OBSERVATIONS ON THE CAVE SWALLOW INCURSION OF NOVEMBER 2005

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Since New York State's first fall record in November 1998 (Schiff and Wollin 1999), the appearance of Cave Swallows (*Petrochelidon fulva*) during late fall has become somewhat predictable (e.g., Griffith 2005, Mitra 2005, and discussion below). In the context of this emerging pattern of occurrence, November 2005's incursion to the Lake Ontario Plain was exceptional for several reasons. The first exception was of course the sheer volume of birds encountered, the second was the flight direction of the birds, and the third was the weather pattern, which was only partially similar to what has been linked to these events in the past.

The season's first Cave Swallows were observed in upstate New York on 3 November, when 28 birds were tallied at Hamlin Beach State Park (HBSP) by John Bounds, Judy Gurley, and Dave Tetlow. All of these birds were moving west *into* a southwest wind ranging from 10 – 20 mph. The high number of birds (highest ever encountered in this region) and the flight direction opposite the norm indicated something was different. On 4 November, with heavy cloud cover and a lake breeze early in the day, no birds appeared. When the weather finally cleared during the afternoon and the wind picked up out of the southwest again, Dave Tetlow returned to HBSP for some late observations. At 3:00 p.m. he observed flocks of five and seven birds pass flying *west* again. He alerted others, and Mike Davids arrived in time to observe another 100 birds pass between 3:30 and 4:45 p.m. On 5 November another 42 birds were tallied moving west between 7:30 and 9:00 a.m. by several observers. Bob and Sue Spahn decided to check west of the lakewatch around old barns and under bridges based upon the fact that Cave Swallows had been found on 24 November 2004 after apparently roosting overnight in an old barn. This search failed to reveal any additional birds. On 6 November a potent cold front was forecast. Expected ahead of the front were unseasonably warm conditions, a high temperature of ca. 75° F, and southwest winds at 15 – 25 mph, with gusts over 40 mph. Dave Tetlow alerted several observers the night before to the following day's potential for a major flight of swallows.

6 November dawned as forecast, clear skies, warm, and breezy. Upon driving the Lake Ontario Parkway to HBSP at around 7:00 a.m., Dave Tetlow encountered two flocks of Cave Swallows totaling 46 birds. Noting their flight line was about ¼ - ½ mile off the lakeshore, he positioned himself on the parkway overpass outside of the HBSP. Several flocks were counted from this

location as they passed moving west. Over the course of the next hour or so just over 100 birds were tallied. At this point the wind shifted south southeast to south southwest, and the flight line shifted closer to the lakeshore, so Dave moved into the park to be closer to the line. As the wind strengthened from the south southwest so did the flight. Flocks of 10, 20, 30, even 40 or more birds at a time passed by. By the time the rains accompanying the front had shut off the flight, Dave Tetlow, with the help of Mike Davids and Kim Hartquist and occasionally others, had tallied an incredible 579 birds.

During this event, all of the birds were moving east to west, often into gale force winds. Despite a significant effort, no other swallow species were detected among the Cave Swallows. In fact only two sightings of a total of three Tree Swallows (*Tachycineta bicolor*) were noted during this four day event, and these were not seen moving with any of the Cave Swallows.

POSSIBLE STRAGGLERS

In spite of much searching, there were no other Cave Swallows observed locally for several days. On 7 November at 9:45 AM, three brown-backed swallows flew low in front of the lakewatch area, and one was clearly a Northern Rough-winged Swallow (*Stelgidopteryx ruficollis*). On 8 November, Bill Symonds and Kathleen Dalton observed two more N. Rough-winged Swallows at the lakewatch, apparently coming in after crossing the lake from the north.

On 11 November after a slow morning, Mike Davids made one more check for passerines around the small pond at the east end of Parking Lot # 4 near the lakewatch and observed two Cave Swallows hawking insects over the pond. On the afternoon of 13 November at about 3:00 PM, Dave Tetlow found one, and later three, Cave Swallows while searching the cattail-surrounded ponds on the road out to Beatty Point in the Town of Greece. One passed overhead, remaining long enough to get some digital video images. They eventually moved off to the southwest. The next day just after 3:00 PM, he sighted another four birds there headed southwest. Other observers selecting different vantage points missed these. On returning home, at Hogan Point just inland from Braddock Bay and southwest of Beatty Point, at the back of his property adjacent to Berger Park he found a couple of Cave Swallows foraging over the pond. The number finally swelled to 11. At one point he was able to closely observe at least two different individuals hovering over the gray dogwood (*Cornus rugosa*) bushes near the pond and to see plucked berries in their bills, which were then apparently swallowed. This appears to be a new, previously undocumented foraging behavior for Cave Swallow. At dusk he observed the birds flying up over some pines to the north of the pond and apparently dropping toward the Lake Ontario Parkway bridge over Salmon Creek.

On 15 November, Bob Spahn was under the bridge at just before 7:00 AM. It was gray and chilly with showers threatening and quite dim even though sunrise was near at 7:04. There is a sheltered area to stand and walk while searching for swallows on the array of I-beams under the bridge. Just after

7:21 AM, the first chatterings of Cave Swallows were heard over the water under the bridge to the east and dim shapes were seen flying about. Soon some of the shapes moved out into the open on the north side of the bridge. Many swallows were darting about over the water, up and down and back under the bridge. The count was seven. The birds were observed for the next 10 minutes. All had pale buffy throats and most appeared to have buffy rumps. One, which flew very close, had a rusty center to the rump with paler border. These fieldmarks were consistent with southwestern birds, though probably not ruling out young West Indian birds completely. Finally three birds flew out, then up and over the bridge headed toward the Berger Park area to the southeast. There were still shapes and sounds under the bridge for a short time, then silence. Either the others perched and stopped calling, or they flew out the south side and away. A quick drive to Berger Park did not result in locating any birds. After a short time at the lakewatch, Spahn rechecked the bridge with John Bounds at 11:30 and found three birds huddled together on the bottom shelf of one I-beam and another flying about, which then perched by itself a short distance away on another beam. It was still too dark for photos.

On the morning of 16 November Spahn and Dominic Sherony arrived under the bridge by 6:40 AM. It was already brighter than at anytime the previous morning. There was a stiff wind from the south and a front approaching. Three birds were huddled together not far from the position of the day before and another was flying about, then one was found perched separately on another beam. Several other observers arrived over the next 45 minutes and observed the birds through a telescope. Sherony tried to take photos, but it was too dim under the bridge and too far for use of a flash. About 7:35 the front arrived with very strong winds and rain. The winds swirling under the bridge blew the birds off their perches. They flew around a bit. One passed the observers very close at ankle height, then perched briefly on a pipe nearby and finally moved off, trying several other perches unsuccessfully. At least two were observed flying out to the north of the bridge and finally dropping into the cattails in the lee of the parkway. In the late afternoon, Tetlow and Davids found three Cave Swallows flying about at Round Pond Outlet, two at Long Pond Outlet, where one was observed entering a boat house but not exiting again, and later saw three flying under the Salmon Creek bridge.

On 17 November, Spahn arrived about 6:50 AM with Peter Debes. It had been a very cold night. There were no birds at the previous resting sites. However at about 6:55, as they were waiting toward the north side of the bridge, looking back they spotted three birds, two close together and the third inches away on a beam over the dry land area. Their position on the north side of the beam and near the western bridge footing gave the most shelter from the cold westerly wind. Spahn took several flash shots, some after the single bird shuffled behind and pushed between the other two. The observers then left to limit stress on the birds. Checking back briefly about 9:50, the birds were not visible. In the early afternoon, Dave Tetlow checked and one was back on the beam in approximately the same spot as the morning huddle. He was not sure it was alive, so went to a nearby house and borrowed

a fish net. It was alive and flew away, returning to the spot a couple of times before departing. About that time he looked down and saw a dead bird on the ground under the beam and retrieved it. It was subsequently delivered to the Cornell Lab of Ornithology, hopefully for determination of subspecies and then retention as a specimen. Subsequent searches did not result in finding any more Cave Swallows in the Rochester area, dead or alive.

There is no way to determine precisely the number of individuals involved in this week of additional sightings or whether they were really stragglers from the main event or new arrivals accompanying later fronts. The total is somewhere between a very conservative low of 13 birds moving about searching for food over several of the lakeshore marshes and ponds over several days or possibly as high as 36 birds. It is highly likely that those under the Salmon Creek bridge from 15–17 November were the same small group trying to survive the sharp turn to cold weather.

ORIGINS OF THE CAVE SWALLOWS OF THIS EVENT

The presence of large numbers (1000+) of Cave Swallows in New York State in November is a genuine mystery that raises questions concerning their geographic origins and the possible causes underlying their long distance movements. The detailed sightings and some sense of timing may be garnered from Table 2, summarizing information pulled from postings on the internet at the time of the event and from the various regional reports in *North American Birds*, Vol. 60: No. 1, 2006. Hopefully the discussion below will help to pull the event together and lead to some conclusions relative to possible origins of the birds.

Historically, Cave Swallows have been observed in the East for many years beginning with birds found in Maritime Provinces of Canada as far back as 1968. The historical picture through 1999 is well summarized by Curry and McLaughlin (2000) and McNair and Post (2001). Through the 1990's and since, the species has been observed annually at least somewhere in the northeast, most often on the coast or Lakes Erie and Ontario.

Cave Swallow was first observed locally on the south shore of Lake Ontario on 23 November 1999 by Brett Ewald at Hamlin Beach State Park and subsequently by Dave Tetlow, having been called by Brett, at the East Spit of Braddock. They were on the alert for the possibility having heard of birds to our west in the vicinity of Point Pelee (Wormington, 1999). In the next five years, small numbers of Cave Swallows were seen each fall, except 2000, in the local area. Dates range from an early of 20 September 2003 to 27 November 2004. In all but one case, all the birds were headed east. In most cases, the weather pattern and/or news of birds to our west had observers on the lookout for the species. The total for this entire period is only 21 to 23 individuals (Table 1).

Table 1. Rochester, New York Cave Swallows 1999 – 2004.

Year	Date	Number	Headed	Location	Observers	Notes
1999	11/23	1	E	Hamlin Beach SP	Brett Ewald	
	11/23	1	E	East Spit, Braddock Bay	David Tetlow	same bird?
2000	none					
2001	10/8	2	feeding	Long Pond, Greece	David Tetlow; mob later	
	10/9	1	feeding	Buck Pond, Greece	David Tetlow, Dominic Sherony,	same bird?
2002	11/11	1	E	Hamlin Beach SP	David Tetlow, Mike Davids	
2003	9/20	3	E	Hamlin Beach SP	David Tetlow	
	11/6	1	E	Hamlin Beach SP	David Tetlow	
	11/24	5	E	Hamlin Beach SP	D. Tetlow, R. Spahn, John Bounds	
2004	10/31	3	W	Hamlin Beach SP	Dominic Sherony & field trip	
	11/21	1	E	Hogan Point, Greece	David Tetlow	
	1/27	4	feeding	Williamson	D. Tetlow, R. Spahn, Robert McKinney	

As noted above, this time the circumstances surrounding the event were different. The weather was interesting enough to push people to search, but there was no news of sightings elsewhere. After the start of the event locally, in contacting others and searching the internet, we learned of a small number of sightings on the east coast and just north of us near Toronto, Ontario, Canada in very late October. Tracking the postings on the internet at the time and looking at them carefully later, all of the reports from the lower Great Lakes to the west of us occurred with timing suggesting birds from the group passing here continuing west. Where noted, all birds were also moving west or feeding over ponds with no flight direction observable. Similarly, except for the very few late October birds, all of the reports from east and southeast of us are also consistent with a large group of Cave Swallows being displaced to a point near western to central New York, with most heading west from there and some smaller number wandering east to various points on the coast, with many scattered across the map in between.

In attempting to analyze the event, it is interesting that in the fall summary in *North American Birds*, Vol. 60: No. 1, 2006 there are no reports from Quebec, only one from the north shore of Lake Ontario, other than the Toronto area birds, and a lone dying bird (ROM #102353) found in Algonquin Park in Ontario. Strangely, there are no reports from the New York portion of the south shore of Lake Erie. To the west, there are reports all the way to Indiana and Wisconsin, where they were first state records, and east to the coast where Maine recorded its first records. Birds were also noted in every state south to the Carolinas. Not knowing how to account for multiple sightings of the same individuals over such a large area and time span, it is difficult to arrive at an overall total number of individuals involved. Sightings alone add up to well over 1000 clearly different individuals. Given the few points actually covered by birders, the overall displaced number must be well above that.

Some have speculated about Hurricane Wilma as the origin of these birds. We can picture Wilma as the origin of the early birds along the east coast to Nova Scotia in late October, but not as the origin of the large group of birds in November. Wilma originated as a tropical storm in the southern Caribbean on 15 October and made hurricane status there on the 18th. Its path to the Yucatan was well south of the major islands. The storm reached the Yucatan on the 21st and departed on the 23rd. It is remotely possible that it picked up Yucatan Cave Swallows or intercepted a flock of Mexican/Texas birds moving south over the Gulf of Mexico the next day. It reached Florida on the morning of the 24th, swept across the state in hours, and was over the ocean off the Maritimes of Canada by the end of the 25th. The path from the Yucatan to Florida was north of any island source of Cave Swallows and the Florida population doesn't seem large enough to account for the numbers. It is hard to picture a large number of birds from either the Yucatan or the Gulf of Mexico being carried along until late on the 25th, escaping the storm as it dwindled out off the east coast, then not being seen until nine days later 700 – 1000 miles southwest and inland along Lake Ontario and subsequently dispersing both west and east from that approximate location.

The most likely origin is the southwestern United States, with a large group of Cave Swallows swept to the northeast with and ahead of the storm system which arrived in western New York over the weekend of November 5-6. The archived national weather maps for 5-6 November 2005 look like a perfect setup for a fast track from Texas to the south shore of Lake Ontario, with a strong low following a track between a high to the southeast of that line, a low ahead to the north and west, and a frontal boundary just to the north (Figure 1). Hopefully DNA testing of the two upstate New York specimens and possibly the Algonquin Park specimen will establish the subspecies and the general geographic origin of these birds.

Why such a large number was displaced en masse to a relatively small area this year by a seemingly routine weather system remains an open question. Possibly it has to do with matching the timing of a particular population of Texas birds ready to head south. It is also possible that some degree of pre-migratory northward dispersal is a natural feature of North America's rapidly expanding breeding populations (see below), and that such movements might interact with even normal weather events to move large numbers of Cave Swallows to the north and east.

It is possible to form an hypothesis (or plausible speculation) attempting to explain the differences between numbers and flight direction this year relative to most years. Apart from weather, several intrinsic factors are known to influence the frequency of extralimital occurrence among birds in general. Two such factors that appear relevant to the case at hand are age-specific variation in dispersal tendencies and demographic trends in source populations. Compared to adults, hatching-year birds of most bird species disperse farther on average (Campbell and Lack 1985), take longer to re-orient following migratory displacements (Baird et al. 1959), and are much more apt to occur far out of range (DeSante and Ainle 1980). Populations experiencing favorable demographic trends, such as high reproductive success, increasing breeding densities, and expanding breeding distributions are more likely to produce vagrant individuals than are less successful populations (Veit 2000). As noted above, North American Cave Swallow populations have been growing and expanding at a phenomenal rate for several decades, following the adoption of artificial structures (culverts) as nesting substrates (West 1995, Grzybowski and Fazio 2004). This expansion, along with the typical flow of storm systems from southwest to northeast in the fall likely explains the regular occurrence of small numbers of Cave Swallows far to the north and east of breeding sites in recent fall seasons. In the case of the unusual November 2005 event, an unusually large contingent of Cave Swallows, possibly including a larger than usual proportion of adults, may have been displaced by a particularly effective weather system. If so, it would not be surprising if the bulk of the adults reoriented and headed back as soon as possible, even flying directly into the strong southwest winds. Under this view, the individuals that remained longer were likely young birds, or birds too exhausted to return immediately. This hypothesis can only be tested by carefully ageing the birds observed, often very difficult for this species under the conditions of observation, or by analyzing series of specimens as these accrue over time.

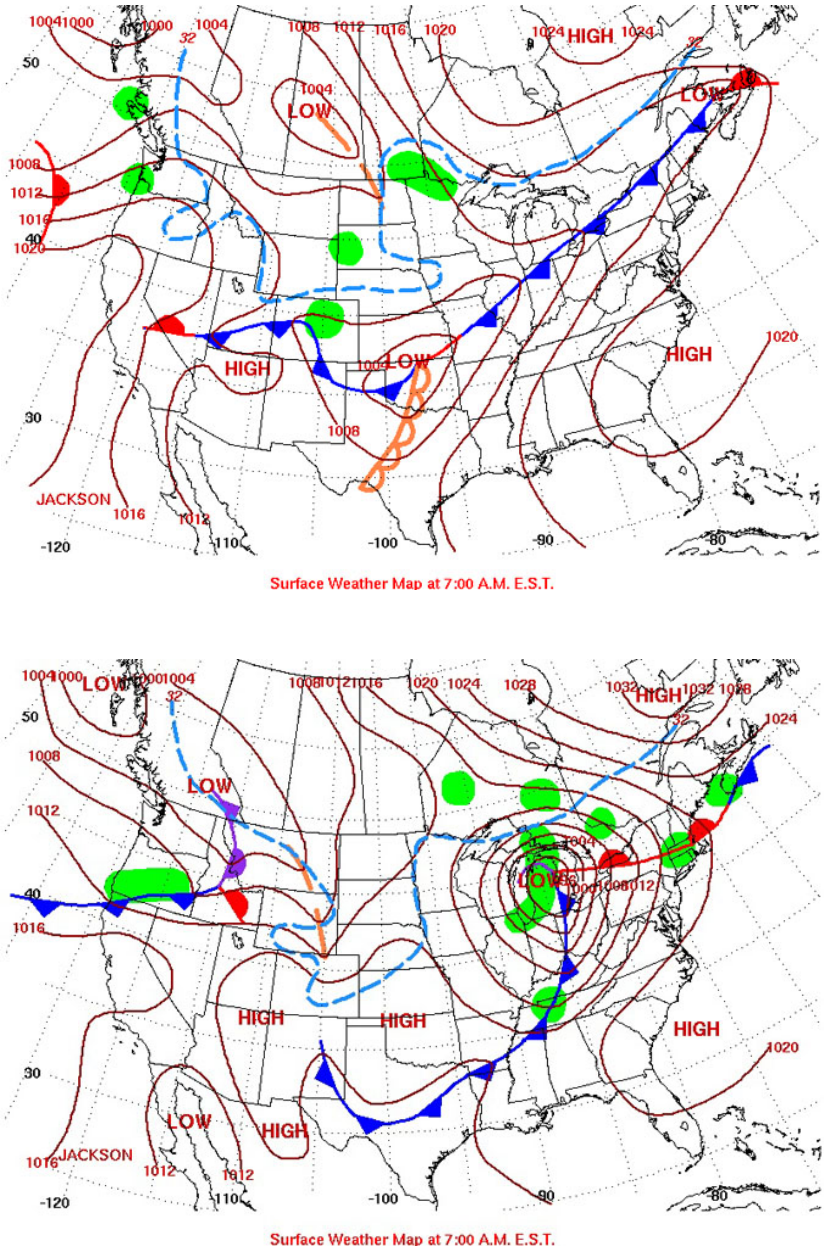

Figure 1. Synoptic weather maps for 5 & 6 November 2005 at 07:00 EST, courtesy of the National Centers for Environmental Prediction, Hydrometeorological Prediction Center.

SPECIMENS

The bird found on a road in Algonquin Park, Ontario on November 7 by Ron Tozer and Dan Strickland has been preserved as ROM #102353 (skin and wing) and identified by measurements as *Petrochelidon fulva pallida*, the subspecies inhabitating the southwestern United States. Tissue samples have been saved for future DNA work (Mark Peck, Royal Ontario Museum, pers. com.).

The bird found under the Lake Ontario Parkway bridge over Salmon Creek at Braddock Bay, NY on 17 November was prepared as a specimen (CU #51730) at the Cornell Laboratory of Ornithology. "The bird appeared to be an adult male with a fully ossified skull, no bursa, and well-developed testes. The bird had completed its prebasic molt and was emaciated as expected and nothing was found in the esophagus or stomach. We could not find any sign of injury or trauma and can only assume the bird was ill or froze to death." (Scott Haber, pers. com.). Morphologically, this bird was identified as *P.f. pallida*. Another bird was found on a window ledge near the public entry to the Cornell Laboratory of Ornithology on 19 November. This also was preserved as a specimen (CU#51713).

Two additional specimens, CU 50066 found in Bridgeport, Madison County and AMNH 836153 found in Westchester County and prepared as specimens in November 1999 and December 2004, respectively, also appear to be *P.f. pallida* from the southwest. Frozen tissue from these specimens is also available for DNA analysis at a later date.

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