

# NOTES ON AVOCETS AND STILTS IN TAMPA BAY, FLORIDA

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Two members of the family Recurvirostridae are common in suitable habitats in Florida, but other than distributional notes, little has been written about their habits in Florida. The Black-necked Stilt (*Himantopus mexicanus*), a common breeder through much of Florida, winters in small numbers in the southern tip of the state (Sprunt 1954, Florida bird life, New York, National Audubon Society) while the American Avocet (*Recurvirostra americana*) winters commonly and summers sparingly in a few localities (Woolfenden and Schreiber 1973, pp IIIJ-1-22 in A summary of knowledge of the eastern Gulf of Mexico 1973, St. Petersburg, State Univ. System of Fla. Inst. Oceanography). Over a period of 4 years I studied seasonal cycles, behavior, and breeding biology of both species.

## Methods

From 1 October 1971-23 June 1975 I visited McKay Bay in the northeast corner of Tampa Bay, Hillsborough County, Florida, more than 100 times, usually between 0800 and 1100, at about 2 week intervals with only a few gaps as long as a month. On each visit I recorded the number of stilts and avocets seen. During the winter of 1971-72 I studied foraging habitat and methods used by avocets, and I was able to determine the sex of most of the birds (Hamilton 1975, Ornithol. Monogr. 17: 1-98). During the summer I paid special attention to the nesting activities of stilts.

At McKay Bay most of my observations were made near the Tampa incinerator plant, where stilts and especially avocets foraged and roosted on the tidal flats east and southeast of the incinerator. These mud flats have a thick silt bottom and are rimmed by mangroves, mainly *Laguncularia*. Also, avocets foraged and roosted and stilts foraged, roosted, and nested around an impoundment just southeast of the incinerator. This shallow pond has a thick silt bottom and serves as a settling pond for material from the incinerator. It is rimmed with thick beds of knot grass (*Paspalum vaginatum*) near the water and saltbush (*Baccharis*) away from the water. The shoreline is mainly dredged material with shell rubble. Although I did not quantitatively sample the pond's water, it appeared to be rich with invertebrates and dip net samples contained large numbers of mosquitofish (*Gambusia affinis*). Yearly this pond attracts large numbers of migrating and wintering shorebirds, waterfowl, herons, and terns.

## Results

### *Seasonal cycle*

**Avocets** — At McKay Bay American Avocets occur the year round, as I saw them on virtually every visit. Although they move with the tide and sometimes occur in areas where it is difficult to get a full count of all the birds present at once, my counts show consistent seasonal trends which I believe indicate real population changes. My highest count each year was in November or December (Table 1) with a somewhat smaller number staying through the rest of the winter. Each year of my study the Tampa Christmas Bird Count (CBC) (Amer. Birds, Vols 26-29), which includes a full survey of McKay Bay, has had a smaller count of avocets than my peak count (Table 1). In most years about 100-150 could be seen daily during the winter at McKay Bay but in 1971-72 the population was much larger with at least 294 present on 17 April. Migration was apparent by late April and by mid-May probably only the summer population was present. For example, in 1972 numbers dropped as follows: 17 April-294; 19 April-245; 24 April-236; 26 April-194; 1 May-77; 8 May-62. During mid-May - July numbers stayed relatively stable, but by late July - early August numbers gradually increased. This may be caused by the arrival of migrants from the north or just concentration of summering individuals from other parts of Florida. By mid-August some migrants probably are arriving. For instance, in 1973 counts were as follows: 14 June-56; 19 June-44; 29 June-58; 6 July-70; 11 July-92; 3 August-109; 20 August-130. By October numbers approach the yearly peak.

**Stilts** — Usually Black-necked Stilts are summer residents in McKay Bay. In 3 of the 4 springs I had adequate records to indicate their time of arrival as 1, 15, and 16 March. Most stilts arrived by early April (e.g. 31 on 3 April 1972) and the population was fairly

Table 1. Summer and Winter Peak Counts of American Avocets at McKay Bay, Florida

	1971	1972	1973	1974	1975
Summer peak	----	44 (12 June <sup>1</sup> )	92 (11 July)	52 (19 July)	83 (23 June)
Winter peak	365 (5 Dec.)	363 (3 Nov.)	467 (2 Nov.)	231 (27 Nov.)	----
Christmas Bird Count	95	150	300	100	

<sup>1</sup>/ Date of peak count

stable after that. In 1972, when the breeding population was probably the highest of the 4 years, 76 stilts were counted on 29 May. As only 20 were present 2 weeks later, that peak may have included some very late migrants. Nesting occurred in May and June and by early August the population began declining. On 15 and 17 August 1974 flocks of as many as 116 were present, apparently including migrants. Generally the last birds were seen in late August or early September (3, 20 August 1973; 3, 2 September 1974). On 27 November 1974 I saw 1 stilt at McKay Bay and the Tampa CBC includes 2 on 28 December 1974. Certainly no appreciable numbers winter at McKay Bay.

*Behavior*

Roosting — In early morning avocets usually roost in tight flocks on mud flats or in shallow water, each individual standing on one leg with the head and neck over the back. During the morning these flocks gradually break up as the birds begin to preen and then disperse to forage. In contrast, stilts do not form dense roosting flocks at McKay Bay. Generally only a few were seen roosting together, usually on mud flats in a posture similar to that of avocets.

Foraging — I saw avocets use several foraging methods, including the Single, Multiple, and Dabble Scythe (Hamilton 1975). On 17 days, (14 January - 19 April 1972) for all avocets whose sex I could determine, I recorded whether they were foraging in shallow water (below ankle), deep water (above ankle but still walking), or very deep water (swimming). On some days I made as many as 5 separate counts. Both sexes spent about equal time in deep water but females spent more time in shallow water and males spent more time foraging in very deep water (Table 2). The differences are highly significant ( $\chi^2 = 58.13, p \leq .005$ ). The amount of time spent in deep water

Table 2. Comparison of Foraging Zones of Male and Female American Avocets at McKay Bay, Florida

	Foraging Zone			Total obs.
	Shallow Water	Deep Water	Very Deep Water	
	No. obs.	No. obs.	No. obs.	
Male	267 (19.3 <sup>1</sup> )	656 (47.3)	464 (33.5)	1387
Female	354 (31.4)	501 (44.4)	274 (24.3)	1129

1/ Percentage

Table 3. Seasonal Changes in Foraging Zones Used by American Avocets in McKay Bay, Florida

Month	Foraging Zone			Total obs.
	Shallow Water No. obs.	Deep Water No. obs.	Very Deep Water No. obs.	
Jan.	315 (30.4 <sup>1</sup> )	485 (46.8)	237 (22.9)	1037
Feb.	159 (45.4)	168 (48.0)	23 (6.6)	350
March	142 (16.9)	382 (45.5)	315 (37.5)	839
April	5 (1.7)	122 (42.1)	163 (56.2)	290
	621 (24.7)	1157 (46.0)	738 (29.3)	2516

<sup>1</sup>/ Percentages

stayed fairly constant over time but a noticeable seasonal change occurred. They spent more time foraging in very deep water in late March and April than they did earlier in the year (Table 3). This was especially noticeable on the impoundment where tightly packed flocks of up to 50 avocets swam together and used the Dabble Scythe method of foraging. Hamilton (1975) found that in summer, avocets in California showed no significant differences in the water depths the sexes used for foraging although his figure 12 shows a slight tendency for males to use deeper water than females. However, he did find that the sexes used different foraging methods and thus showed some niche segregation. Unfortunately I did not record foraging methods by sex to see if this pattern held true among wintering avocets.

I did not record in detail the foraging methods used by stilts but most appeared to forage by Pecking (Hamilton 1975).

Interspecific encounters — The only interaction I noted between stilts and avocets was on 9 June 1975 when a stilt landed in the midst of a group of avocets. One avocet advanced, bill forward, and drove the stilt away.

Several times stilts mobbed Laughing Gulls (*Larus atricilla*) that flew over a nesting area. Once, an immature White Ibis (*Eudocimus albus*) landed near a half-grown stilt. Two adult stilts repeatedly attacked the ibis but the ibis moved only slightly and seemingly ignored them. Finally one stilt, bill extended, ran toward the ibis, flew just before it reached the ibis, and the ibis flew away.

## Reproduction

Avocets — Although avocets do not breed in Florida, some reproductive behavior was seen. By late March - early April 1972, I commonly saw male and female avocets foraging together as if they were paired. On 9 June 1975, 2 avocets standing together away from the main flock head-pumped together, poked their bills at the ground together, picked up bits of "nest" material and flicked them over their backs. On 16 June some individual avocets chased others away if they approached too closely. On 23 June I saw no further sexual activity nor any sign of a nest. These observations suggest that some pairing occurs on the wintering ground (see Gibson 1971, *Condor* 73: 444-454).

Stilts — Black-necked Stilts nest regularly at McKay Bay. When they first arrive, their loud "whit-whit" calls are heard as birds chase back and forth, apparently in territorial encounters. These chases are common in April - May. Obvious pairs stand at intervals along the edge of the pond. The only copulation I saw was on 26 April 1974 and it was much like that described by Hamilton (1975). After the male dismounted, the pair walked daintily in step for a few steps, then walked faster and separated. Their bills were not crossed as Hamilton (1975) found. I never saw stilts carrying nest material or nest-building.

Of 10 nests I found, 7 were over water (mean depth 11.6 cm), 1 was on land near the edge of a clump of cattails (*Typha* sp.), and 2 were on the ground away from the water, on a small hummock near some grass and within a clump of saltbush, respectively. Each nest was a platform of dried vegetation and sticks, often lined with stones, shells and, nearly always, small pieces of charred wood, apparently from the nearby incinerator. Three of the nests over water were on tiny islands near the shore with little cover while the others were well-hidden in dense clumps of *Paspalum vaginatum* near shore. Mean external and internal nest diameters were 21.4 and 11 cm respectively ( $n = 5$ ).

Of 8 nests I found before hatching, 7 had 4 eggs and one had 6 ( $\bar{x} = 4.2$ ). The length and width of 5 eggs averaged 45.2 and 31.2 mm.

I can determine nesting phenology only by back dating. In 1974 I found 6 nests with eggs and 1 with one chick on 24 May and another nest with eggs on 28 May. On 30 May, 2 nests had pipped eggs and by 3 June only 2 of the 8 nests still contained eggs, the others being empty. Stilt chicks leave the nest soon after hatching (Hamilton 1975), so eggs in the empty nests probably had hatched during the intervals between visits. On 29 May 1972 I saw 11 very small downy chicks and on 31 May I saw 2 broods of 4 and 1 of 2 chicks being led by an adult. Thus in 1972 and 1974 peak of hatching ap-

peared to be the last week of May. Hamilton (1975) gives the incubation period as 25 days, indicating egg-laying at McKay Bay should have occurred during the first week of May.

After the initial observations of broods being led by an adult, the young remained hidden much of the time and were very difficult to see. On 23 June 1975 I saw 2 young almost adult in size and in other years I have June, July, and August records of what were almost certainly young birds.

Adults vigorously defended nests with eggs, and especially pipped eggs or young chicks, by circling over me and giving loud "whit-whit" calls and by diving at me, rearing the head back and giving a harsh "wawack" note as they passed by, often within inches of my head (Dive-bombing Display, Hamilton 1975). Normally several pairs would join to circle and call overhead as I approached a nest, although usually only one pair would dive at me when I was close to any given nest. Stilts also landed and gave a distraction display (Wing-flagging Display, Hamilton 1975). Based on counts of the adults that called over me each year, about 10-15 pairs of stilts nested near the impoundment.

### Summary

The results of this study indicate that on the central Gulf Coast of Florida American Avocets are permanent residents but are much less numerous in summer. Although no breeding in Florida has been reported as yet, the evidence of pairing suggests that perhaps in the future small numbers may breed there.

The data presented here suggest that avocets, which show sexual dimorphism in bill shape (Hamilton 1975), divide the resources by foraging in different water depths (Table 2). Hamilton (1975) did not find such differences but did find sexual differences in foraging methods.

Black-necked Stilts nest in small numbers at McKay Bay. Egg-laying occurs in early May and the eggs hatch in late May. Nests usually are over water and contain 4 eggs. Most stilts leave the area by late summer and only rarely do they winter at McKay Bay.

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