

SOME OBSERVATIONS ON THE FALL MIGRATION
AT DRY TORTUGAS, FLORIDA

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THE Dry Tortugas Keys present tremendously interesting avian features aside from sea-birds. In spring and fall, these "rocky islets" of Ponce de Leon exhibit a passing pageantry of land species which is no less remarkable than thrilling to the fortunate observer.

Strategic as these keys are in their location across the migratory lanes, little actual work has been done with land birds since the discovery of the keys in 1615. A great deal has been accomplished in regard to the summer tern colonies; the neglected periods are spring and fall, those seasons which witness birds at Tortugas which occur at no other times. To some extent this is understandable. Sixty-eight miles due west of Key West, the Tortugas are hard to reach; the trip normally entails considerable expense and the risk of seasickness!

The writer has been privileged to make the trip eight times, but on none of them except the last has he been there during the fall migration. The time was short and the season was somewhat early but these handicaps were unavoidable. Hardly since the days of W. E. D. Scott, in 1890, has any record of fall movements of land birds been made. In view of the recent keen interest in the question of whether birds cross the Gulf of Mexico, or largely skirt the edges, it seems that detailed study at Tortugas is highly desirable. These notes are but a start. As usual, the writer's trip (September 2-9, 1949) was made possible through the cordial co-operation of the National Park Service and its capable personnel of the Fort Jefferson National Monument.

Practically every daylight hour was utilized. While the total list secured may not seem impressive, some of the *negative* observations would appear to possess almost as much interest as the actual instances of occurrence. They certainly open questions needing more study. Study in mid-September to mid-October would reveal a great deal, being the crux of the autumnal movement. That has, as yet, never been done by anyone.

No particular technique was employed. None is needed. Garden Key, on which Fort Jefferson stands, is practically covered by that structure. The entire key comprises some seven acres and the Fort occupies five. The latter is a six-sided pile of masonry, enclosing an open parade ground where most migrants feed during the day. This is covered with grass, kept mowed, and studded here and there with characteristic trees and shrubs. These are few, and it is easy to see

any bird which may visit the area; indeed, it is safe to say that one need hardly miss an individual. Aside from working at ground level, the observer is greatly helped by being able to use the second gallery of the Fort, as well as the parapet, giving elevations of about 20 and 40 feet, respectively. Thus, one can look down on birds, as well as up at them.

The day's work simply consisted of getting up at, or before, sunrise and making rounds of the area throughout the rest of daylight. In all of this, the writer was ably assisted by his son, and to lesser extent by his wife. It was hoped that it might be possible, by stationing oneself on top of the Fort in early morning, actually to witness arriving flights of birds, coming in over the Gulf. The attempt was made but with rather indifferent success. Unless a mass movement had been detected, the difficulties are enhanced by the immensities of sea and sky. To catch individuals, or even small groups, is far more difficult than one would imagine. None-the-less, some small success was had, for twice groups of Bobolinks came in, high overhead, to pitch down into the parade; twice, Eastern Kingbirds were seen to do this, and once, a Great Blue Heron.

Close attention was paid to the *physical condition* of all small birds. No examples of real exhaustion were noted (other than the case of the Bridled Tern), and there were few instances in which any bird seemed obviously "tired." In one, this was definitely the case. However, *tameness* of all birds was very marked. Approach could be made to very close ranges, but the majority of the birds were perfectly active and busy with feeding. All seemed to be in good plumage condition. Even the "very tired" cuckoo, despite its lethargy, was trim and neat. In this connection, certain remarks of Dr. Paul Bartsch seem worth noting. In his paper 'The Bird Rookeries of the Tortugas' (Smiths. Rept. 1917, Publ. 2512, 1919) he states that:

"The Tortugas are used as a stepping-stone by many of the lesser migratory birds that winter in the West Indies and even farther south. In the northward journey in spring and the southward flight in autumn, these birds rest here for a varying length of time . . . These migratory land birds always show the effect of their stay on these keys, for most of them look entirely different from the trim little creatures which we are accustomed to see on the mainland. The little warblers and even the bobolinks are all fluffed up and ragged and their appearance and motion suggest 'the dim gray dawn of the morning after,' the after effect of a 'night out.' They are lacking in shyness and appear quite as careless about their safety as they do about their appearance."

It so happens that my experience was completely at variance with this, other than in the phase of shyness. In no single case was any bird "ragged," but what the conditions may be at the height of the

migratory movement, with bad weather, many more birds, etc., I cannot say. Bartsch's remarks are no doubt based on many more specimens than we encountered.

Regarding weather, we were both fortunate and otherwise. Bad weather is desirable; we had little of it. Though our arrival was on the heels of the hurricane which devastated parts of Florida on the night of August 26-27, no effect was noticeable at Tortugas. However, on September 3, 4, and 5, squally conditions prevailed, with intermittent sunshine. On the morning of the third, a southwest wind reached a maximum of 44 miles per hour. It blew from that quarter the next two days, then veered to the north and northeast, diminishing to gentleness. The first few days then saw the greatest number of birds. The last three showed little movement, but new species arrived every day. Temperatures remained almost constant, the highs reaching 86° F. at 2 p. m. Birds came in both with, and against, the wind.

Having spent a day and a half in the Upper Keys prior to proceeding to Tortugas, we were able to draw some interesting comparisons between those islands and conditions at Fort Jefferson. Great numbers of Gray Kingbirds were, for instance, congregating on the Keys, accompanied by Eastern Kingbirds. We did not see a single Gray Kingbird at Tortugas, though the Eastern was seen every day and in some numbers. Nighthawks were passing through the Keys in abundance; we saw none at Tortugas. On the return trip, a stop was made at Tavernier (Key Largo) and I compared conditions with my colleague Robert P. Allen who lives there. He had noted multitudes of Gray Kingbirds and Nighthawks to our none. Conversely, we had, at Tortugas, Ovenbirds, Waterthrushes, and Parula, Hooded, and Cape May Warblers, while he had seen none.

In considering any trans-Gulf movement involving Tortugas, some idea of distances should be noted. It is possible that the area is used as freely by coastwise migrants as by those which cut right across the open Gulf. Which may be in the majority is a question. The following distances were worked out on charts by Mr. John R. DeWeese, Custodian of Fort Jefferson.

Tortugas to Havana, Cuba.....	105 miles SE
Tortugas to Cape San Antonio, Cuba.....	205 miles SW
Tortugas to Yucatan.....	365 miles SW
Tortugas to Cape San Blas, Florida.....	320 miles
Mouth Miss. River to Yucatan.....	480 miles S
Port Arthur, Texas, to Carmen, Mexico.....	665 miles S
Width of Yucatan Channel.....	110 miles

Other things being equal, one would suppose that a natural route for many birds leaving the northern Florida Gulf coast would be from Cape San Blas, in the Appalachicola area, across Tortugas for Cuba. The former would be the only land encountered, entailing a flight of 320 miles. It would also seem that any birds leaving the Pensacola-Mobile-Mississippi River mouth would travel straight south, with landfall at Yucatan, 480 miles away. Though this would miss Tortugas considerably to the westward, some birds may be driven off such course by adverse weather, and so reach Tortugas. Indications are that this does occur. The case of the Yellow-throated Warblers is one in point. (See notes under this species in list below.) Instances involving the appearances of Western Willet and Grinnell's Waterthrush may be others. A great obstacle in drawing conclusions is lack of data.

One more or less constant source of specimens could be the lighthouse on Loggerhead Key. The personnel there have wonderful opportunities for collection, but none of them know or have any interest in the birds. Something of a start has been made however, by securing their promise to deposit specimens found in future in formalin bottles provided them. The possibilities seem infinite.

Some mention must be made of the Tortugas vegetation where migrants rest and feed. Garden Key is where most of them are seen, although it is not anything like as heavily grown as is Bush Key where the Sooty-Noddy Tern colonies are situated. Loggerhead Key has many so-called Australian pines, *Casuarina*, and Coconut Palm, *Cocos nucifera*, but little else. Hospital (Sand) Key has nothing except four patches of Salicornia; Middle Key has not a sprig of anything, and East Key has much grass such as Sea-oats, *Uniola*, Goat's-foot Morning Glory, *Ipomaea pes-capra*, and some Bay Cedar, *Suriana*. Long Key is no more than a reef, awash much of the time.

The parade ground of Fort Jefferson is, therefore, much the best observatory. The trees there are mainly Buttonwoods and Gumbo-limbo, with a few others. Among these, the Portia, *Thespesia populnea*, Tamarind, *Tamarindus indica*, and Oleander, *Nerium oleander*, may be mentioned. There is much activity in the buttonwoods, and the small, roofless powder magazine in the southwest corner of the parade is thickly grown in bushes and small trees and harbors many birds. As many as 11 species of warblers occur at Tortugas and were noted in the first week of September.

Following, in brief annotated form, is the list of birds observed.

WATER BIRDS

1. BROWN PELICAN, *Pelecanus occidentalis*.—Adults and immatures seen daily; maximum number occurred on 5th, when 23 were counted.

2. BLUE-FACED BOOBY, *Sula dactylatra*.—Seen daily; frequents buoys and channel markers between Garden and Loggerhead Keys. Two pairs usually stay throughout summer but on 5th we saw five individuals.

3. WHITE-BELLIED BOOBY, *Sula leucogaster*.—Seen daily. Usually frequent buoys of channel between Garden and Bush Keys; sometimes on north coal docks and Bush Key and occasionally on pilings west of south coal docks. Half a dozen adults and immatures present (total).

4. FRIGATE-BIRD, *Fregata magnificens*.—About 200 present. Roosted and rested on Bush Key. Often soared over Fort and lagoon anchorage. One hundred and twelve were counted on Bush Key on 8th, with 12 more soaring over lagoon, others at distance. Males with *fully distended pouches* were seen twice on 4th, once on 8th, in flight.

5. GREAT BLUE HERON, *Ardea herodias*.—One immature seen several times during week, usually at south coal dock and beach. One bird came in over Gulf, high up, from north in afternoon of 8th, circled twice over Bush Key, flew off to south, then wheeled beyond Long Key Reef, came back, and landed on Bush Key.

6. LITTLE BLUE HERON, *Florida caerulea*.—Two immatures seen on Bush Key on 4th. Saw same two, presumably, on Long Key Reef on afternoon of 8th.

7. EASTERN GREEN HERON, *Butorides virescens*.—One seen on Loggerhead Key in casuarinas at old Carnegie Marine Laboratory site.

8. YELLOW-CROWNED NIGHT HERON, *Nyctanassa violacea*.—An immature seen several times about Fort. This bird would sit for long periods in same spot.

9. PIPING PLOVER, *Charadrius melodus*.—One individual seen on beach by dock on 5th. Allowed very close approach.

10. BLACK-BELLIED PLOVER, *Squatarola squatarola*.—Seen daily on beach strips and moat wall. Some specimens showed marked remains of summer plumage. Heard several times at night over parade ground.

11. RUDDY TURNSTONE, *Arenaria interpres*.—Seen daily on beach strips, moat walls and coal dock ruins. Maximum was eight at one time on the 3rd. Some showed marked traces of summer plumage, but majority were in winter dress.

12. SPOTTED SANDPIPER, *Actitis macularia*.—Several seen along beach and about coal docks. One to three daily, though there may have been some duplication.

13. SOLITARY SANDPIPER, *Tringa solitaria*.—Seen every day. Very tame, more so than any of the shore-birds noted.

14. EASTERN WILLET, *Catoptrophorus s. semipalmatus*.—One seen on the 3rd near dock was referable to this species.

15. WESTERN WILLET, *C. s. inornatus*.—Two birds seen on 5th are referred to this race. They were very pale, no apparent streakings beneath and bills noticeably long, seemingly markedly so. Approach was made to very close range, and the birds watched carefully from Fort casemates with 9x glasses.

16. LEAST SANDPIPER, *Erolia minutilla*.—Flock of four seen at Pond 2 on Bush Key on the 4th at a range of a few yards—yellow-greenish legs very obvious.

17. SEMIPALMATED SANDPIPER, *Ereunetes pusillus*.—Several seen on beach near dock at high water mark, feeding in sea-weed drift.

18. SANDERLING, *Crocethia alba*.—Five seen on 5th near dock; one on the beach at Loggerhead Key also. All in winter plumage.

19. COMMON TERN, *Sterna hirundo*.—Seen several times over lagoon and beaches of Bush Key.

20. SOOTY TERN, *Sterna fuscata*.—Still present in great numbers, but diminished about 25 per cent from nesting total (J. R. DeWeese). Many young unable to fly as yet. Swarms of birds in air at all hours. Noise from Bush Key not as pronounced as at nesting season but still prevalent throughout day and night.

21. BRIDLED TERN, *Sterna anaethetus*.—One found in casemate of second gallery of Fort on afternoon of 7th. In exhausted and sick condition, head drooping, and eyes closed. Picked up by writer and found to be practically skin and bones. It was in immature plumage, a phase unfamiliar to the writer. Skin made of specimen and referred to Alexander Wetmore who corroborated identification. A. H. Howell (1932) lists only two specimens taken in Florida, one of which is in British Museum. The other was presented by Audubon to Lawrence, and examined by Coues (1874). The stomach was empty.

22. ROYAL TERN, *Thalasseus maximus*.—Seen every day, but in no great numbers.

23. CASPIAN TERN, *Hydroprogne caspia*.—Seen on 3rd over Bush Key Channel and once or twice afterward.

24. BLACK TERN, *Chlidonias niger*.—Two or three seen on 4th over lagoon in front of dock.

25. NODDY, *Anous stolidus*.—Still present in numbers, many immatures. The writer counted 143 birds at one time, and 156 at another, sitting on rusting steel beams of north coal dock, always a favorite resting perch. On a trip to Hospital Key on 6th, by outboard skiff, Noddies came so close that it was possible to seize them in air. They exhibit this trait to a marked degree.

LAND BIRDS

26. BLACK-BILLED CUCKOO, *Coccyzus erythrophthalmus*.—One seen on 4th at 8 a. m., in the small powder magazine. The bird was "very tired" but appeared to be in good condition and plumage. It sat perfectly motionless for as long as the writer cared to look at it. First seen outside magazine, it flew from tamarind tree into structure, where the writer followed it and watched it. It did not object to approach to within ten feet.

27. BELTED KINGFISHER, *Megasceryle alcyon*.—This species seen several times about moat and dock. There were at least two present at a time. On early morning of 6th, watched two take off from Fort and fly straight southwest. After about a mile one of them turned back. The other adhered to the southwest course.

28. EASTERN KINGBIRD, *Tyrannus tyrannus*.—Seen every day. Five present on the morning of 3rd; four on 4th; four on 5th; 17 on 6th; 12 on 7th; eight on 8th.

The flight of 17 came in from north at 7:35 a. m. on 6th. They pitched down into parade ground. Kingbirds constantly frequented topmost twigs of portia trees, probably because many of these were dead and reached up above lower leafy ones. They would sit for long periods without moving, or feeding.

29. WOOD PEWEE, *Contopus virens*.—One seen in buttonwoods in parade about 8 a. m. on 3rd. Another was seen later in morning, but I cannot be certain whether there were two, or a duplication. This bird allowed very close approach.

30. BANK SWALLOW, *Riparia riparia*.—This swallow came on 7th and 8th. Never more than three or four, but stayed all day. The parapet of the Fort was an ideal spot to watch them, often they passed within a few feet.

31. BARN SWALLOW, *Hirundo rustica*.—Present in some numbers every day. The behavior of these familiar birds at Tortugas was unlike anything the writer had witnessed before. They would follow motor lawn-mower, as well as anyone walking across parade, and swoop and circle for insects disturbed in short grass. Often, they would fly between persons walking no more than two feet apart. Snapping of the bills could be heard plainly. Flight was about ankle high. They were active up until actual darkness, flying up and down over moat close by casemates. On frequent occasions birds were on ground for considerable periods.

32. PURPLE MARTIN, *Progne subis*.—Seen only on 7th and 8th. On 7th, an immature sat on radio aerial over sallyport of Fort and preened for quite a while. It finally left, flew out over lagoon where it was joined by another, and the two circled and swooped among Sooty Terns soaring there. After a few minutes of this, both took off to the southwest. Three on morning of the 8th.

33. BLUE-GRAY GNATCATCHER, *Poliophtila caerulea*.—Seen first on 5th on Loggerhead Key. Also on Garden Key (Fort Jefferson) on 6th and 7th. Never but one at a time. Very active.

34. BLACK-WHISKERED VIREO, *Vireo altiloquus barbatulus*.—Seen in buttonwoods on parade ground on 4th, 5th, 6th, and 7th. Usually one at a time, though on 5th there appeared to be two. Easy approach to within a few feet. The whisker mark obvious in all cases.

35. RED-EYED VIREO, *Vireo olivaceus*.—One seen on 6th in buttonwoods in parade.

36. BLACK AND WHITE WARBLER, *Mniotilta varia*.—Seen every day but 8th. As many as three or four at a time. There were four on 3rd; all in good condition and active.

37. PROTHONOTARY WARBLER, *Protonotaria citrea*.—Seen only on 6th. Several males, females, and immatures present at very close range on small powder magazine and buttonwood trees.

38. SWAINSON'S WARBLER, *Limnothlypis swainsonii*.—One seen on 4th, at very close range in portia tree in parade, at 10:30 a. m. Very deliberate in movements. Remained in tree for 15 minutes and was often within 15 feet.

Another seen on 5th in small powder magazine, perched near ground, and also apparently tired. Excellent observation of both.

Howell (1932) lists this warbler as having been taken on Tortugas in 1890.

39. WORM-EATING WARBLER, *Helminthos vermivorus*.—Two seen on 6th. One was in high buttonwoods near lighthouse bastion; another about small powder magazine. Both in excellent plumage and condition and showed no signs of fatigue.

40. PARULA WARBLER, *Parula americana*.—Seen every day. This, with Red-starts and Oven-birds, was most frequent warbler, possibly excepting Prairie. None appeared tired. Paid little attention to observers; some seen within a few feet.

41. YELLOW WARBLER, *Dendroica petechia*.—One fine male seen on 8th. Fed in buttonwoods near lighthouse bastion and frequently on ground in short grass. No signs of fatigue. This was one of quietest days during week, gentle north breeze, 86° temperature, bright sun.

42. CAPE MAY WARBLER, *Dendroica tigrina*.—Several seen on 6th; a lesser number on 7th. In fine plumage, rather active. Also fed on ground a good deal.

43. BLACK-THROATED BLUE WARBLER, *Dendroica caerulescens*.—Seen every day; as many as 10 or 12 at Fort during one day. Females predominated, only three or

four males being found. Very often fed amid short grass on ground, frequently flew into casemates of Fort on ground floor.

44. YELLOW-THROATED SYCAMORE (?) WARBLER, *Dendroica dominica (albilora ?)*.—This an interesting case. Seen every day but 8th, and at times as many as three or four birds at a time, the writer was struck at sight of the first one (Sept. 2) because of the eye-stripe. It was pure white, without a tinge of color. This proved to be the case with *every specimen* seen during the week!

These warblers were very tame, all in good plumage, deliberate, but always moving, and coming to within a few feet frequently. Attention of both his wife and son was asked by the writer regarding the eye-stripe, and both of them saw clearly that, in every case, it was pure white. *Albilora* is mainly a Mississippi Valley bird and its presence at Tortugas in fall surely indicates a migratory movement in a trans-Gulf sense. One bird was seen on Loggerhead Key on the 5th. It was same as others.

45. PRAIRIE WARBLER, *Dendroica discolor*.—One of commonest species seen—several every day and as many as a dozen were on the parade at once. A few were seen in bushes on outside of the Fort, across moat; no other warbler occurred there. All active; all in good plumage.

46. PALM WARBLER, *Dendroica palmarum*.—One seen on the 3rd in small powder magazine.

47. OVEN-BIRD, *Seiurus aurocapillus*.—One of commonest of all migrants every day. 10 to 12, or more were present continually except on the 8th, when the numbers dropped sharply. Seen almost anywhere inside the Fort and parade, often in the galleries and casemates. Allowed very close approach but none appeared worn or feeble.

48. NORTHERN WATER-THRUSH, *Seiurus noveboracensis*.—Seen almost every day—frequented casemates of Fort, catching insects about galleries. In small powder magazine often. Easy to watch at close range. As many as 15 present from 3rd through 6th. Dropped off on 7th and 8th.

49. GRINNELL'S WATER-THRUSH, *Seiurus noveboracensis notabilis*.—One seen in small powder magazine on 6th. This bird was "tired," sat quietly for a long while close to ground in thicket growth, but at close range. Eye-line was neither white nor buff, but in between; throat was definitely marked with fine dark flecks.

50. LOUISIANA WATER-THRUSH, *Seiurus motacilla*.—One seen on ground at very close range under large oleander bush at north end of old officers' quarters. Eye-stripe was pure white and the throat unspotted.

51. YELLOW-THROAT, *Geothlypis trichas*.—Only one specimen seen, this being under oleander bush at same time the Louisiana Water-thrush was observed.

52. HOODED WARBLER, *Wilsonia citrina*.—Seen first on 4th, when female was watched in small powder magazine. Males appeared next day. This spot was favorite haunt for them, one or two being seen on 6th, 7th, and 8th.

53. AMERICAN REDSTART, *Setophaga ruticilla*.—Commonest warbler seen, in numbers every day. In evidence too, throughout each day, as they fed freely on ground in open, as well as in galleries of Fort. The incessant tail and wing spreading was often the only movement seen in trees. Females and immatures largely predominated, only three full-plumaged males were seen against dozens of others.

54. BOBOLINK, *Dolichonyx oryzivorus*.—First seen on 3rd, when five came in from east, high up, at 10:15 a. m. These came down into parade. On 4th, at 6:20 a. m.,

three came in from northeast, pitched down into bushes outside Fort, near north coal dock. Saw one of these (?) later in the morning, in a dead bay cedar on west beach. None appeared excessively tired.

55. SUMMER TANAGER, *Piranga rubra*.—On morning of 7th, about 10 a. m., my son was on south parapet of Fort and called to me down in parade to watch for a bird in the high buttonwood near the sallyport. I located it almost at once, a female of this species. It was obviously "weary." Sat for almost a half hour on one of top branches of tree, perfectly motionless. This was a quiet day with gentle breeze from northeast.

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