Fall 2003 Migration of Ruby-throated Hummingbirds in New England

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***Editor's Note**. This article is a revised and expanded version of a report that first appeared on the New England Hummers website on 10/27/03. For a fuller description of the project, please see the website at <http://www.nehummers.com>. At the site you can also sign up to be a Site Monitor for 2004.*

Ruby-throated Hummingbirds are common nesters in New England, but each year these diminutive birds travel to Mexico and Central America to spend the winter. How late do they stay in New England in the fall? Have the "last observed" dates been getting later in recent years? Do the birds depart "all at once," or are there ebbs and flows of migration? Are there observable changes that can indicate the beginning of hummingbird migration?

Over the 2003 season the New England Hummers research project collected data on these questions as part of a study of the migration, distribution, and population fluctuations of *Archilochus colubris* in our region. This report is based on three sources of information: 1) data from our Site Monitors; 2) reports from the many other observers who took the time to report their sightings to New England Hummers or to the state listserves Massbird, NH.Birds, RI Birds, and Maine-Birds; and 3) the reports from Hawkcount.org from two Massachusetts hawkwatch sites. Our research utilizes citizen observation as its primary source of data. We now have about 50 Site Monitors scattered across New England, mostly in Massachusetts and New Hampshire, who keep watch on their hummingbird feeders throughout the season and report specified observations. There are pros and cons to this type of "citizen science." A large-scale banding study of hummingbirds might also provide excellent data on population and migration, but at present there is hardly any banding of hummingbirds taking place in our region, and none of Ruby-throats. Observations from dedicated "hummer enthusiasts" are therefore an important alternative, and in fact, results from similar projects such as Cornell University's FeederWatch have been shown to correlate well with results from other types of studies.

New England Hummers has also been receiving and following up on the annual sightings of *Selasphorus* and other vagrant western hummingbirds in the Northeast. Small numbers of these birds have been seen in our region each fall for the past few years; ten were reported in 2002, and seven in 2003. A report on this fascinating phenomenon is forthcoming.

The Beginning of Migration

In general, the onset of Ruby-throat migration seems to be indicated by three changes: an increase in the number of birds at some feeders (collection points), increased consumption of nectar to put on fat, and in some situations an increase in

aggressiveness at feeders. These changes have been reported in the literature about Ruby-throats, and New England observers this year noted them as well.

The first reports of Ruby-throats in New England preparing for migration came from New Hampshire, western Massachusetts, and Rhode Island. On August 14 Rachel Edwards of Raymond, New Hampshire, wrote to NH Birds, "I have seen an increase in the number of male Ruby-throated Hummingbirds at my feeders since last weekend. Last evening they were very active at the feeders and some were fighting for a spot at one feeder. I believe they have begun to migrate." On August 23 in western Massachusetts, Rob Ranney of Deerfield reported to Massbird that he'd seen no hummers at his feeders in four days, and he thought they'd migrated.

Adult male hummers are known to migrate before females and hatch-year birds. It is possible that males could leave one yard, then move around, but it is usually assumed that they move directly south. Banding data would be needed to establish their precise patterns. By mid-August this year, four of our Site Monitors in Massachusetts and New Hampshire reported that the adult male(s) they had watched through June and July had gone. Taken together, our 2003 reports from all sources and areas suggest that most males and some females had begun to migrate by mid- to late August. William M. Baird, Loudon, New Hampshire, like a number of hummingbird observers, has kept detailed historical records of departure dates at his site. He writes that the adult males in his yard "generally leave the last week in August every year (on cue, like clockwork). Leaving the current year's young and females to feed at our feeders until the middle to end of September.... We have noticed in past years that we occasionally get a migrant adult male or two stopping by to feed as late as the second week of September."

A number of observers noticed the increase in feeding, and aggressive activity that generally indicates the beginning of migration. The increased competition could be caused by new birds arriving, or by a greater need to eat. Lisa Bartok and Frank Lawson, observers in Errol in the New Hampshire mountains, wrote on August 14 that their five to six hummers had "been on a feeding frenzy for two weeks now." Jim Porter, of West Greenwich, Rhode Island, wrote to RI Birds that on August 18, "Seemingly out of nowhere, between six and nine Ruby-throats began an all-out brawl over our feeder. It continued for a good half-hour, with the hummers of various sexes buzzing, darting and weaving around.…" He concluded, "Methinks a few of the hummers have actually begun their long journey to their winter cottages…."

Along this line, Lynne Roberson, a perceptive observer in Hinsdale, Massachusetts, wrote to New England Hummers that "We have also noticed that as the season gets closer to migration time, the number of sips each bird takes from the feeder increases. I have observed a single bird taking up to 28 sips at one sitting." Wow! Similarly, Phil Brown, of Essex, Massachusetts, who had a couple of adult males vying for Yard Boss, wrote on August 13 that "The males have gone from feeding lightly each time they visited the feeders to feeding very heavily with each visit. No more trying to stay light through the day to defend their territory."

Patterns of Migration

Table 1: Late/Last Sightings Reported, Massachusetts, 2003

Region/ County	Town	Date: Last Sighting	Total Sightings	Date: Last Adult Male	Observer
East					
Middlesex	Acton	9/01		8/28	B. Schmitz
Middlesex	Marlborough	9/06			T. Spahr
Middlesex	Carlisle	9/08			C. DeRouin
Essex	Gloucester	9/08			D. Peloquin
Essex	Marblehead	9/08			R. Kipp
Essex	Ipswich	9/08		9/01	S. ffolliott
Essex	Newbury	9/09			S. Stichter
Essex	Haverhill	9/09			P. Priscilla
Norfolk	Quincy	9/09			L. Tyrala
Middlesex	Lexington	9/13			M. Rines
Middlesex	Groton	9/13		9/13	J. Lisk-Gonzales
Essex	Plum Island	9/17			P. Arrigo
Essex	Boxford	9/18		9/02	K. Disney
Middlesex	Wayland	9/19			M. Peebles
Essex	Essex	9/20		9/05	P. Brown
Essex	Nahant	9/22			D. Saffarewich
Essex	Newburyport			8/24	S. McGrath
Total Reports-E			**16**		
Average Date-E		**9/12**			
SE Mass					
Bristol	Westport	9/05			E. Santos
Plymouth	Duxbury	9/09		9/09	E. Lackey
Barnstable	Harwich	9/10			M. Tuttle
Barnstable	Dennis/Harwich	9/10			D. Silverstein
Barnstable	Falmouth	9/11			G. Gove
Barnstable	N. Falmouth	9/13		9/02	I. Nisbet
Bristol	Westport	9/15			O. Elias
Bristol	S. Dartmouth	9/15			C. Sickul
Barnstable	Falmouth	9/20			M. Tarafa
Barnstable	Mattapoisett	9/28			M. Sylvia
Total Reports-SE				**10**	
Average Date-SE			**9/14**		
Central/ Valley					
Hampshire	Amherst	9/06			D. Norton
Worcester	Athol	9/07			D. Small
Worcester	Princeton	9/09			J. Dekker
Hampshire	Florence	9/10			T. Gagnon
Worcester	Gardner	9/13			T. Pirro
Hampshire	South Hadley	9/14			L. Rogers
Franklin	Deerfield	9/15		9/01	R. Ranney
Worcester	Leicester	9/18			M. Rowden
Franklin	New Salem	9/27			B. Lafley
Franklin	Deerfield	9/29			RBA W. Mass
Worcester	Berlin	9/30			F., M. Howes
Worcester	Athol			9/11	E. Baldwin
Worcester	Upton	10/07			R. Brill
Total Reports-C			**12**		
Average Date-C		**9/18**			

West					
Berkshire	Dalton	9/10			T. Smith
Berkshire	Florida	9/18			T. Smith
Berkshire	New Marlborough	9/27			C. M.
Berkshire	Tyringham	9/30		9/05	D. Naventi
Berkshire	Pittsfield	10/03			M. Thorne
Berkshire	Lenox	10/12			T. Collins/ S. Kellogg
Total Reports-W			**6**		
Average Date-W		**9/27**			
TOTAL REPORTS-MA			**44**	**12**	

Sources: About half the reports in Table 1 are from NE Hummers Site Monitors, and represent the last sightings seen at yards with feeders; the rest are field reports posted on Massbird.
Note: The number of reports does not equal the number of birds seen.

Regional Variations. The number and geographical distribution of the Massachusetts reports in Table 1 make them a reasonable though not scientifically representative sample of areas around the state. The list includes a diversity of locations, elevations, and ecological units. However, western Massachusetts is not as well represented as other regions. Still, it is noticeable and interesting that the average date of hummingbird departures gets later and later as one moves westward. The three latest sightings in the state this year, 10/03 in Pittsfield, 10/07 in Upton, and 10/12 in Lenox, were all in the central and western parts of the state. This phenomenon is not as noticeable in previous years, however (see below). Berkshire, Franklin, and Worcester counties have large areas of the wooded habitat that Ruby-throats like, and it may be that hummer populations are higher in those regions than in eastern Massachusetts.

Table 2: Late/Last Hummingbird Sightings, Rhode Island, New Hampshire and Maine 2003

State/County	Town	Date: Last Sighting	Total Sightings	Date: Last Adult Male	Observer
Rhode Island*	Napatree	9/05			C. Raithel
	Camp Cronin	9/05			J. St. Jean
	Quidnesset	9/08			J. Magill
	Barrington	9/09			S. Reinert
	Sisson's Pond	9/14			B. Saslow
	Woonsocket Res.	9/14			M. Lynch
	Pt. Judith	9/19			R. Ferren
	Napatree	9/20			C. Raithel
	S. Kingstown	9/22		9/09	D. DeSimone
	Little Compton	9/30			G. Dennis
Total Reports-RI			**10**		
NewHampshire*					
	Londonderry	9/01			T. Murray
	Antrim	9/04		8/22	D., J. Borges
	Fitzwilliam	9/06		8/23	K. Olson
	Durham	9/10			S. Standley
	Blue Job	9/13			Hawkwatch
	Errol	9/14		9/10	Lisa, Frank

	Raymond	9/18		9/01	R. Edwards
	Concord	9/20			J. Hills
	Windham	9/21		9/01	P. Arrigo
	Newbury	9/22			C. Martin
	Chichester	9/28			M. Suomala
	Hancock	9/29			E. Masterson
	Hillsboro	10/02			I. MacLeod
	Loudon			8/26	W. Baird
Total Reports-NH			**13**		
Maine**	Egg Rock	9/07			W. Townsend
	Lubec	9/17		9/05	D.J. Pressley
	Portage	9/18			MaineBirdAlert
	Kennebunkport	9/21			R. Duddy
	Monhegan Isl	9/23			T. Vazzano
	Georgetown	10/02			MaineBirdAlert
	Bar Harbor	10/03			R. Crowley
Total Reports-ME			**7**		
TOTAL-3 States			**30**	**8**	

Sources: *Reports from RI Site Monitors, RI Birds, and *Field Notes of Rhode Island Birds*, August-September, 2003
**Reports from NH and ME Site Monitors, NH.Birds, and Maine-Birds
Note: The numbers of reports are not the same as number of birds seen, since some sightings are of multiple birds.

The number of reports from each of the states in Table 2 is not as large as that for Massachusetts, and geographical coverage of the reports is not as thorough. Nevertheless, some comments can be made. Departure dates in New Hampshire and Maine run the gamut from early to late. The Rhode Island average departure date of September 15 is not as much later than the New Hampshire average departure date of September 17, as one might have expected, but earlier. Correlations with latitude and elevation cannot be discerned in such a small number of reports, nor can peak dates or waves. But it is interesting that last sightings at such far northern points as Portage, Errol, and Lubec were from mid-September, and not any earlier. In addition, the September 10 report of an adult male in Errol is among the latest we have for males. Also interesting is that midcoast and downeast Maine (Georgetown and Bar Harbor), as well as Hillsboro, New Hampshire, provided some of the latest sightings in New England (October 2 and 3). Only the October 7 sighting in Upton, Massachusetts, two October 8 and 9 Connecticut sightings, and the October 12 sighting in Lenox, Massachusetts, are later.

The prize for the most hair-raising late sighting goes to Bob Crowley, for this October 3 report from Maine:

> Just got back from Bar Harbor. While having dinner Friday night, at about 5 pm, at the Route 66 Restaurant, 21 Cottage St, Bar Harbor, we saw a female Ruby-throat trapped in the high ceiling, 20 feet or more. It had been there we were told since 10 that morning. It escaped while we were there through an open door. I am sure it was a female Ruby-throated Hummingbird. We observed it through our binoculars for half an hour.

Thank goodness she escaped! Another fascinating report was from William Townsend, who on September 7 at Egg Rock in Frenchman Bay, saw four Ruby-throats migrating over open water.

Table 3: Reports of Late and Last Sighting by Date, 2003

Date	Mass	RI	NH + ME	Total
9/01	1		1	2
9/02	0			0
9/03	0			0
9/04	0		1	1
9/05	1	2		3
9/06	2		1	3
9/07	1		1	2
9/08	4#	1		5#
9/09	5#	1		6#
9/10	4#		1	5#
9/11	2			2
9/12	0			0
9/13	4#		1	5#
9/14	1	2	1	4
9/15	2			2
9/16	0			0
9/17	1		1	2
9/18	3#		2	5#
9/19	1	1		2
9/20	2	1	1	4
9/21	0		2	2
9/22	1	1	1	3
9/23	0		1	1
9/24	0			0
9/25	0			0
9/26	0			0
9/27	2			2
9/28	1		1	2
9/29	1		1	2
9/30	2	1		3
10/01	0			0
10/02	0		2	2
10/03	1		1	2
10/04	0			0
10/05	0			0
10/06	0			0
10/07	1			1
10/08	0			0
10/12	1			1
Total	**44**	**10**	**20**	**74**

Source: Data from Tables 1 and 2.
= possible peak migration days

Ebbs and Flows of Migration. Table 3 aggregates the data from Tables 1 and 2 by date. Again, the number of reports from Rhode Island, New Hampshire, and Maine is not large enough to support generalizations for those states individually; however, the daily ebbs and flows of departures can be approximated in the data for Massachusetts and for the four states as a whole. Other observational studies of Ruby-throat

migration (e.g., Willimont, Senner, and Goodrich, 1988; see the discussion below) have found such "peaks" and "waves" in the flow of migrants. Examining the New England data suggests that there may be such "peaks" and "waves" of migration here, although further data from subsequent years would be needed to confirm or disconfirm this hypothesis. In particular, larger numbers of reports for any given year would be needed to conclusively establish the actual dates of the ebbs and flows.

Table 3 suggests that the most likely "peak" migration days in 2003 for our region were September 8 through 10, September 13, and September 18. These are marked with a # in the table. Each of these dates or date clusters has three to five reports from the Massachusetts sample, and five to six reports in the sample as a whole. Statistical analysis is probably not appropriate here, but it may be worth noting that 29 percent of the total of 44 Massachusetts reports came on the three days of September 8-10, yet those three days are only 7 percent of the 42 day reporting period.

Two other observations lend some support to the notion of a September 8-10 migration wave. First, the highest daily number (four) reported from the Blueberry Hill Hawk Watch site came on September 9 (Table 4). Second, in Essex County, seven of the nine reports are from established yard sites, and at five of these the last resident birds left September 8 or 9 (Table 1).

Table 4: Hawk Watch Hummingbird Sightings, Massachusetts 2003

Date	Blueberry Hill Granville, MA	Barre Falls Barre, MA	Total	Related Sightings
8/24	0	NR	0	
8/25	2	NR	2	
8/26	2	NR	2	
8/27	2	NR	2	
8/28	0	7	7	5–T. Gagnon
8/29	3	NR	3	
8/30	2	NR	2	
8/31	2	NR	2	
9/01	NR	NR		
9/02	NR	NR		
9/03	2	NR	2	
9/04	NR	NR		
9/05	2	2	4	
9/06	0	0	0	
9/07	2	3	5	
9/08	0	0	0	
9/09	4 #	1	5	
9/10	1	0	1	
9/11	1	0	1	
9/12	0	3	3	
9/13	0	0	0	
9/14	NR	NR		
9/15	0	NR	0	
9/16	1	1	2	
9/17	2	0	2	1-T. Gagnon
9/18	0	0	0	
9/19	0	NR	0	
9/20	0	0	0	

9/21	0	0	0
9/22	0	0	0
Total	**28**	**17**	**45**

Source: Hawkcount.org Reports, as posted on Massbird. Blueberry Hill data reviewed by John Weeks; Barre Falls data by Barton Kamp.
Note: These data are from the two Massachusetts sites with an adequate series of reports and sightings. Numbers of birds are not standardized by person-hours of effort, partly because hummingbird counting was incidental to raptor counting. Participants spent from four to eight hours a day observing. NR= no report, often due to rain.

Some evidence suggests that there were probably many migrants leaving in late August, a movement which is not captured in the reports above. There is a rather consistent series of Blueberry Hill hawkwatch sightings (about two per day) from August 25 through 31, and one day with the rather high number of seven sightings at the Barre Falls hawk watch on August 28 (Table 4). In addition, the following list of all August-September hummer sightings on Plum Island Refuge, courtesy of Tom Wetmore, suggests some migration. But considering that there are active birders on Plum Island nearly every day, it is surprising that more migrating hummers were not seen.

14 Aug 2003: 1: R. Heil
23 Aug 2003: 2, road at pines: T. Wetmore
26 Aug 2003: 3: R. Heil
29 Aug 2003: 1, lot 7: M. Stone
17 Sep 2003: 1, road twixt lots six and seven: P. Arrigo

If there are surges or waves of migration, they are probably related to weather. This may be the explanation for the cluster of reports that came on September 18. This group of migrants was leaving during the high winds of Hurricane Isabel. There are no hawkwatch sightings of Ruby-throats after September 18, so the hurricane may have persuaded a lot of birds to migrate.

For example, Dorothy Naventi, who tends the Tyringham (Berkshire County) site, reported that the last of her several adult females had left by September 19, after the hurricane (and many juveniles left earlier, on August 28). “We had high winds all day Thursday (9/18) and that night…so Friday morning I think she finally took the hint and left.” Eleven days later, on September 30, she reported a new female or juvenile, which was just passing through. Similarly, the bird seen by Richard Brill on October 7 in Upton had not been seen there previously; it nectared only briefly, and then moved on.

In general, the experience of most Site Monitors is that there is a great deal of turnover of birds in their yards in the fall, with some birds leaving and others arriving. For example, Barbara Schmitz of Acton, Massachusetts, had five hummers on August 28, of which three had been “regulars” for a while and two were newcomers. All of them left right after that date, however. Rob Ranney had a similar experience in Deerfield: all of his regulars left about August 19, leaving him thinking that was the

end for the season, but then new birds showed up later, on September 1 and 15. And Ian Nisbet in North Falmouth wrote that "Judging by the consumption of syrup, about two-thirds of my birds left on the night of 6-7 September, but I still have at least three here today." These fluctuations may be caused by, or be evidence of, a "wave" pattern of migration.

Departure of Adult Males. It is well known that adult male Ruby-throats migrate south earlier than do females and hatch-year birds, and the data in Tables 1 and 2 support this generalization. September 3 was the average "last sighting" date for adult males in Massachusetts, whereas September 18 was the average for all migrants. One Site Monitor who had a large number of semi-resident males this summer was Phil Brown, of Essex, Massachusetts, who reports that whereas he had four adult males on August 31, all of them were gone by September 5. The latest report of an adult male in Massachusetts or the region was a September 11 field report from Athol, Massachusetts, by Earle Baldwin.

The average "last sighting" date for the other three states together was August 27, again earlier than the average for all migrants. New Hampshire provided both the earliest departure date for males, August 22, reported by a Site Monitor in Antrim, and one of the latest male departure dates, September 10 from a Site Monitor in Errol. The September 9 "last seen" date from a Site Monitor in South Kingstown, Rhode Island, is also among the latest for the region.

Data from Massachusetts Hawk Watches. The observations in Table 4 span the period August 25 through September 17 and show small daily fluctuations in numbers. One surprising fact is that there were *no* hummingbirds reported on any day after September 17 at either site, although hawk watches continued daily for many weeks after that date. Reports from our Site Monitors and other observers, many of whom were at lower elevations, confirm that there were still many hummers around after September 17. Perhaps high-elevation flights became less common after the arrival of strong winds from Hurricane Isabel on September 18, or perhaps the variation is due to chance. In 2002, by contrast, hummingbirds *were* seen at the Blueberry Hill hawk watch after mid-September (Communication from John Weeks, 10/9/03).

Massachusetts Late Sightings over the Last Five Years. The last-observed dates for Ruby-throats for the last few years in Massachusetts, according to data from Massbird and *Bird Observer*, are listed in Table 5. (Data supplied courtesy of Marjorie Rines.) An interesting point is that sightings have been later in 2003 than in any previous year except 1999. However, five years is not a long time over which to study annual variations, and many explanations are possible, such as: random variation, increased observer vigilance, a short season forcing Ruby-throats to stay longer to put on needed fat, or a long season resulting in "lingering."

Table 5: Massachusetts Late Sightings, 1999 – 2003

Year	Last Day	Location	Observers
2003	Oct 12	Lenox	T. Collins/S. Kellogg
	Oct 7	Upton	R. Brill
	Oct 3	Pittsfield	M. Thorne
2002	Sept 25	Pittsfield	T. Collins
	Sept 24	Newburyport	T. Carrolan
	Sept 23	Granville	J. Weeks
2001	Sept 27	Chilmark	A. Keith
	Sept 23	Sudbury	SSBC/ B. Howell
	Sept 20	Lenox	R. Laubach
2000	Oct 1	Nantucket	R. Stymeist
	Sept 23	Westfield	Allen BC/ J. Hutchinson
	Sept 23	Burlington	M. Rines
1999	Oct 17	Northampton	T. Gagnon
	Oct 2	Newton	Brookline BC/ F. Bouchard
	Sept 30	Granville	J. Weeks

Discussion and Conclusion

A major study of Ruby-throated Hummingbird migration in the Northeast was done at Hawk Mountain Sanctuary, Pennsylvania, in 1985 (Willimont, Senner, and Goodrich 1988). Conclusions were based on a total of 120 migrating birds counted at that site. At Hawk Mountain in that year, the migration spanned the period August 8 – September 25 and peaked August 26-30. At Waggoner's Gap, Pennsylvania, that year, migration peaked on August 23; five other northeast hawk watches did not begin early enough that year to capture the August peak. Likewise, the Massachusetts hawk watches this year, though starting relatively early on August 24, still did not begin early enough to clearly demonstrate the pattern of migration in August.

At Hawk Mountain in 1985, there were also two September peak migration days, September 6 and 11. Thus, this study does lend support to the "wave" imagery of migration. As Bob Sargent puts it in his popular guide to Ruby-throated Hummingbirds, "Like wave after wave of restless surf surging on the beach, these tiny neotropical migrants press on. While technically not in true flocks, huge numbers of Ruby-throats stretch across the eastern United States along an east-west front" (Sargent 1999, p. 72).

Wind direction and velocity. In the northeast United States, migrating hummingbirds are thought to benefit from the same strong northwest winds as raptors and songbirds do: it is suggested that the wind helps them to conserve energy. The 1985 Hawk Mountain study showed many more birds observed on days with higher wind speeds, and the highest count days were correlated with the arrival of cold fronts with strong northwest winds.

For the Blueberry Hill hawk watch data, however, no clear correlation between wind speed and direction could be ascertained, probably because of the low overall numbers of birds observed (28, compared with 120 at Hawk Mountain). For example, the two highest count days at Blueberry Hill were September 9, when winds were NE at 5-15 mph, and August 29, when winds were from the southwest at 10-20 mph. One or two hummers were often seen on days of very light (0-10 mph) winds.

Temporal span. In the 1985 study, more than 90 percent of all hummers counted had been seen by September 14, i.e., between August 8 and September 14, giving a five-week span for the bulk of the migration through that point. In the 2003 Massachusetts hawk watches, 100 percent of all hummers seen had been counted by September 17 (i.e., between August 25 and September 17). As mentioned, the Massachusetts hawk watches did not begin early enough to yield a date for the beginning of the migration at those points. In general, Ruby-throat fall migration is thought to be temporally compressed compared with that of western species such as the Rufous and Allen's hummingbirds.

Migration Pathways. It is not known whether Ruby-throats use defined corridors or "migration pathways" during the fall migration. The Hawk Mountain study asserted that "The ridges of the Appalachian Mountains are major routes for southbound migrants" (Willimont et al., p. 482). Others have referred to inland rivers and lakes (which are traditional feeding areas for Ruby-throats) and the Atlantic coast as constituting flyways for hummers, as they do for waterfowl and other birds. For at least one known flyway, the Texas gulf coast, there is good evidence of use by thousands of hummers in the fall, but beyond that there is actually very little solid evidence that migrating hummers are found only in corridors and not in the areas between corridors. (See the post by Ron Rovansek to Humnet, August 31, 1999.) The imagery used by Bob Sargent, referred to above, of a continuous east-to-west "blanket" of birds moving south in the fall may be just as accurate.

Other Aspects of Fall Migration. Not enough is known about the daily timing of Ruby-throated Hummingbird migration over land. It is usually assumed that this migration is done during midday. As the Hawk Mountain study by Willimont pointed out, "…the first hours of daylight must be used to replenish their energy reserves after a night's fast. At the end of the day, they must refuel before fasting for the night. The midday hours, in effect, may be the only time available for protracted migration flights, and it is during these hours that we counted the most migrants…" (p. 487). This suggests a daily "short-hop" strategy in southward flights, rather than the extended stops during a prolonged migration which are characteristic of the western Rufous Hummingbird. However, it is not known exactly how far Ruby-throats migrate in one day, or how long they stop between flights.

It is important to note that migration habits over land may differ from the prolonged flights necessary to cross the Gulf of Mexico. The journey over the Gulf likewise needs much more study. Bob Sargent, who operates the well-known banding station at Fort Morgan, Alabama, has found that almost all of his incoming birds in the spring arrive in the dark of night, meaning that they have made a nonstop nocturnal migration over the Gulf. He and others believe that the fall migration, by contrast, is probably both trans-gulf and circum-gulf, along the Texas coast, and that more research is needed. (See the discussion on Humnet, September 11 and 19, 2002.) Indeed, Sheri Williamson (2001, p.191) says that the southward migration appears to be largely overland, rather than over the Gulf; however, Sargent reports that color-marked birds in the fall with heavy fat rarely remain in Alabama longer than one day, and are often observed to depart in the late afternoon, suggesting a nocturnal flight

(Robinson, Sargent, and Sargent 1996). This in turn suggests that these birds are moving directly across the Gulf.

One way or another, most of "our" New England hummers have by now arrived in Mexico and Central America. We wish them a safe journey, and look forward to their return in 2004!

LITERATURE CITED

Audubon Society of Rhode Island, and Rhode Island Ornithological Club. August-September, 2003. *Field Notes of Rhode Island Birds*. No. 413-4.

Humnet: <http://birdingonthe.net/mailinglists/HUMN.html>.

Robinson, T.R., R.R. Sargent, and M.B. Sargent. 1996. Ruby-throated Hummingbird (*Archilochus colubris*) In *The Birds of North America*, No. 204 (A. Poole and F. Gill, eds.). Washington, D.C.: The American Ornithologists' Union.

Sargent, R. 1999. *Wild Bird Guides: Ruby-throated Hummingbird*. Mechanicsburg, PA: Stackpole Books.

Williamson, S.L. 2001. *A Field Guide to Hummingbirds of North America*. Boston and New York: Houghton Mifflin.

Willimont, L.A., S.E. Senner, and L.J. Goodrich. 1988. Fall migration of Ruby-throated Hummingbirds in the northeastern United States. *Wilson Bulletin* 100 (3): 482-8.

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She wishes to thank all those who contributed data to this report for their observational skills and the time spent watching in yards or in the field. Special thanks go to the hawk watchers, who took time out from scanning for raptors to notice and record hummingbird migrants.

RUBY-THROATED HUMMINGBIRD BY PHIL BROWN

2004 USFWS National Coastal Wetlands Conservation Grant Projects

Quivet Marsh/Crowes Pasture Acquisition. Massachusetts Department of Environmental Management will protect 386 acres with perpetual conservation easements on wetlands and adjacent uplands on the north shore of Cape Cod within the Towns of Dennis and Brewster. This area is designated as part of the federal Coastal Barrier Resources System and is the largest remaining area of unprotected, undeveloped land on the Cape Cod coast.

Partners: Town of Brewster, Town of Dennis, The Compact of Cape Cod Conservation Trusts, Brewster Conservation Trust, Dennis Conservation Trust, Save the Crowe, Association for the Preservation of Cape Cod, Orenda Wildlife Land Trust, and two private landowners.

Coastal grant request: $1,000,000
State share: $ 500,000
Partner share: $6,267,750

Sandy Neck/Barnstable Marsh Barrier Beach System Land Acquisition and Restoration. The Massachusetts Department of Environmental Management, in cooperation with the State's Division of Marine Fisheries and the Massachusetts Wetlands Restoration Partnership, will purchase conservation restrictions on 75 acres of barrier beach frontage within the Sandy Neck Barrier Beach wetland complex bordering the north shore of Cape Cod. The towns of Sandwich and Barnstable will ultimately purchase the property. In addition, they will restore 40 acres of tidal saltmarsh by replacing an undersized culvert under a state highway to improve tidal exchange. The project site is in a state-designated Area of Critical Environmental Concern because it provides exceptional habitat for a diverse array of species. In conjunction with the project, the Barnstable Land Trust and the town of Sandwich will grant conservation restrictions to the state on an additional 244 acres.

Partners: Town of Barnstable, Town of Sandwich, The Nature Conservancy, Barnstable Land Trust, Massachusetts Corporate Wetlands Restoration Partnership, the National Oceanographic and Atmospheric Administration, and the Natural Resources Conservation Service.

Coastal grant request: $1,000,000
State share: $ 208,741
Partner share: $ 809,062

For more information on this program, see
<http://www.fws.gov/cep/cwgcover.html>.