Review of the Status of American and Caribbean Coots in the United States Virgin Islands

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ABSTRACT

Breeding (and non-breeding) American (*Fulica americana*) and Caribbean (*F. caribaea*) coots are generally rare to uncommon in the United States Virgin Islands where they have a restricted distribution at some brackish and freshwater sites. Their sympatric range includes St. Croix, where coots are most numerous at brackish Southgate Pond, the preferred breeding site in the US Virgin Islands. Southgate Pond, a man-modified seasonal salt pond, has had the largest documented breeding colony (eight pairs) of any island in the eastern Caribbean (where coots are also generally rare and restricted to a few sites). The largest breeding colony (four pairs; only Caribbean Coots) at any freshwater site has been at Marshall's Pond in Barbados although the largest number of confirmed freshwater breeding sites has been at St. Croix (1-3 pairs per site at six sites), where coots have undoubtedly been overlooked until recently (since 2002). A higher proportion (ca. 20-30%) of Caribbean Coots was generally associated with the seven confirmed breeding sites on St. Croix compared to non-breeding sites. Coots respond rapidly to changes in water levels in two habitats at seasonal or permanent wetlands and have the capacity to nest year-round but populations in the region remain low. Coots without management intervention will remain local and rare to uncommon breeders in the eastern Caribbean. Future surveys should focus on selected man-made freshwater ponds and low-salinity salt ponds. Species provenance of historical occurrences of Caribbean and American coots is discussed.

INTRODUCTION

Although Taylor (1996) stated Caribbean Coots (*Fulica caribaea*) are not globally threatened, Caribbean Coots are listed as locally endangered in the United States Virgin Islands (Indigenous and Endangered Species Act of 1990) and are considered threatened throughout the West Indies, especially breeding populations (Raffaele et al. 1998). Caribbean and American (*F. americana*) coots are two of the rarest wetland birds that breed in the US Virgin Islands (USVI), yet their breeding status there and in the eastern Caribbean has never been critically reviewed (cf., Raffaele et al. 1998). I document herein the historical and current breeding and non-breeding status of coots in the USVI (and eastern Caribbean) and review species provenance of historical information. Their sympatric distribution in this region requires clarification, especially if American Coots are expanding their breeding range (Levesque et al. 2002), before future inquiries into the underlying reasons for the different geographical distributions of the species, or morphs if one species (Payne and Master 1983). Coots are associated with freshwater marshes and low-salinity wetlands (Kantrud 1985). Thus, I expected breeding and non-breeding coot populations in the USVI to be greater on St. Croix, which contain 43 of the total of 52.2 ha of extant freshwater ponds and 228.8 of 289.3 ha of extant salt ponds in the USVI (Conservation Data Center, unpubl. data). I also expected coots to be more numerous on St. John, which contains 43.8 of the 60.6 ha of salt ponds in the northern USVI, than on St. Thomas even though the latter island contains 7.5 of the 9.1 ha of freshwater ponds.

METHODS

I searched for published historical data on breeding and non-breeding coots in the USVI (including Christmas Bird Counts; hereafter CBCs), unpublished data in DFW files including selected brackish wetlands listed in Knowles and Amrani (1991) and Knowles (1996), and museum collections (skin specimens, egg sets). Banded coots have not been recovered in the USVI (K. Klimkiewitz pers. comm., Bird Banding Laboratory), so no data came from that source. I also searched the literature and solicited unpublished data from observers for breeding information on coots in the British Virgin Islands and Lesser Antilles to compare with data from the USVI, to obtain a greater appreciation of their breeding status on small islands throughout the eastern Caribbean. Except for material data (e.g., specimens), I did not necessarily accept identification of species at face value which depended upon other available documentation.

CBCs are used to examine the relative abundance of species at large geographic scales (Bock and Root 1981). This study uses three CBCs (one each on St. Croix, St. Thomas, and St. John) to examine the relative abundance of coots at a small geographic scale (McNair et al., submitted ms). Raw count data within the 24 km diameter circles of each CBC were not standardized, because coots, which are highly social, normally occur in flocks and have a highly skewed, clumped distribution (Bock and Root 1981). However, I combined counts of American and Caribbean coots on each CBC because species identification of many individuals on many counts was uncertain. Spearman's rank correlation tests were used to assess the association between annual changes and counts of coots on each CBC, and the Kruskal-Wallis test was used to compare differences in rank abundance on these three CBCs. All tests used an α-value of 0.05.

I obtained current information on the abundance and distribution of coots on St. Croix through monthly waterbird surveys in fresh- and brackish wetlands since 2002 (through April 2005). Visits to ca. 30 freshwater ponds were monthly, but less at other ponds, some of which were only recently covered (St. Croix has over 125 man-made freshwater ponds). Coots are conspicuous birds, so are unlikely to be overlooked. I present information on the maximum number of birds (all adult and subadult coots) for each site by consecutive monthly periods as well as breeding information at some sites I visited more frequently. Many non-breeding coots were not identified to species because they were too distant or too elusive to see well, so I lumped species counts at each site (though computed species ratios of birds I did identify). Identification is complicated by hybridization. Regardless, irrespective of the taxonomic status of the Caribbean Coot, I followed the criteria of Roberson and Baptista (1988) to distinguish American (types A and B) from Caribbean (types C, D, and E) coots in the field even though a small percentage (≤ 1.4%) of the broad, high, and bulbous shielded males may be white-shielded morphs of American Coots. Types A and B have a dark chestnut or red-brown corneous callus, whereas types C, D, and E lack a callus. Surveys were conducted during a period that included two torrential rainfall events throughout the USVI, a 50-year rainfall event (mean of 40-50 cm) from 15-20 November 2003 and in mid-September 2004 another heavy rainfall (over 25 cm) during Tropical Storm Jeanne. These rainfall events followed a prolonged drought for approximately the preceding year and a half. Rainfall data for St. Croix were taken from the U.S. Department of Agriculture Agricultural Research Station at Kingshill. Site names on St. Croix follow Imsand and

Philibosian (1987), apart from other sites that I have named. A site is a discrete geographic entity (e.g., Southgate Pond).

RESULTS

Breeding Status in the US Virgin Islands

St. Croix, *Southgate Pond*.—Coots have nested at Southgate Pond since at least 1919 (Table 1) when one pair of American Coots laid seven eggs in a nest built in a mangrove (species unknown; Beatty 1930). Although Beatty (1930) stated that he had never found Caribbean Coots, he later collected Caribbean Coots on St. Croix including two presumed chicks (Tables 1, 2). Seaman (1957) suggested that Caribbean Coots formerly nested in red mangroves (*Rhizophora mangle*) in the eastern third of Southgate Pond before 1957, one year after this section of the pond was drained and cleared, but he provided no documentation. Seaman (1973) also stated that Caribbean Coot nests and young were often found at Southgate Pond. One adult with enlarged testes was collected at Southgate Pond on 14 January 1962 (Table 2). Sladen observed mixed pairs at Southgate Pond during February 1985, but did not document breeding (Norton 1985). McNair and Cramer-Burke (submitted ms) provide recent breeding information at Southgate Pond where seven to eight pairs nested during the winter and spring of 2003-2004 and three pairs nested during the autumn and winter of 2004-2005. Almost all pairs nested in small, live white mangroves (*Laguncularia racemosa*) away from the shore.

St. Croix (other sites).—The first confirmation of breeding at St. Croix (and the USVI), a Caribbean Coot, was one chick collected at an unknown locality (perhaps Southgate Pond) in 1861 (Table 1). Beatty (1930; also Seaman 1973, 1993) stated that

American Coots were common on all the ponds and lagoons of St. Croix, where they nested from July to October (the hurricane season). However, Beatty only documented breeding records at Southgate Pond (above). Coots were not confirmed to breed at any other site on St. Croix until 2002 through 2005 when nesting occurred at six farm ponds: Carlton North Pond, Catherine's Rest South Pond, Fredensborg Pond, Granard South Pond, Schuster East Pond, and Virgin Islands Agricultural Station Middle Pond (McNair and Cramer-Burke, submitted ms).

St. John.—Coots have been confirmed to breed at two sites on St. John (Table 1), including a mixed pair with young that was present at Hart Bay in the early 1980s (though I have been unable to find documentation that American Coots nested in February 1983; Leck and Norton 1991). Earlier, Nichols (1943) stated that coots in the northern USVI were particularly numerous on St. John but documented no specific nest records there.

St. Thomas.—Coots have been confirmed to breed at only one site off St. Thomas, in a salt pond on Saba Cay where a clutch of six eggs of the Caribbean Coot was collected (Nichols 1943; Table 1). Nichols (1943) also stated that coots nested on St. Thomas and two more cays, but gave no details.

Finally, Clark (1985) stated that territorial displays of American and Caribbean coots (American pairs, Caribbean pairs, and mixed pairs) were observed in the USVI from December 1983 through early February 1984. However, further details are lacking.

Considering both recent and historical data, coots in the USVI have nested in every single month of the year (Table 1). The largest number of documented pairs nesting

at any single site was eight pairs at brackish Southgate Pond, St. Croix during spring 2004.

Breeding Status in the British Virgin Islands and Lesser Antilles

Breeding coots have been confirmed on at least six islands in the British Virgin Islands and Lesser Antilles, with breeding of American Coots documented south to Guadeloupe where Caribbean Coots have not been confirmed to nest (Table 1). This total excludes probable breeding sites such as Lake Antoine, Grenada, a relatively undisturbed reed-fringed crater lake about 300 m in diameter (E. B. Massiah, pers. comm.), where two Caribbean Coots (male and female) were collected by J. Bond on 21 March 1929 (Academy of Natural Sciences at Philadelphia 86381-86382), brackish Graeme Hall Swamp, Barbados from 1860 to 1888 when Caribbean Coots were presumed to nest but documented breeding evidence is lacking (Frost and Massiah 2001), and Antigua, Martinique, and Marie-Galante (Raffaele et al. 1998; Raffaele, pers. comm.) where I was unable to find documentation of recent confirmed breeding evidence. Coots in the British Virgin Islands and Lesser Antilles have been documented to nest in every single month of the year except November (Table 1). The largest number of documented pairs nesting at any single site was four pairs at freshwater Marshall's Pond, Barbados in the early 2000s (Frost and Massiah 2001; Frost, pers. comm.). The dominant vegetation at this site is live creeping burrhead (*Echinodorus berteroi*) (Spreng.) Fassett.

Non-Breeding Status in the US Virgin Islands

St. Croix.—The earliest coots were reported at St. Croix in the late 1850s by Newton and Newton (1859). Birds of both species were collected thereafter through 1962 (mainly in the 1930s and early 1940s; Table 2), including at Southgate Pond and Rust-op-Twist Salt Pond. Seaman (1955, 1973, 1993) stated that coots were present in considerable numbers in the 1920s when he found as many as 150 birds at Southgate Pond but they were no longer plentiful by 1955. He also stated coots generally preferred freshwater where they occurred on farm ponds but also stated coots were found (other than at Southgate Pond) at five saline lagoons (with tidal inlet) or salt ponds (no tidal inlet): Altona Lagoon, Great Pond, Krause Lagoon (now a remnant), Rust-op-Twist Salt Pond, and Williams Pond (north of Frederiksted; now a semi-open wooded swamp and marsh). Sladen (1992) documented that American Coots were more numerous than Caribbean Coots at Southgate Pond from 1981 to 1985 (ratio of 2.4/1; 29% Caribbean), when he never found coots at Great Pond. Knowles (1996) reported no more than five coots per month per site from February 1989 to June 1996 at four (out of nine) salt ponds (Southgate Pond, the large cooling pond at what is now St. Croix Renaissance Park, Coakley Bay Salt Pond, and the University of Virgin Islands Wetlands), until autumn and winter of 1995-1996 (following a wet autumn), when he counted 24 birds at the University of Virgin Islands Wetlands in February 1996 and from 11 to 44 birds at Southgate Pond from December 1995 to April 1996 (highest number in March). Knowles (1996) only reported 2 out of 119 coots he identified at Southgate Pond to be Caribbean Coots (1.7%).

Including the seven recent confirmed breeding sites (Southgate Pond, Carlton North Pond, Catherine's Rest South Pond, Fredensborg Pond, Granard South Pond,

Schuster East Pond, Virgin Islands Agricultural Station Middle Pond), coots have occurred at 32 sites on St. Croix since 2002 (Table 3; Figure 1) but they did not nest at these twenty-five other sites except possibly Diamond Pond. Twenty-five of 32 are freshwater sites: twenty farm ponds, three golf course ponds, a wastewater treatment pond on one of these golf courses, and one pond on a former golf course. The seven brackish sites are four salt ponds, two lagoons, and a large (formerly industrial) cooling pond. Except for Southgate Pond (after the drought ended), where up to 69 adults and subadults were present in June and July 2004, coots occurred infrequently at other saline sites on St. Croix, and only in low numbers and usually only after heavy rainfall from the 50-yr event of mid-November 2003 or Tropical Storm Jeanne in mid-September 2004 contributed substantial amounts of freshwater to these sites. Coots also occurred at many more freshwater sites following these two rainfall events, at 15 sites from mid-November 2003 until mid-September 2004 and at 19 sites from then through April 2005 compared to just 6 freshwater sites before mid-November 2003. Coots occurred fairly regularly (≥ 10 months) at six freshwater sites (where they nested at four), including the Buccaneer Hotel where they are fed but where breeding habitat is probably lacking. The ratio of American to Caribbean coots that were identified was 1.9/1 (35% Caribbean; a higher proportion of Caribbean Coots was generally associated with the six breeding sites).

St. Thomas.—Other than Nichols (1943), Beatty (1938) reported two coots at a salt pond on Water Cay off St. Thomas on 19 April 1936. Coots have occurred infrequently in small numbers (≤ 5 birds/d) at Turpentine Run on St. Thomas (DFW files, unpubl. data). F. E. Hayes (unpubl. data) had single American Coots (possibly the same

individual) on St. Thomas at Turpentine Run from 9 November to 8 December 2002 and at Perseverance Bay Salt Pond from 27 January to 14 February 2003.

St. John.—The type specimen of Caribbean Coot was a male collected at St. John in 1880, as was also a female (Table 2). One coot was present at Francis Bay Salt Pond during November and December 1989 (Knowles and Amrani 1989). The largest number of coots seen on St. John by L. Brannick-Trager (pers. comm.) has been four at Grootpan Salt Pond in January 1997.

CBC data.—The median number of 4.5 coots (range: 0-24; $n = 22$) on the St. Croix West End CBC was significantly greater than the median number of one coot on either the St. John (range: 0-29, $n = 16$) or St. Thomas (range: 0-4, $n = 16$) CBCs, respectively (Kruskal-Wallis H = 10.15, $n = 64$, df = 2, P = 0.006). Except for three winters from 1981 to 1984, when counts on St. John CBCs were 10, 29, and 21 coots, respectively, all other counts on this CBC were six or less. Coots on the St. John and St. Thomas CBCs significantly declined over time (St. John: 1978-2004, $r_s = -0.42$, P = 0.04; St. Thomas: 1976-1992, $r_s = -0.64$, $P < 0.01$), whereas coots on the St. Croix West End CBC increased over time although this relationship was not significant (1972-1989, 1999-2004: $r_s = 0.30$, P = 0.18). Four of the six largest counts (≥ 12 birds) occurred on four of the last five St. Croix West End CBCs.

DISCUSSION

American and Caribbean coots have nested in two habitats in the USVI, British Virgin Islands, and the Lesser Antilles, primarily at natural seasonally flooded salt ponds and freshwater ponds (usually man-made) in the interior of these islands. Nests in the interior

at freshwater sites dominated by perennial emergent forbs were floating platforms built amongst this vegetation (Frost and Massiah 2001), which is typical of American Coot nests in marshes (Fredrickson 1970, Sugden 1979, Gorenzel et al. 1982, Kantrud 1985, Alisauskas and Arnold 1994), or conspicuous bulky mounded nests of sticks built amongst remnant stands of thin dead *Sesbania* shrubs in open water (McNair and Cramer-Burke, submitted ms). Southgate Pond, when conditions are suitable and where nests are usually built in woody vegetation (McNair and Cramer-Burke, submitted ms), is the preferred breeding (and non-breeding) site for coots on St. Croix (and in the USVI) even though it is brackish. Nests found on St. Martin in two brackish salt ponds have been built in emergent, not woody vegetation (A. C. Brown, unpubl. data). Other than recently on St. Croix, few breeding sites have been confirmed on any given island where abundance and breeding densities are low and coot distribution is otherwise restricted, even on favorable islands such as St. Croix and St. Martin. Breeding phenology of Caribbean Coots documented earlier in the USVI was May-June and September-October (Nichols 1943, Taylor 1996), but both coots have the capacity to nest year-round in the USVI (and elsewhere in the eastern Caribbean), depending upon favorable water levels in seasonal wetlands. Shallow seasonal wetlands are also generally preferred habitat for American Coots in North America (Kantrud 1985 and references cited therein, Arnold 1993, Alisauskas and Arnold 1994). Nonetheless, despite the rapid response of coots to rainfall events and filling of some wetlands, coots without management intervention will remain local and rare to uncommon breeders in the eastern Caribbean, with breeding likely at a nadir during droughts. Regardless, coots are pre-adapted to tolerate considerable disturbance to nesting habitat and can select a variety of vegetation types as

nest-sites in the Caribbean, despite the degradation of some wetland habitats. The dependence of breeding coots on ephemeral marsh habitats would strongly suggest that they would occur at unpredictable times and places in the Caribbean (cf., rails and gallinules; Remsen and Parker 1990).

Coots were most numerous within the USVI on St. Croix, where winter populations have not declined (although the sample size is low), but available data does not otherwise allow assessment of long-term population trends or population fluctuations of coots on St. Croix (and elsewhere in the USVI) in relation to rainfall or land use dynamics, although rainfall patterns (drought, floods) do help explain some distributional patterns there. Recent intraisland movements of both species of coots on St. Croix have been limited to thirty-two sites, with frequent absences at most of these sites in response to drought or other factors. Beatty (1930; also Seaman 1973, 1993) stated uncritically that coots were formerly common on all the ponds and lagoons of St. Croix, but currently coots are scarce on mesosaline lagoons and salt ponds except for Southgate Pond and their distribution on freshwater ponds where they are rare to uncommon has also been local. Consequently, current coot populations have been easy to monitor although the limited data (no marked birds) cannot elucidate whether coots also have interisland movements, even following two heavy rainfall events when both species of coots nested at Southgate Pond during two successive hydrological cycles (cf., Hawaiian Coot *F. americana alai*; Engilis and Pratt 1993). Winter breeding of American Coots south to Guadeloupe (Levesque et al. 2002) suggests that these birds are not from the mainland. Breeding into May through the summer, such as at Southgate Pond and five freshwater farm ponds in 2004, also suggests these birds are not from the mainland. Whether nesting

American Coots in the eastern Caribbean are of North American rather than Caribbean origin needs to be determined. Larger counts during winter do show a presumed influx of North American populations of American Coots to the USVI (and eastern Caribbean), south to Grenada and Barbados where they rarely occur (Riley 1916, Bond 1976, 1984; Raffaele et al. 1998; M. Frost, pers. comm.). Further north in the Lesser Antilles on St. Martin, Caribbean Coots outnumber American Coots (470 out of a cumulative total of 658 coots [71.4% Caribbean] from 2001 to 2003, A. C. Brown, unpubl. data; ca. 5/1 ratio on St. Martin from 1999-2003, Hans van Buel unpubl. data *fide* F. E. Hayes), unlike Caribbean Coots in the USVI where American Coots are more numerous, at least recently (Sladen 1992, Knowles 1996, this study; though Knowles [1996] likely underestimated the abundance of Caribbean Coots due to misidentification). The reasons for the sharp increase in the proportion of Caribbean Coots down the Lesser Antillean chain away from the USVI is unknown.

The species provenance for some coot breeding records is unknown, which is further complicated for unverified nest records because Nichols (1943) in the northern USVI and Seaman (1973) on St. Croix assumed all breeding coots must be Caribbean Coots, which is untrue. Uneven and insufficient observer coverage, even at Southgate Pond, was responsible for an inadequate historical record of coots in the USVI (e.g., coots probably nested at Southgate Pond during winter 1995-1996 when water levels were high, but Knowles [1996] failed to document this event). Furthermore, Nichols (1943) never reported American Coots in the northern USVI during winter (even though adults were collected on St. Croix during this season and period), casting some doubt on his species identification of breeding Caribbean Coots (including the egg set) even

though he claimed the birds bred from May through October. American Coots are most likely to occur during winter when presumed residents are augmented by visitors (cf., Buden 1991, 1993), but verified records of Caribbean Coots going back to 1861 also documents winter occurrences when this species may also breed. Furthermore, the comparative breeding (and non-breeding) status of each species during the 20th century has probably remained relatively unchanged (despite problems with reliable identification of many birds), even though populations of both species have probably declined because of habitat destruction and degradation, as well as hunting (cf., Puerto Rico; Raffaele et al. 1973), which is still a negative factor on some islands such as Guadeloupe (A. Levesque, pers. comm.). Renewed searches are required in the northern USVI after heavy rains that fill ponds to document the breeding status of coots at low salinity salt ponds on St. John and several cays where they formerly nested (Nichols 1943; this study), as well as at some other sites in the eastern Caribbean (e.g., Lake Antoine, Grenada) though some islands lack suitable habitat (e.g., Saba). Breeding coots were not found on St. Kitts during wetland surveys in February 2002 and May 2004 (A. C. Brown, unpubl. data). Recent activities by several observers in the Lesser Antilles, however, have provided detailed documentation of species provenance and breeding status (Frost and Massiah 2001, Levesque et al. 2002).

The Caribbean Coot was first described from a specimen collected on St. John (Ridgway 1884), although a presumed young was collected at St. Croix by chemist Riise as early as January 1861 (Table 1). The taxonomic status of the Caribbean Coot requires further investigation (Roberson and Baptista 1988; also Phillips 1967, Payne and Master 1983, Clark 1985, Taylor 1996; McNair and Cramer-Burke [submitted ms] concluded

that American and Caribbean coots are probably morphs of one species, and not two species).

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Table 1. Confirmed breeding records of American and Caribbean coots in the United States Virgin Islands, British Virgin Islands, and Lesser Antilles.

Island	Site	Habitat	Year	Season (month)	Number of Pairs/Nests	Species	Reference
St. Croix	Unknown	Unknown	1861	Jan	1[a]	Caribbean Coot	ZMUC[b] 37.940
St. Croix	Southgate Pond	Brackish	1919	10 Aug	1	American Coot	Bailey 1930
St. Croix	Southgate Pond	Brackish	1943	Mar	1	Caribbean Coot	FMNH[c] 415962-415963[d]
St. Croix	Southgate Pond	Brackish	1984		?	Unknown	Sladen 1992; Sladen, unpubl. data
St. Croix	Southgate Pond	Brackish	2003-2004	Dec-May	7-8	Mixed colony	McNair & Cramer-Burke, submitted ms
St. Croix	Southgate Pond	Brackish	2004-2005	Sep-Jan	3	Mixed colony	McNair & Cramer-Burke, submitted ms
St. Croix	Fredensborg Pond	Fresh	2002	Apr-Jun	1	Caribbean Coot	McNair & Cramer-Burke, submitted ms
St. Croix	Virgin Islands Agricultural Station Middle Pond	Fresh	2003	Jul-Aug	1	Caribbean Coot	McNair & Cramer-Burke, submitted ms
St. Croix	Virgin Islands Agricultural Station Middle Pond	Fresh	2004	June-Aug	1	Mixed pair	McNair & Cramer-Burke, submitted ms
St. Croix	Granard South Pond	Fresh	2004	May-Aug	3	Mixed colony	McNair & Cramer-Burke, submitted ms
St. Croix	Granard South Pond	Fresh	2004	Nov-Dec	2	Mixed colony	McNair & Cramer-Burke, submitted ms
St. Croix	Schuster East Pond	Fresh	2004	June-Aug	1	Mixed pair	McNair & Cramer-Burke, submitted ms
St. Croix	Carlton North Pond	Fresh	2004	June-Sep	1	Caribbean Coot	McNair & Cramer-Burke, submitted ms
St. Croix	Carlton North Pond	Fresh	2005	Feb-Apr	1	Caribbean Coot	McNair & Cramer-

							Burke, submitted ms
St. Croix	Catherine's Rest South Pond	Fresh	2004	Nov-Dec	1	Unknown	McNair & Cramer-Burke, submitted ms
St. John	Unknown	Unknown	1936-1943	Unknown	?	Caribbean Coot	Nichols 1943
St. John	Francis Bay	Brackish	1961	Unknown	1	Unknown	Norton 1982
St. John	Francis Bay	Brackish	1982	11 May	10[e]	Unknown	Norton 1982
St. John	Hart Bay	Brackish	1983	10 Aug – 2 Nov	13[f]	Mixed pair(s)	Norton 1984
St. Thomas	Unknown	Unknown	1936-1943	Unknown	?	Caribbean Coot	Nichols 1943
St. Thomas	Saba Cay	Brackish	1936-1943	6 Jun	?	Caribbean Coot	Nichols 1943; WFVZ[g] 155658
St. Thomas	Salt Cay	Brackish	1936-1943	Unknown	?	Caribbean Coot	Nichols 1943
St. Thomas	Water Island	Brackish	1936-1943	Unknown	?	Caribbean Coot	Nichols 1943
Tortola	Josiah's Bay Pond	Brackish	1976	26 June	16[h]	Caribbean Coot	Mirecki et al. 1977
Anguilla	Caul's Pond	Brackish	2000	June	12[i]	American Coot	S. Holliday, unpubl. data
St. Martin		Unknown			?	Mixed pair	Norton 1982
St. Martin	Etang de Philipsburg	Brackish	early 1980s	Dec-Jul	1[j]	American Coot	Benito-Espinal 1990
St. Martin	Little Bay Pond	Brackish	2001-2002		?		Hans van Buel, unpubl. data
St. Martin	Little Bay Pond	Brackish	2003-2004	Jan-March	1-2[k]	Unknown	*Fide* A. C. Brown
St. Martin	Fresh Pond	Brackish	22 April 1982 (to 1983)	22 April	15[l]	Caribbean Coot	Norton 1982, 1984
St. Martin	Fresh Pond	Brackish	2002	27 March	1[m]	Mixed pair	A. Levesque, unpubl. data
St. Martin	Fresh Pond	Brackish	2002	6 June	1[n]	Caribbean Coot	Hans van Buel, unpubl. data
St. Martin	Fresh Pond	Brackish	2002	Oct	1[o]	Mixed pair	Hans van Buel, unpubl. data
St. Martin	Fresh Pond	Brackish	2002-2004	Jan-March	2-6[p]	Caribbean Coot	A. C. Brown, unpubl. data
St. Kitts	Greatheeds Pond	Unknown	1929	3 Jan	1[q]	American Coot	Danforth 1936,

							Steadman et al. 1997
St. Kitts	Unknown	Unknown	Unknown	Jan	?[r]	Caribbean Coot	Bond 1976
Guadeloupe	Grande Terre (Port-Lewis)		2001	Jan-Feb	1	American Coot	Levesque et al. 2002
Guadeloupe	Gaschet Reservoir	Fresh	2004	Feb-May	2[s]	American Coot	Levesque, unpubl. data
Barbados	St. Philip – Marshall's Pond	Fresh	1999-2004	Apr-Sept	≤ 4	Caribbean Coot	Frost & Massiah 2001

[a] Chick about two weeks old (J. Fjeldsa, pers. comm.), presumably identified on basis of attending adult(s) (which were not collected). The chick was originally identified by Riise as a Common Moorhen (*Gallinula chloropus*).
[b] Zoological Museum of the University of Copenhagen (ZMUC), Denmark.
[c] Field Museum of Natural History (FMNH), Chicago, Illinois.
[d] Two downy chicks, presumably identified on basis of attending adult(s) (which were not collected).
[e] The 10 birds included three apparent American Coots, two apparent Caribbean Coots, and five immatures.
[f] The maximum number of 13 birds included as many as six young on 25 October when five apparent American Coots and two Caribbean Coots were also present.
[g] Western Foundation of Vertebrate Zoology (WFVZ), Camarillo, California. The clutch size was six eggs.
[h] The flock of 16 included two young birds.
[I] The 12 birds included four adults and eight juveniles (size otherwise undescribed).
[j] Benito-Espinal discovered one nest that contained six eggs (photographed; A. Levesque, pers. comm.).
[k] Two nests in 2003, one nest in 2004.
[l] The 15 birds included nine apparent adult American Coots, three apparent adult Caribbean coots, and three immatures attended by the three Caribbean Coots.
[m] The pair with three chicks was photographed.
[n] One adult with one chick was photographed.
[o] One nest was discovered.
[p] Two nests and no chicks in 2002, two nests and three chicks in 2003, and six chicks in 2004.
[q] One nest found by J. Bond.
[r] Bond (1976) stated he found nests with eggs.
[s] One adult nest-building (transporting plant materials) and, later, two pairs seen with pulli.

Table 2. Specimens of adult and sub-adult American and Caribbean coots collected in the United States Virgin Islands.

Species	Locality	Year	Date (month)	Number of Birds	Reference
American Coot	St. Croix	1862[a]		1	ZMUC[b] 37.909
	St. Croix	1934	Apr	1[c]	USNM[d] 353836; Danforth 1935
	St. Croix	1940	Nov	2	FMNH[e] 157526-27
Caribbean Coot	St. Croix	1933-1934	Dec-Apr	7[f]	USNM[d] 353812-18; Danforth 1935
	St. Croix	1940-1941	Dec-Feb	5	FMNH[e] 414706-10
	St. Croix	1962	Jan	1	ANSP[g] 169874; Bond 1966
	St. John	1880[h]		2	USNM[d] 081020-21; Ridgway 1884

[a] Date of entry in the museum catalogue is 17 August 1862.
[b] Zoological Museum of the University of Copenhagen (ZMUC), Denmark.
[c] Bird collected at Southgate Pond.
[d] United States National Museum (USNM), Washington, D.C.
[e] Field Museum of Natural History (FMNH), Chicago, Illinois.
[f] Birds collected at Southgate Pond except one at Rust-op-Twist Salt Pond.
[g] Academy of Natural Sciences of Philadelphia (ANSP), Philadelphia, Pennsylvania.
[h] Date of entry in the museum catalogue is 23 October 1880.

Table 3. The distribution and abundance of adult (and subadult) coots (both species combined) by consecutive monthly periods from January 2002 to April 2005 at 32 sites (25 freshwater; 7 brackish) on St. Croix, US Virgin Islands.

Site Number	Site Name	Site N Lat[a] / W Long[a]	Monthly Period of Occurrence	Number of Months	Maximum Number of Coots
		Freshwater			
1	Buccaneer Hotel Hole 8 Pond	17.75208 / 64.67507	Apr 2002 – Jul 2003	16	5, Apr-May 2002
			Nov 2003	1	1
			Aug-Oct 2004	3	9, Aug
			Jan-Mar 2005	3	7, Jan
2	Buccaneer Hotel Hole 9 Pond	17.75277 / 64.67736	Jun 2004	1	1
			Aug-Oct 2004	3	7, Sep
3	Buccaneer Hotel Water Treatment Pond	17.75312 / 64.67333	May 2002 – Nov 2003	19	5, Jan-Feb
4	Carambola Golf Course Upper Pond	17.74984 / 64.82368	May-Jul 2004	3	2, Jun-Jul
5	Carlton North Pond[bc]	17.69872 / 64.84763	Jun 2004 – Apr 2005	11	6, Sep
6	Catherine's Rest South Pond	17.72075 / 64.71189	Nov-Dec 2004	2	1
7	Cotton Valley Pond	17.75331 / 64.62037	Feb 2005	1	1
8	Cruzan Rum Distillery Pond	17.70555 / 64.82808	Dec 2002 – Jun 2003	7	1
9	Diamond Pond	17.71056 64.82582	Oct 2004 – Mar 2005	6	7, Mar
10	Frangipani East Pond	17.75614 / 64.77891	May 2004	1	1
			Dec 2004 – Feb 2005	3	2, Dec
11	Fredensborg Pond[b]	17.73471 /	Feb 2002 – Mar 2004	26	16, Mar 2002

		64.78819	Jun 2004 – Mar 2005	10	6, Aug-Sep
12	Glynn South Pond	17.75475 / 64.76842	Oct-Nov 2004	2	1
13	Granard Middle Pond	17.71449 / 64.71165	Nov-Dec 2004 Mar 2005	2 1	2, Nov
14	Granard South Pond[b]	17.71056 / 64.70720	Feb 2002; Jan 2004 – Apr 2005	1 16	2 11, Mar 2005
15	Hermitage Pond	17.74967 / 64.80918	Mar 2004	1	1
16	Lowry Hill Road North Pond	17.74417 / 64.67744	Sep 2004	1	
17	Mount Fancy Pond	17.72535 / 64.63641	Jan 2005	1	1
18	Mountain Mint Dairy Lower Pond # 1	17.72172 / 64.66552	Apr 2004	1	1
19	Schuster East Pond[bc]	17.75124 / 64.65467	Jun-Oct 2004	5	2, Jul-Sep
20	Schuster Lower Pond	17.75373 / 64.65785	Apr-Oct 2004	7	5, Aug
21	Schuster Upper Pond	17.75132 / 64.65691	Aug-Oct 2004	3	7, Sep
22	Southgate Plantation Pond[c]	17.75336 / 64.66061	Jun-Jul 2004	1	2, Jul
23	Virgin Islands Agricultural Station Middle Pond[b]	17.72312 / 64.80725	Jun 2003 – Apr 2005	23	10, Nov 2003
24	Virgin Islands Agricultural Station Upper Pond	17.72516 / 64.80920	Nov 2004 – Mar 2005	5	2, Mar
25	Windsor North Pond	17.76125 / 64.77360	May-Jun 2004 Nov 2004 – Mar 2005	2 5	1 1

Brackish

26	Altona Lagoon	17.75222 / 64.69300	Jan 2002	1	2
27	Coakley Bay Salt Pond	17.75932 / 64.64575	Dec 2004	1	3
28	Manning Bay Lagoon	17.69423 / 64.79276	Dec 2003 – Jan 2004	2	3, Jan
			Aug 2004	1	1
			Feb 2005	1	1
29	Mount Fancy Salt Pond	17.72548 / 64.63490	Oct 2004	1	1
			Jan 2005	1	3
30	Rust-op-Twist Salt Pond	17.77948 / 64.78956	Jan 2005	1	1
31	St. Croix Renaissance Park: large cooling pond	17.69584 / 64.76728	Jan 2004	1	3
32	Southgate Pond[b]	17.75821 / 64.66265	Feb 2002;	1	9
			Nov 2003 – Jul 2004	9	69, Jul
			Sep 2004 – Apr 2005	8	22, Dec

[a] Coordinates given using decimal system.
[b] Confirmed breeding site.
[c] Pond visited infrequently before 2004.

Figure 1. Thirty-two sites where coots have occurred on St. Croix since 2002 (closed circles: six confirmed freshwater breeding sites; open circles: nineteen freshwater non-breeding sites; closed triangle: one confirmed brackish breeding site; open triangles: six brackish non-breeding sites; see Table 3 for site number, site name, and freshwater or brackish affiliations). Watershed boundaries are also indicated.

9 0 9 18 Kilometers