ensure outside the national park is a major desideratum, but may be difficult to achieve. The situation on the other Venezuelan islands where headstarts nest remains to be determined; some islands are protected by their isolation, or by the very low numbers of nesting turtles that make them unprofitable to hunt, but wherever there are people there is likely to be egg robbing.

The small nesting colony of green turtles in Ecuador seems to be subject to significant poaching, but this has yet to be quantified. The area is remote and difficult to reach, but there are numerous small villages along the north coast of the Peninsula de Santa Elena where the turtles nest, and this juxtaposition is unlikely to be beneficial to the turtles.

## RECOMMENDATIONS FOR FUTURE WORK

It is unlikely that the central Venezuelan coast will yield significant numbers of nesting sea turtles, and it is therefore not recommended that resources be committed to ongoing aerial surveys there except on an opportunistic basis. However, the Gulf of Venezuela remains unexplored on either the Venezuelan or Colombian sides, and this should be done, both aerially and on ground, as soon as feasible. The beaches of the Peninsula de Paria require further investigation. Surveys so far have revealed that both green turtles and hawksbills nest there, and efforts should be made to quantify this. Such studies will need to rely initially upon aerial surveys, since the large number of small beaches on the peninsula are inaccessible from each other by difficult terrain. Aerial identification of prime beaches and interviews with local fishermen and fishermen is the recommended procedure.

A high priority is survey of the islands of Blanquilla, La Tortuga, and Cubilla. These remote islands have much apparently undisturbed beach and aquatic habitat for sea turtles, and preliminary information suggests that turtles are there. It is also strongly recommended that the existing study and conservation program on the islands of Araya and Los Rioses be continued and augmented as resources permit.

