GEOGRAPHICAL CHARACTERISTICS OF THE GALÁPAGOS ISLANDS

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INTRODUCTION

People interested in science or conservation in Galápagos often ask "How big and isolated is an island?" These two questions form the basis of the celebrated theory of island biogeography (MacArthur and Wilson 1967). This theory proposes that the size and isolation of islands can predict aspects of their biotic communities such as the numbers and types of species. Elements of the theory have been verified for a wide range of island archipelagos throughout the world, including Galápagos (Simberloff and Wilson 1969, Johnson and Raven 1973).

There are no complete systematic accounts of characteristics of the islands within the Galápagos Archipelago. Partial reviews of island characteristics have been published (Wiggins and Porter 1971, Black 1973). However, both of these sources concentrated on the larger islands in the archipelago and used potentially inaccurate methods, which, while they were the best available at the time, have since been superseded. These reviews also were published before the availability of highly accurate Ecuadorian navigational charts of the Galápagos, which have improved the resolution of measurements of island areas and isolations. In addition, these summaries disagreed substantially on the areas of several islands. We therefore decided to present this brief review which includes characteristics of many islands previously not quantified. These data have been compiled as part of our research on the biological diversity of the Galápagos Archipelago. While we will present the results of that research as a series of correlations with these data, we felt that many people interested in the Galápagos Islands would appreciate access to this review of the islands prior to our publication of their correlates with diversity. This summary includes all islands known to us in the Galápagos, 121 of them! We have purposefully not included altitude as a characteristic. Unfortunately, altitudes measured by a variety of methods are not comparable. We don't feel that our current altitudinal data represent an improvement over previously published values. We expect to change that in the future.

METHODS

We define an island as any permanently isolated land that is vegetated with terrestrial plants other than mangroves. Occasionally, we have included islands that we suspect are vegetated without having visually surveyed them. We measured area and isolation using published maps, aerial photographs, and our own measurements with receivers of positional signals from the Global Positioning System (GPS). We sometimes used published accounts of island areas, especially for large or well-studied islands (Wiggins and Porter 1971; Black 1974; Snell et al. 1988; Cayot et al. 1994). Table 1 provides the specific source for each characteristic we measured.

We used two measures of isolation that we felt addressed different aspects of isolation. First, we measured the distance from the center of an island to the geographical center of the archipelago. The center of the archipelago was determined by simultaneously measuring the distance from a proposed central point to all 121 islands. The mean of those distances was simultaneously calculated and displayed. We modified the position of the proposed central point until the mean distance was at its minimum. The proposed point at that time was as close to all islands as possible, a situation we defined as the center of the archipelago. The isolation distances were then calculated as the hypotenuses of right triangles formed by taking the differences in latitude and longitude of the center of each island and the center of the archipelago as the right sides.

Second, we measured the distance from an island to its nearest large neighbor, regardless of ocean currents or topography, as proximate isolation. We usually measured proximate isolation directly from charts using calipers. We classified islands as either small or large, and for small islands we always measured the distance to the nearest large island. For large islands, we measured the distance to the nearest larger island (the largest island, Isabela, had no measure of proximate isolation). We believe these conventions maximized our chance of measuring the distance that potential colonists would have to travel in order to colonize a particular island. An interesting alternative would be to measure to the nearest older island. However, sufficiently accurate estimates of the ages of the 121 islands treated here were not available to us.

We measured area by scanning an image of the island traced from navigational charts or aerial photographs into a Macintosh computer. The scanned image was imported as a PICT file into Canvas 3.03, a drawing program. In Canvas, the island area was measured using a freehand tool traced around the perimeter.

We followed three rules when calculating areas and isolation distances. First, size and isolation were measured at the estimated high-tide coastlines of islands. Second, size and isolation were measured using the largest scale map or photograph available. Finally, if an aerial photograph and a map of similar scale revealed different values for the same measurement, we used the photograph.

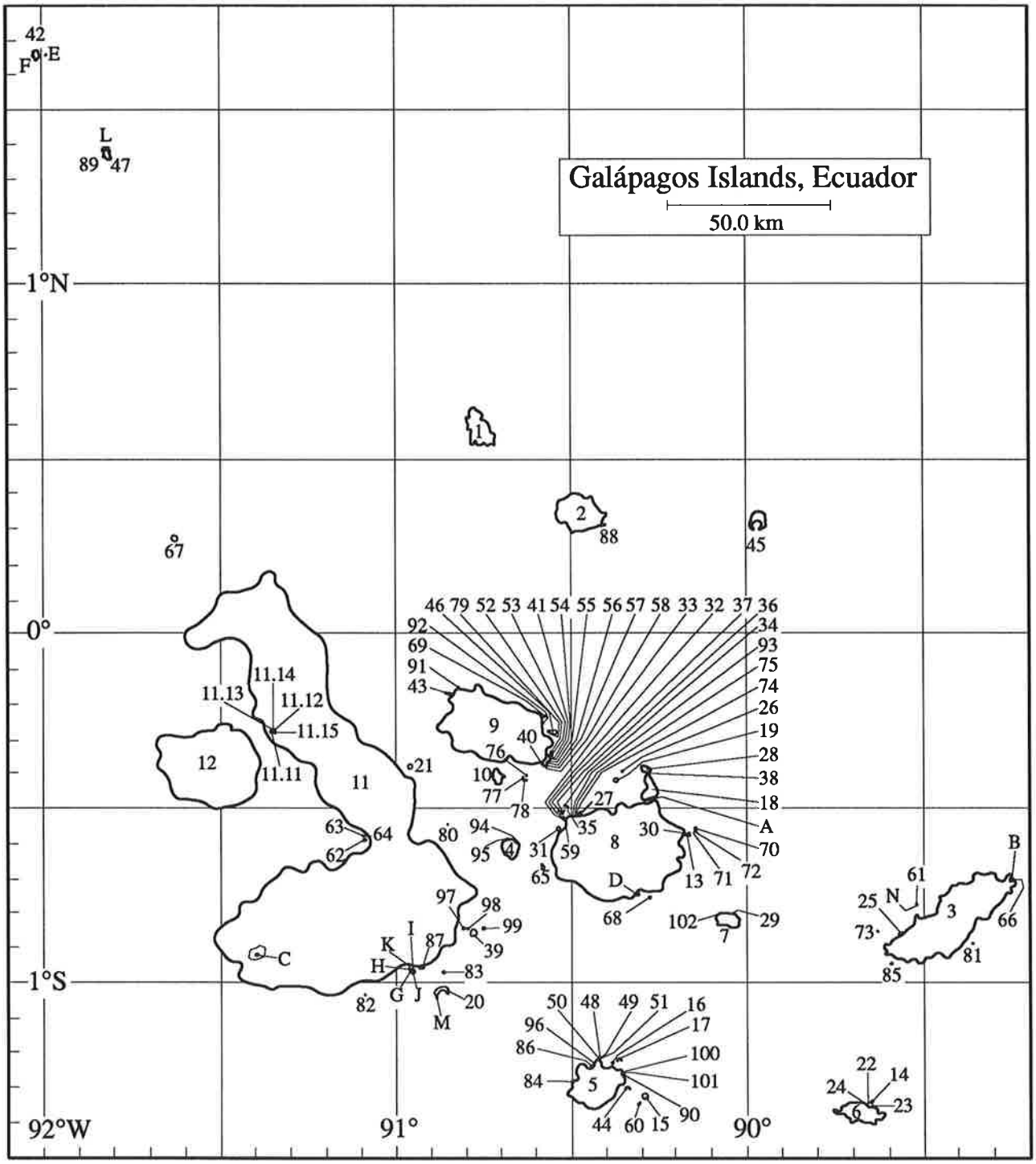

Figure 1. Relative positions of the islands of the Galápagos Archipelago.
These positions were plotted by converting the positions from Table 1 to a linear X (longitude) - Y (latitude) coordinate system. Those data were then imported into Cricket Graph III and plotted as a scatter plot with the points labelled with the codes in Table 1. That plot was then imported as a background layer in Freehand 5.0. A previously developed map of most of the archipelago was opened as another layer. By resizing the map until the centers of the islands corresponded with the plotted points in the background layer we were able to exactly position the many small islands not correctly plotted on the previous map. Due to the conversion of the positions to a linear scale some small errors in position may exist at the extremes of the archipelago. While the islands depicted here are accurate in their relative positions, we caution against the use of their outlines for area measurements. Because of variations in scale of the various scanned images, they could not always be used to develop the shapes of the islands on this map.

Positions of the islands were determined from our own measurements via GPS receivers when possible. In those instances we used the WGS 84 Datum for corrections. Otherwise we used the largest scale Ecuadorian navigational chart (IOA) available. If an Ecuadorian chart was not suitable we used British Admiralty charts (BA). Finally if Ecuadorian and British Admiralty charts were not suitable, we used United States charts from the Defense Mapping Agency (DMA). We found that the IOA charts were superior to all others for positional accuracy, the BA charts second, and the DMA charts third.

Many of the islands included here have never been described before. Thus, names for them are lacking. It was not our purpose to present a review of names, which are in a confusing disarray (Woram 1989). For that reason, we have used names commonly applied by the staff of the Charles Darwin Research Station, ourselves, or other residents of Galápagos. To avoid confusion we have included the positions of all islands in Table 1 and a coded map indicating relative positions as Figure 1.

RESULTS AND DISCUSSION

Table 1 presents the size, isolation, and position for 121 islands of the Galápagos Archipelago. This is an increase of approximately 40% in the number of islands previously recorded from the Galápagos (45+ [Wiggins and Porter 1971], 87 [Black 1973], 59+ [Jackson 1993]). Many of the previous accounts grouped islets such as the Marielas, Rocas Beagle, Guy Fawkes, Rocas Bainbridge, and Rocas Gordon. Those five groups actually contain 21 islets. However, a number of the islets included here represent complete additions to the published literature (although not new "discoveries" as the Galápageños know of every rock). For example, Islotes las Cuevas, Roca Rata, Islotes Caleta Tiburon, Islote Oeste, Islote Mao, and others have no published recognition known to us.

The center of the Galápagos Archipelago, based upon the 121 islands in Table 1, is located at 0° 32.22' S and 90° 31.26' W. This is near the NW corner of Conway Bay, Santa Cruz and is closest (0.5 km) to Islote Punta Bowditch Sur (33 on the map in Figure 1). It is fun to note that a small blow-hole occurs on the islet very close to this site. We refer to the blow-hole as "The Center of the Galápagos." Previous analyses using the distance from the center of the archipelago as a measure of isolation have assumed Santa Cruz as the center (Johnson and Raven 1973). The different techniques of identifying the archipelago's center yield strikingly different estimates of isolation. Our center yields measures of isolation that are greater than previous estimates by an average of 23.5 km. Expressed as a percentage of the previous value of isolation the average difference is 536 %. Unfortunately, the differences are not consistent (ranging from 3 to 6500%). Thus, the effect of the different measures will not be uniform when isolation is used in analyses of patterns of distribution. Most of the variation in the differences comes from our use of a point and the previous use of an island as the center. Using an island as the center allows islands that are separated by as much as 50 km to have "distances from the center of the archipelago" that are less than 1 km (Eden and Las Plazas, Johnson and Raven 1973).

Previously reported areas for six islands (Darwin, Wolf, Isla Lobos, Mosquera, Roca Redonda, Eden) differed by more than 20% (Wiggins and Porter 1971, Black 1973). For all of these islands except Darwin and Wolf we made an independent measure of island area. In those four cases our measurement of island area was closer to and within 20% of the value reported by Black (1973). Therefore, for islands whose area we did not measure but were measured by both Wiggins and Porter (1971) and Black (1973), we used the value from Black (1973). For all islands except Darwin and Wolf, choosing the Black (1973) value over the Wiggins and Porter (1971) value is a convention since the two estimates are very similar. However, the true areas of Darwin and Wolf remain in doubt. No good maps of these two islands exist, and the estimates of Black (1973) are less than 1/2 those of Wiggins and Porter (1971). Unfortunately, we cannot resolve this discrepancy in the present study.

The data in Table 1 are the most comprehensive and current list available, but this list will continually need amending. First, we are not certain this list includes every island in the archipelago. There may be scattered and isolated small islands near unexplored coasts of remote islands such as Pinta or Isabela that we missed. We also may have inadvertently included islands that are wave-washed or not vegetated. Finally the sizes, and to a lesser extent the isolations, depend on the accuracy of the published maps, which may often be imperfect. We encourage readers to point out any mistakes they uncover.

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IOA. 1991*b*. 207, Isla San Cristóbal - Isla Santa Cruz. Guayaquil, Ecuador.

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Table 1. Characteristics of the Galápagos Islands.

Map Code[1]	Island Name[2]	Position	Pos. Ref.[3]	Area (ha)	Area Ref.[3]	Proximate Isolation (m)	Isolation From	Isol. Ref.[3]	Dist. to Center (km)
11	**Isla Isabela**	0°25'30"S, 91°7'W	37	458812.0	1				67.4
C	Islote Cráter Cerro Azul	0°55'30"S, 91°24'W	37	0.600	36	500	Isabela	36	106.8
82	Roca Union	1°2'10.5"S, 91°5'28"W	20	0.050	36	2850	Isabela	20	84.2
83	Roca Viuda	0°58'19"S, 90°52'9"W	20	0.684	20	4389	Isabela	20	61.9
20	Isla Tortuga	1°1'21.5"S, 90°52'11.5"W	20	129.896	20	6780	Isabela	20	66.4
M	Islote Tortuga Oeste	1°1'36"S, 90°52'46"W	40	3.565	20	496	Tortuga	20	67.4
I	Islote Camino del Turismo (Villamil)	0°58'11"S, 90°57'31"W	20				Isabela		68.4
G	Islote Faro (Villamil)	0°57'47"S, 90°57'44"W	20				Isabela		68.2
H	Islote Fondiadero (Villamil)	0°57'49"S, 90°57'39"W	20				Isabela		68.1
K	Islote Muelle (Villamil)	0°57'54"S, 90°57'25"W	20				Isabela		67.9
J	Islote Villamil Sureste	0°58'22"S, 90°57'12"W	20				Isabela		68.2
87	La Lobería	0°57'37"S, 90°55'36"W	20	0.200	36		Isabela	36	65.1
98	Islote Cuatro Hermanos #2	0°50'41"S, 90°47'54"W	40	30.405	23	3626	Isabela	23	46.0
99	Islote Cuatro Hermanos Este	0°50'42"S, 90°44'55"W	40	7.264	23	8838	Isabela	23	42.6
97	Islote Cuatro Hermanos Oeste	0°50'39"S, 90°48'30"W	40	20.416	23	2701	Isabela	23	46.7
39	Islote Cuatro Hermanos Sur	0°51'30"S, 90°46'30"W	40	72.928	23	6154	Isabela	23	45.5
80	Roca Blanca	0°32'45"S, 90°51'21"W	40	0.300	2	7366	Isabela	28	37.2
21	Isla Cowley	0°22'56"S, 90°57'39"W	28	3.500	36	3214	Isabela	28	51.8
67	Roca Redonda	0°16'30"N, 91°37'35"W	37, 42	4.311	24	24060	Isabela	24	152.4
11.11	Islote Cráter Beagle #1	0°16'59.6"S, 91°21'8.8"W	44	1.562	18	262	Isabela	18	96.6
11.12	Islote Cráter Beagle #2	0°16'46.5"S, 91°20'59.4"W	44	1.697	18	487	Isabela	18	96.4
11.13	Islote Cráter Beagle #3	0°16'29"S, 91°20'53"W	18	0.067	18	393	Isabela	18	96.4
11.14	Islote Cráter Beagle #4	0°16'26.5"S, 91°20'53"W	18	0.032	18	364	Isabela	18	96.4
11.15	Islote Cráter Beagle #5	0°17'00.4"S, 91°20'52.8"W	44	0.096	18	321	Isabela	18	96.1
64	Islote Marielas Este	0°35'28"S, 91°5'17"W	19	0.067	19	738	Isabela	19	63.3
63	Islote Marielas Norte	0°35'31"S, 91°5'19.5"W	19	0.242	19	812	Isabela	19	63.4
62	Isolte Marielas Sur	0°34'43.5"S, 91°5'18"W	19	1.253	19	848	Isabela	19	63.2
12	**Isla Fernandina**	0°22'0"S, 91°31'20"W	37	64248.0	1	4016	Isabela	18	112.9
8	**Isla Santa Cruz**	0°37'0"S, 90°21'0"W	37	98555.0	1	27600	Isabela	6	21.0
68	Isla Caamaño	0°45'21"S, 90°16'34"W	15	4.500	15	1287	Santa Cruz	15	36.5
D	Islote Devine	0°45'9"S, 90°18'22"W	15	0.300	36	200	Santa Cruz	36	33.8
13	Isla Plaza Sur	0° 34'56.3"S, 90°9'57.0"W	13	11.9	3	302	Santa Cruz	13	39.8
30	Isla Plaza Norte	0°34'36"S, 90°9'32"W	13	8.844	13	652	Santa Cruz	13	40.5
71	Roca Gordon Central	0°33'51.5"S, 90°8'27.5"W	13	0.259	35	2840	Santa Cruz	35	42.3
70	Roca Gordon Este	0°33'48"S, 90°8'22"W	13	2.912	35	2990	Santa Cruz	35	42.5
72	Roca Gordon Oeste	0°33'55.5"S, 90°8'26.5"W	13	0.828	35	2786	Santa Cruz	35	42.4
26	Isla Daphne Chica	0°23'30"S, 90°20'56"W	37	7.958	10	10520	Santa Cruz	10	25.0
19	Isla Daphne Major	0°25'11"S, 90°22'12"W	37	33.022	10	7600	Santa Cruz	10	21.2
27	Islote Venecia	0°31'00.6"S, 90°28'29.1"W	44	13.279	4	30	Santa Cruz	4	5.6
74	Islote Caleta Tiburon Norte	0°31'10.6"S, 90°28'35.2"W	44	0.137	4	102	Santa Cruz	4	5.3
75	Islote Caleta Tiburon Sur	0°31'13.9"S, 90°28'35.0"W	44	0.104	4	29	Santa Cruz	4	5.3
93	Roca Rata	0°31'16.6"S, 90°29'6.2"W	44	0.035	36	40	Santa Cruz	36	4.4
35	Islote Guy Fawkes Este (2nd smallest)	0°29'48.5"S, 90°30'46"W	26	1.219	31	3448	Santa Cruz	31	4.6
34	Islote Guy Fawkes Norte (smallest)	0°29'45.2"S, 90°30'53.6"W	44	0.235	31	3870	Santa Cruz	31	4.6
37	Islote Guy Fawkes Oeste (largest)	0°30'45"S, 90°31'39"W	44	3.402	31	2131	Santa Cruz	31	2.8
36	Islote Guy Fawkes Sur (2nd largest)	0°30'48"S, 90°31'33"W	28	3.294	31	2343	Santa Cruz	31	2.7

Map Code[1]	Island Name[2]	Position	Pos. Ref.[3]	Area (ha)	Area Ref.[3]	Proximate Isolation (m)	Isolation From	Isol. Ref.[3]	Dist. to Center (km)
59	Islote Punta Bowditch Este	0°31'56"S, 90°30'55"W	26	0.346	31	113	Santa Cruz	31	0.8
32	Islote Punta Bowditch Norte	0°31'57.7"S, 90°31'1.7"W	44	2.918	31	272	Santa Cruz	31	0.7
33	Islote Punta Bowditch Sur	0°32'5.6"S, 90°31'00.8"W	44	1.511	31	184	Santa Cruz	31	0.5
31	Isla Eden	0°33'41.0"S, 90°32'11.2"W	44	23.020	34	293	Santa Cruz	34	3.2
65	Isla Sin Nombre	0°40'0"S, 90°35'0"W	37	7.529	23	4677	Santa Cruz	23	16.0
4	**Isla Pinzón**	0°36'30"S, 90°39'57"W	28	1815.0	1	10399	Santa Cruz	28	17.9
95	Islote Dumb	0°35'22"S, 90°41'0"W	28				Pinzón		19.0
94	Islote Onan	0°35'47"S, 90°39'10.5"W	28	0.060	36	40	Pinzón	36	16.1
7	**Isla Santa Fé**	0°49'0"S, 90°3'30"W	37	2413.0	1	16653	Santa Cruz	16	60.1
29	Islote Santa Fé	0°48'13.3"S, 90°2'15.8"W	44	0.671	36	17	Santa Fé	36	61.3
102	Islote Noroeste de Santa Fé	0°48'18.3"S, 90°5'13.6"W	44	0.070	36	70	Santa Fé	36	56.7
18	**Isla Baltra**	0°25'30"S, 90°16'30"W	12	2619.6	10	361	Santa Cruz	11	30.0
A	Islote de Canal Sur	0°28'54"S, 90°17'26"W	11	0.349	11	64	Baltra	11	26.3
38	Islote Mosquera	0°24'4"S, 90°16'33"W	12	4.626	12	406	Baltra	12	31.1
28	Isla Seymour Norte	0°23'30"S, 90°17'0"W	12	183.887	12	1464	Baltra	12	31.0
5	**Isla Floreana**	1°17'0"S, 90°26'0"W	37	17253.0	1	49200	Santa Cruz	6	83.5
60	Islote Watson	1°20'41"S, 90°18'31"W	22	3.050	22	8012	Floreana	22	92.8
15	Isla Gardner por Floreana	1°19'52"S, 90°17'20"W	22	81.174	22	7970	Floreana	22	91.9
44	Isla Caldwell	1°18'15.5"S, 90°20'19"W	22	22.837	22	2700	Floreana	22	87.6
90	Islote Ayora	1°16'16"S, 90°21'2"W	22	0.500	36	600	Floreana	36	83.7
101	Islote Las Cuevas Este	1°15'37'S, 90°21'35"W	22	0.130	36	80	Floreana	36	82.3
100	Islote Las Cuevas Oeste	1°15'35"S, 90°21'39.5"W	22	0.100	36	50	Floreana	36	82.3
17	Isla Enderby	1°13'12.5"S, 90°21'42"W	22	19.297	22	2429	Floreana	22	77.9
16	Islote Campéon	1°14'7"S, 90°23'8"W	22	9.508	22	733	Floreana	22	79.0
50	Islote Corona del Diablo Oeste	1°12'48.5"S, 90°25'16"W	17	0.070	25	457	Floreana	25	76.0
48	Islote Corona del Diablo Grande	1°12'43"S, 90°25'14"W	17	0.449	25	500	Floreana	25	75.8
49	Islote Corona del Diablo Central	1°12'44"S, 90°25'14"W	17	0.020	36	20	C. del Diablo G.	36	75.9
51	Islote Corona del Diablo Este	1°12'48"S, 90°25'14"W	17	0.040	36	100	C. del Diablo G.	36	76.0
86	Islote Las Bayas Grande	1°13'25.5"S, 90°26'28"W	17	2.070	25	103	Floreana	25	76.8
96	Islote Las Bayas Pequeña	1°13'29"S, 90°26'25"W	17	0.145	25	94	Floreana	25	76.9
84	La Botella	1°17'13.5"S, 90°29'46"W	17			299	Floreana	17	83.4
3	**Isla San Cristóbal**	0°48'30"S, 89°25'0"W	37	55808.6	1	66600	Santa Cruz	6	126.4
85	Roca Ballena	0 56'44"S, 89°35'22"W	43			1087	San Cristóbal	21	113.0
81	Roca Este	0°53'21"S, 89°21'33"W	43			2434	San Cristóbal	21	134.9
66	Islote Pitt (offshore)	0°42'14.3"S, 89°14'54.3"W	44	0.400	36	622	San Cristóbal	21	142.6
B	Islote Pitt (nearshore)	0°41'55"S, 89°15'5"W	21	0.500	36	41	San Cristóbal	21	142.2
61	Leon Dormido	0°46'26"S, 89°31'0"W	8	5.021	8	4608	San Cristóbal	8	114.7
N	Leon Dormido Pequeña	0°46'31"S, 89°30'59"W	8	0.975	8	4500	San Cristóbal	8	114.7
25	Isla Lobos	0°51'25.3"S, 89°33'51.8"W	44	6.666	32	162	San Cristóbal	32	112.1
73	Roca Dalrymple	0°51'9"S, 89°37'28.5"W	7	0.800	2	3933	San Cristóbal	7	105.6
6	**Isla Española**	1°22'30"S, 89°40'30"W	9	6048.0	1	45000	San Cristóbal	6	132.3
23	Islote Xarifa	1°21'24.5"S, 89°38'38.4"W	44	0.553	29	217	Española	9	133.4
14	Isla Gardner por Española	1°20'39.7"S, 89°38'49.8"W	44	58.038	29	966	Española	9	132.2
22	Islote Osborn	1°21'7.6"S, 89°38'55.3"W	44	1.698	29	430	Española	9	132.7
24	Islote Oeste	1°20'48.5"S, 89°39'42.2"W	44	0.376	29	83	Española	9	131.2
9	**Isla Santiago**	0°15'30"S, 90°43'30"W	37	58465.0	1	16860	Isabela	28	38.4
10	Isla Rabida	0°24'35"S, 90°42'30"W	28	499.312	28	4457	Santiago	28	25.2

Map Code[1]	Island Name[2]	Position	Pos. Ref.[3]	Area (ha)	Area Ref.[3]	Proximate Isolation (m)	Isolation From	Isol. Ref.[3]	Dist. to Center (km)
76	Roca Beagle Norte	0°24'40"S, 90°37'40"W	28	0.713	33	4805	Santiago	33	18.3
77	Roca Beagle Oeste	0°24'52"S, 90°37'53"W	28	4.262	33	5102	Santiago	33	18.3
78	Roca Beagle Sur	0°24'57"S, 90°37'46"W	28	8.730	33	5264	Santiago	33	18.1
40	Isla Sombrero Chino	0°22'2.5"S, 90°34'55"W	28	20.875	30	112	Santiago	30	20.0
52	Roca Bainbridge #1	0°20'27"S, 90°33'28"W	28	11.421	30	1024	Santiago	26	22.2
53	Roca Bainbridge #2	0°20'45"S, 90°33'22.5"W	28	2.896	30	1618	Santiago	30	21.6
41	Roca Bainbridge #3	0°20'55"S, 90°33'56"W	28	18.336	30	630	Santiago	30	21.5
54	Roca Bainbridge #4	0°21'24"S, 90°33'48"W	28	3.444	30	1228	Santiago	30	20.6
55	Roca Bainbridge #5	0°21'45"S, 90°33'56"W	28	4.072	30	1167	Santiago	30	20.0
56	Roca Bainbridge #6	0°21'56"S, 90°34'11"W	28	4.484	30	874	Santiago	30	19.8
57	Roca Bainbridge #7	0°22'23"S, 90°34'20"W	28	0.796	30	1350	Santiago	30	19.1
58	Roca Bainbridge #8	0°22'24"S, 90°34'37"W	28	0.647	30	1148	Santiago	30	19.2
46	Isla Bartolomé	0°16'51"S, 90°32'48"W	14	124.48	14	310	Santiago	14	28.6
79	Islote Gran Felipe	0°17'16"S, 90°33'5.5"W	14	0.039	14	567	Santiago	14	27.9
69	Islote Cousins	0°14'8.3"S, 90°34'29.1"W	44	0.858	27	2000	Santiago	27	34.0
92	Islote Logie	0°15'8"S, 90°34'37"W	27	0.200	36	100	Santiago	36	32.2
91	Islote Mao	0°9'15"S, 90°49'8"W	27	1.250	36	200	Santiago	36	53.9
43	Isla Albany	0°10'15"S, 90°50'44"W	27	12.733	5	669	Santiago	5	54.4
2	**Isla Marchena**	0°20'20"N, 90°28'25"W	38	12996.0	1	55800	Santiago	6	97.5
88	Islote Espejo	0°18'35"N, 90°24'16"W	38				Marchena		95.0
45	**Isla Genovesa**	0°19'40"N, 89°57'20"W	38	1410.8	1	46800	Marchena	6	114.8
1	**Isla Pinta**	0°35'18"N, 90°45'17"W	38	5940.0	1	28800	Marchena	6	127.7
47	**Isla Wolf**	1°22'30"N, 91°49'10"W	37	134.4	1	140400	Pinta	6	256.8
89	Islote La Ventana	1°21'45"N, 91°49'30"W	37	0.100	36	200	Wolf	36	256.0
L	Islote Norte de Wolf	1°23'30", 91°49'2"W	37	9.000	36	1000	Wolf	36	258.2
42	**Isla Darwin**	1°39'15"N, 92°0'20"W	37	106.3	1	175200	Pinta	6	296.0
E	Islote El Arco	1°39'30"N, 91°59'2"W	37	0.200	36	3000	Darwin	36	293.1
F	Islote El Torre	1°39'30"N, 92°0'40"W	37	0.100	36	200	Darwin	36	294.8

[1] The Map Codes are used in Figure One to indicate the relative locations of the islands.

[2] Our use of names are explained in the text. Several of the names used represent islands for which we could find no previous names. We encourage readers to tell us about other names for any of these islands. Islands are organized in this table in groups where large islands (in boldface) are followed by their satellite islands (indented). The list of satellites usually begin with a southern island and then progress eastward around the large island. Occasionally a satellite island will have its own set of satellite islands, these are arranged within the list.

[3] The various references are: 1 (Black 1973), 2 (Wiggins and Porter 1971), 3 (Snell et al. 1988), 4 (Cayot et al. 1994), 5 (aerial photo in CDRS library #692), 6 (Instituto Oceanografico de la Armada [IOA] 1980), 7 (IOA 1988*b*), 8 (IOA 1985), 9 (IOA 1991*c*), 10 (IOA 1990*a*), 11 (IOA 1990*a*, insert), 12 (IOA 1989*b*), 13 (IOA 1986*b*), 14 (IOA 1990*b*), 15 (IOA 1988*c*), 16 (IOA 1986*a*), 17 (IOA 1991*d*), 18 (IOA 1989*a*), 19 (IOA 1992*b*), 20 (IOA 1988*a*), 21 (Defense Mapping Agency Hydrographic / Topographic Center [DMA], 1984*a*), 22 (DMA 1984*b*), 23 (DMA 1983), 24 (DMA 1947*a*), 25 (DMA 1943*b*), 26 (DMA 1976*a*), 27 (DMA 1984*c*), 28 (DMA 1947*b*), 29 (DMA 1943*a*), 30 (aerial photo in CDRS library #47A), 31 (aerial photo in CDRS library #132), 32 (aerial photo in CDRS library #2104), 33 (aerial photo in CDRS library #225), 34 (aerial photo in CDRS library #288), 35 (aerial photos in CDRS library #'s 35 and 36), 36 (measured or estimated in the field by authors 1990 through 1994), 37 (IOA 1991*a*), 38 (DMA 1979), 39 (IOA 1991*b*), 40 (IOA 1993), 42 (British Admiralty 1987), 43 (IOA 1992*a*), 44 (Geographical Positioning System [GPS] readings taken by the authors 1990 - 1994).