

First record of Cape Verde Shearwater (*Calonectris edwardsii*) for North America

J. Brian Patteson

P.O. Box 772

Hatteras, North Carolina 27943

(email: brian@patteson.com)

George L. Armistead

523 East Durham Street

Philadelphia, Pennsylvania 19119

(email: georgearmistead@hotmail.com)

ABSTRACT

This paper documents the first North American record of Cape Verde Shearwater (*Calonectris edwardsii*), a single bird photographed off North Carolina 15 August 2004, and provides contextual comments on taxonomy, distribution, and field identification of Atlantic *Calonectris* taxa.

FIELD ENCOUNTER

CONTEXT

On 15 August 2004, the authors and 37 others aboard the *Miss Hatteras* observed a Cape Verde Shearwater (*Calonectris edwardsii*) near 34° 52.1' N, 75° 22.2' W, approximately 49 km (26 nautical miles, 30 statute miles) southeast of Hatteras Inlet, North Carolina. The water depth is about 200 m at this location, near what is considered to be the edge of the Continental Shelf. The sea surface temperature at the time of our encounter was recorded as 26.9° C. The minimum water temperature recorded that day was 23.7° C, and the maximum was 29.1° C farther offshore,

along the axis of the Gulf Stream. We considered the water along the shelf edge to be a blend of Gulf Stream water and Shelf water.

This blended seawater had been present in the area for several days and is somewhat unusual for mid-August, when the Shelf edge south of Cape Hatteras is often inundated with clear blue Gulf Stream water. The blended water contained extensive wind-rows of gulf weed (*Sargassum* spp.) and was teeming with baitfish and larger predatory fish, including Dolphin (*Coryphaena hippurus*), Wahoo (*Acanthocybium solanderi*), and White Marlin (*Tetrapturus albidus*). Many (Atlantic) Cory's Shearwaters (*Calonectris diomedea borealis*) and Sooty Terns (*Sterna fuscata*) fed along these extensive weed-lines, along with lesser numbers of Audubon's Shearwaters (*Puffinus lherminieri*) and Bridled Terns (*Sterna anaethetus*), typical constituents of the pelagic drift community. A single Greater Shearwater (*Puffinus gravis*) had put in a brief appearance, and in trying to relocate that bird, we carefully scrutinized each flock of Cory's Shearwaters as we traveled to the northeast along the weed-line. Overcast skies made it possible to see well in all directions.

At 1042 EDT, Patteson spotted the Cape Verde Shearwater resting among a group of about 20 Cory's Shearwaters, and he alerted Captain Spurgeon Stowe to approach the flock more closely and to alert everyone aboard to look for a slightly smaller, darker bird in the flock. Though neither author had previous field experience of this species, Patteson had studied museum specimens, and both authors had seen photographs of it, and a closer look at the bird made them confident of its identity. Cameras were quickly brought to bear, so as to document the bird while it rested

on the water no more than 15 m from the *Miss Hatteras*. We observed the bird closely as it rested on the water and studied it in flight on several occasions, as it would flush with the flock when we approached within 10 to 15 m, and then resettle on the water a short distance away. After 20 minutes of continuous observation, the bird flew off and was not relocated.

DESCRIPTION AND IDENTIFICATION

The Cape Verde Shearwater was clearly smaller (by about 20 per cent) and darker above than the adjacent *borealis* Cory's Shearwaters but was otherwise roughly similar in plumage, being countershaded, brown above and mostly white below. While at rest on the water, the bird's size, head color, and the color and pattern of the bill lent it an appearance strikingly different from Cory's and indeed from other shearwaters with which we are familiar (Figures 1–5).

The color of the head was clearly darker, a neutral gray as opposed to the warmer brown or grayish-brown of the Cory's. The head looked both smaller and more angular than those of the Cory's, which have larger, more rounded heads, and its darker color contrasted more sharply with the white of the lower cheeks and throat, giving the bird a more clean-cut look—with colors more contrasting, less diffuse than the paler Cory's Shearwater. The head and bill were not as dark as would be expected in Greater Shearwater, and the bird did not appear capped, at least when at rest.

The rather slim, slender bill was markedly less bulbous than those of the Cory's; its color was dusky olive-gray at the base, with a darker, blackish subterminal band and gray tip. The bill showed no pale yellowish color, unlike the Cory's. At a distance, the wide subterminal band made the

Figure 1. The Cape Verde Shearwater (left) off North Carolina stood out in the flock of about 20 Cory's Shearwaters by virtue of its smaller size, colder plumage tones, sharper contrast of upperparts with underparts, and smaller, shallower bill, which lacked the yellow tones of Cory's, being a more dusky olive in color. All photographs taken 15 August 2004. Photograph by J. Brian Patteson.



bill look dark-tipped. While the bird rested on the water, its neck appeared rather thin, and this gave the bird a somewhat delicate aspect.

When bird took flight (Figures 6–9), its smaller size became even more obvious, and though the bird was in what appeared to be prebasic molt (with both body and wing feathers in the midst of being replaced), the upperparts as a whole were clearly darker than those of the Cory's Shearwaters. The pale area on the rump was less extensive than in nearby Cory's and contrasted more sharply with the darker upperparts. This mark is rather variable on Cory's Shearwater; on this Cape Verde Shearwater, it was a thin pale, whitish crescent, lacking in warm color and not as broad as on Cory's, which are usually a dingy, pale off-white, or even buff in color. In flight, the bird appeared darker overall than Cory's except for some pale patches in the upperwing, where the shafts of the remiges were exposed by molted upperwing coverts (see below). The underwing appeared similar to Cory's, being whitish with a brown border in the marginal coverts. The uppertail coverts were darker than in most Cory's. Subsequent examination of photographs taken of this bird revealed a long-tailed appearance

compared to Cory's in the same field of view, but this was not noted in the field.

The bird was clearly in molt of both the contour feathers and the remiges and their coverts. This full molt had commenced relatively recently, as indicated by the gap in the inner primaries (p1–p4 were dropped), the missing distal greater upperwing coverts (exposing the white bases to the secondaries), and the disheveled look of the plumage in the neck and back. Peter Pyle studied photographs of the bird in flight and suggested that the broad, rounded tips to the outer primaries, the apparent absence of retained (juvinal?) secondaries, and the probable presence of retained lesser or median upperwing coverts point toward a bird in its third calendar year or older (=ASY; at least 2 years old). He writes: "An SY bird, roughly one year old, would begin the primary molt in June (assuming a schedule similar to that of Cory's) and be molting p6–p7 by mid-August, would have browner and more pointed primary tips, and would not show older feathers of a previous generation. In hand, it might be possible to assess the retained coverts to see if they are juvenal feathers (on a TY bird) or definitive feath-

ers (on an ATY bird), but this is not possible in the field."

Porter et al. (1997) describe six identification features to look for in differentiating Cape Verde Shearwater from Cory's Shearwater:

- Bill noticeably thinner than Cory's, and gray or pinkish-gray with a black subterminal band (looking black-tipped at a distance), quite unlike the large yellow (or ivory) bill of Cory's;
- Upperparts darker and grayer brown than Cory's, with a dark 'W' (or 'M') often noticeable across the upperwings;
- A clean demarcation between the dark upper and white lower parts of the head, on some birds giving a slightly capped appearance;
- Smaller and slimmer than Cory's, with a longer tail, smaller head, and slightly narrower wings;
- Uppertail-coverts tend to show consistently more white than Cory's; and
- Flight similar to Cory's, but with perhaps less deep wing-beats and the wings held slightly more forward, with the hand at right angles to the body when gliding.

We found all of these characters to fit with the North Carolina bird, aside from the fifth item, which we believe to be variable in both species, based on study of photographs, specimens, and birds in the field. When observed closely, then, Cape Verde Shearwater should not present great difficulty in identification. Porter et al. (1997) attest that the first Cape Verde Shearwaters they encountered looked so different from Cory's that they were initially puzzled as to what they were seeing, and they likened its overall long-tailed, narrow-winged appearance to Wedge-tailed Shearwater (*Puffinus pacificus*). When seen poorly or at a distance however, identification could present a challenge because Cape Verde Shearwater is comparable in structure and plumage to two common species in the North Atlantic, Cory's and Greater Shearwaters.

DISCUSSION

STATUS AND DISTRIBUTION

Cape Verde Shearwater is one of the least-studied species of North Atlantic tubenoses. The population has been estimated at 10,000 pairs and is known only to breed on six islands in the Cape Verde archipelago (Hazevoet 1995), although the "culling" of several thousand nestlings each year by local fisherman (Hazevoet et al. 1996) could represent a significant threat to this species, and its actual population may be smaller than is currently estimated. Cape Verde Shearwaters arrive at breeding islands beginning in late February, with laying in June and July and fledging in October and November (Hazevoet 1995), a schedule similar to, but slightly earlier than, that of *borealis* Cory's that breed to the north, in the Azores, the Berlengas, the Canaries, the Salvages, and the Madeiran Archipelago (Madeira, Porto



Figure 2. Cape Verde Shearwater at center. Photograph by George L. Armistead.



Figure 3. Cape Verde Shearwater at left. Photograph by George L. Armistead.

Santo, and the Desertas). It is mostly absent from waters around the breeding islands after November and before February (Hazevoet 1995). Dispersal at sea has not been well studied, but expeditions to Senegal in October of 1995 and 1996 found it to be numerous off the peninsula of Cape Verde (within sight of land), and large numbers were observed feeding around fishing trawlers there (Porter et al. 1997). There are scattered winter reports of single birds off western Africa from Mauritania

and Guinea-Bissau (Borrow and Demey 2001), and the species has been observed during its breeding months from seavatches in and around Dakar since at least 1968 (Gaston 1970, Baillon and Dubois 1991, Marr and Porter 1992, Allport 1995, Marr et al. 1998) and in adjacent waters (Brown 1979).

Movements of Cape Verde Shearwaters in the non-breeding months are essentially unknown. It is surmised that the birds disperse south from the Cape Verde Islands

Figures 2, 3, 4. At a distance, and at certain angles, when the Cape Verde Shearwater (right, in Figure 4) was seen sitting with Cory's, its smaller size, darker bill, and slightly darker plumage recalled Greater Shearwater—or the even smaller Manx Shearwater, occasionally seen off North Carolina in August. Greater Shearwater is in fact larger than Cape Verde Shearwater, with a darker (black) bill and a neat black cap.

Figure 4. Photograph by J. Brian Patteson.



into the southern North Atlantic and northern South Atlantic (Borrow and Demey 2001). Away from Africa and related islands, we find few reliable reports of this species. On 18 February 1992, three shearwaters studied off Argentina at 38° 36' S, 53° 30' W were identified as Cape Verde Shearwaters (Curtis 1994). In May and June 1997, three Cape Verde Shearwaters were collected off the coast of Brazil (Petty et al. 2000), apparently the first documented occurrence for the Western Hemisphere, along with winter sightings off Bahia and Rio de Janeiro/São Paulo, Brazil (Olmos 2002; Olmos, pers. comm.). In North America, the only published mention of this species is of a single bird, thought to be a likely candidate for Cape Verde Shearwater, seen in a heavy shoreline migration of Cory's and Greater Shearwaters at Cape Point, Buxton, North Carolina (Davis 1993); this sight record preceded the recognition of *edwardsii* as a full species. We know of no North American specimens of Cape Verde Shearwater in museum collections.

Little has been published about the ages of Cory's Shearwaters, or the relative proportions of their age classes, observed in summer in the western North Atlantic. Because large numbers of Cory's in varying states of molt are present through the warmer months in and around the Gulf Stream off the Carolinas, we have assumed these to be birds not yet old enough to breed or possibly adults that are not breeding—all breeding colonies are too distant for foraging adults to make regular trans-Atlantic flights to feed young. Mougín et al. (1997) reported that about 10 per cent of breeding adult *borealis* in colonies on Selvagem Grande do not breed annually; most absences (58%) are for a single season, but some breeding Cory's were found to be absent for up to seven years. Because of the strong natal philopatry in the species (Rabouam et al. 1998), it is unlikely that such hiatuses involve birds simply nesting elsewhere. Because of our limited knowledge of molt schedules in *Calonectris*, and because these "sabbatical" periods away from the nesting grounds are apparently common, conjecture about movements of Cape Verde Shearwaters that might bring some individuals closer to North American waters would be premature. Cape Verde Shearwaters seen off of Senegal in early October are in an advanced stage of primary molt and have been considered subadults or nonbreeders, as juveniles do



Figure 5. At medium and close range, the dusky color of the bill and dark subterminal band were apparent on the Cape Verde Shearwater. Despite its molt of body feathers, the darker gray-brown crown and hindneck looked darker than the upperparts of adjacent Cory's Shearwaters and contrasted more sharply with the white underparts. Photograph by George L. Armistead.

not fledge until late in October or early in November (D. Newell, pers. comm.), but no other published thoughts on ages of birds observed at sea are available.

TAXONOMY OF ATLANTIC CALONECTRIS

Although we had expected the detection of this species off North Carolina (see Brinkley 2000), we were nevertheless surprised at just how different it was from Cory's Shearwater and further surprised that it had been considered conspecific with Cory's. The first ornithologists to describe *edwardsii*, Oustalet (1883) and Alexander (1898, who called it *Puffinus marianae*), both accorded it status as a full species, as did Godman (1910) in *A Monograph of the Petrels*. Later authors (e.g., Peters 1931) demoted *edwardsii* to subspecific status, though without evidence for the recategorization. Murphy (1924) also did not recognize *edwardsii* as a separate species but noted that "many ornithologists would unhesitatingly" do so based on its manifest differences, and Bourne (1955) concurred. Hazevoet (1995) was the first ornithologist in the twentieth century to re-recognize the distinctiveness of *edwardsii* as a species, based on morphology (Granadeiro 1993) and vocalizations (Bannerman and Bannerman 1968, Bretagnolle and Lequette 1990), both of which differ from those of *borealis* and nominate Cory's (see also Soldat

2004).

More recently, Sangster et al. (1998) have suggested that differences between *borealis* and nominate *diomedea* merit species-level distinction, but other sources support subspecific rank (Wink et al. 1993, Heidrich et al. 1996). Morphologically, the forms are difficult to distinguish, and apparently some gene flow occurs between the two taxa (Randi et al. 1989). More germane for the consideration of field identification is that the Mediterranean-nesting nominate form (sometimes referred to as Scopoli's Shearwater) is a smaller bird than *borealis* and thus closer in size to *edwardsii*. Even the largest specimens of Cape Verde Shearwater, however, are significantly smaller than those of the smallest Scopoli's (Hazevoet 1995). Newell and Tony Marr (*in litt.*) found that specimens of *edwardsii* were at least 10 per cent smaller than those of *diomedea*, that the depth of bill was different (*diomedea* = 12.5–13.5 mm; *edwardsii* = 9.5–9.9 mm), and that bill color and plumage colors of

nominate birds were invariably very close to those of *borealis* but not to *edwardsii*. There are at least five extant specimens of nominate Cory's from eastern North America (e.g., Levine 1998), but our limited review of specimen material suggests that most western North Atlantic specimens are of the larger *borealis* (see also Lee 1995). Birds of the nominate race, unlike *borealis* and *edwardsii*, vary greatly in size, in a cline from largest birds in the western Mediterranean to smallest in the east (Hazevoet 1995). Dick Newell and Richard Gutierrez (pers. comm.) suggest that nominate Cory's average smaller, more extensively pale on the underwing, and slightly darker around the head, with a less brightly pale yellow bill than *borealis*, but all of these characters overlap with some *borealis*, both in specimens and in the field. The field identification of Cory's Shearwater taxa is the subject of much discussion on the Internet and in birdwatching publications (Gutierrez 1998, Fisher and Flood 2004).

DETECTION BIASES AND OTHER CONSIDERATIONS

Public birdwatching excursions in North Carolina's pelagic waters differ from scientific surveys of seabirds in that littoral and Continental Shelf waters tend to get less scrutiny from birding boats. In recent years, pelagic efforts have focused more on rare gaffly petrels and storm-petrels, which



Figures 6, 7, 8, 9. In flight, the active molt of coverts and remiges was apparent in both the Cape Verde and the Cory's Shearwaters. In profile, the Cape Verde Shearwater was dwarfed by the Cory's and often looked longer of tail and narrower of wing; the wings looked narrower especially at the base, but this could have been an effect of molting secondaries. Some of the impressions of shape varied with flight style and attitude, as well as the angle of observation. Depending on the lighting, the bird's overall tones above seemed to vary from nearly as warm brown as Cory's to rather dark, more like Greater Shearwater, and the appearance of the head might appear washed out or even capped, though never so cleanly capped as a Greater Shearwater.

Figure 6. Photograph by J. Brian Patteson.

occur mostly in Continental Slope waters farther offshore. Consequently, little time has been allotted to shearwater flocks, which tend to occur mostly on or near the Continental Shelf between spring and fall. The sampling of pelagic birds off of North Carolina has also been biased towards more spring and early-summer trips, a time when shearwaters are not as common as they are in late summer or fall. It is quite possible that Cape Verde Shearwater has escaped detection on previous occasions when large flocks of shearwaters have been observed. Prior to the mid-1990s, most seabirders knew little if anything about Cape Verde Shearwater, and an odd-looking shearwater might have been passed off as a Greater or a Cory's.

A more concerted effort to study shearwaters from August to October might yield more sightings of Cape Verde Shearwaters at a time when Cory's and Greater Shearwaters reach peak numbers in Shelf waters. It is also possible that tropical cyclones that originate in the eastern North Atlantic could entrain some Cape Verde Shearwaters and displace them westward. Early August 2004 was a time of considerable tropical storm activity in the North Atlantic, and it is conceivable that the Cape Verde Shearwater we observed was displaced by such a storm. It is our hope that more records of this species will come to light as more observers become aware of the species and its identification; we encourage ornithologists and birders to

become active in salvaging storm-wrecked seabird specimens, particularly after hurricanes, so that we may better understand the statuses of *Calonectris* shearwaters in North American waters.

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Figure 7. Cape Verde Shearwater at left. Photograph by Magnus Persmark.



Figure 8. Photograph by George L. Armistead.

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Figure 9. Cape Verde Shearwater at left. Photograph by Magnus Persmark.

