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# Attracting Barn Swallows and Cliff Swallows to a New England Site: A Two-year Progress Report

*Mara Silver*

## **Introduction**

Since 1990, I have endeavored to use simple, systematic steps to attract and maintain Barn Swallows (*Hirundo rustica*) and Cliff Swallows (*Petrochelidon pyrrhonota*) at sites that were either historically known to harbor these species or apparently suitable but not populated by them. I have achieved some success at two sites. The first of these was the focus of yearly efforts from 1990 to 2010 (Silver 1993, 1995), and work has been ongoing at the second site since 2011.

## **Natural History**

### *Barn Swallows*

The Barn Swallow is the most widely distributed and abundant swallow in the world (Brown and Brown 1999). Originally nesting in caves, this species currently nests almost exclusively on human-made structures. The preferred habitat is agricultural lands, marshes, lakes, fields, and residential areas. In New England they are commonly found in agricultural settings, where buildings provide nesting opportunities, and there are open fields for foraging. Even though Barn Swallow numbers are high compared to other swallow species in North America, Barn Swallows have been showing declines across the greater portion of their range (New Hampshire Audubon 2010). In many parts of Massachusetts, the Barn Swallow population has declined as urban and suburban sprawl replaces farmland and, thus eliminates prime feeding and nesting areas (Mass Audubon 2010a). According to Breeding Bird Atlas 2 (BBA 2), it appears that a decline in the Barn Swallow population in Massachusetts has begun (Mass Audubon 2010a).

Barn Swallows arrive in New England from their wintering grounds in South America to breed in early- to mid-April. The nest is cup-shaped, constructed of mud and vegetation, and most commonly placed on the framework inside buildings that allow the birds access. They prefer to reuse old nests. Even when reusing nests, Barn Swallows will add new mud to the rim of old nests annually (Brown and Brown 1999). Barn Swallows are loosely colonial. Clutch size is two to six eggs; the incubation period is approximately 12–15 days, and young fledge approximately 15–24 days after hatching.

### *Cliff Swallows*

The Cliff Swallow is a Neotropical migrant that has been gradually declining in New England since about 1880. The primary factors contributing to the decline are the same as those for Barn Swallows with the additional threat of introduced House Sparrows (*Passer domesticus*), which aggressively usurp nests. Cliff Swallow

populations, however, are stable in the western United States, where they nest on natural sites and cliffs and readily use bridges. In the East, they are almost exclusively confined to buildings—it is unclear why they do not use bridges as they do in the West. It is not known what the status of this species was in pre-settlement times in the East, but it is clear that this species benefited greatly from human settlement here. Cliff Swallow numbers probably reached their peak in the eastern U.S. around 1840–1860. In Massachusetts today, the Cliff Swallow occupies less than half the distribution it held in 1979 (Mass Audubon 2010b) with most colonies in the western part of the state. BBA2 found that the combined threat of habitat loss and competition from invasive birds has reduced the already modest population to less than a third of its BBA1 size (Mass Audubon 2010b). In 1992, a Massachusetts survey found approximately 399 pairs among 34 colonies in the state (Silver 1993). These trends are similar throughout the eastern U.S.

Cliff Swallows arrive in New England from their wintering grounds in South America in mid- to late-April until mid-May. Once established at a nesting site, they construct nests resembling mud “bottles” under the eaves of buildings. Old nests are readily re-used. Nests are composed of mud and constructed one pellet of mud at a time, which is carried in the beak from a nearby mud source. Cliff Swallows are probably the most colonial swallow in the world (Brown and Brown 1995), and nesting activity within a colony is highly synchronized. Compared to western colonies, which can reach up to thousands of birds, colonies in Massachusetts are small, ranging in size from two to 200 pairs, with few exceeding 100 pairs. Clutch size is one to six eggs, (usually three or four). The incubation period is approximately 14 days, and young fledge about 21–23 days after hatching.

#### **Work at Graves Farm, Williamsburg, MA, 1991–2010**

The barn at Graves Farm, built in two sections (one in 1875, and a smaller, right-angle addition in 1915), provided ample nesting opportunities for both Cliff and Barn Swallows. Cliff Swallows used the eaves, and Barn Swallows were plentiful in the haylofts, which were accessible year round due either to open (or broken) windows or to hay mow doors being carefully blocked ajar. By 1990, the Cliff Swallow population at the farm was dwindling, although the Barn Swallow population seemed to be doing better. At that time, I made successful overtures to the elderly farm owners, John and Dwight Graves, to allow me to address the then-poor state of the Cliff Swallow population there. In 1991, the Massachusetts Audubon Society acquired this defunct dairy farm from the owners and thereafter cooperated with me in restoring the Cliff Swallow population. In 1996, the main (1875) barn and all outbuildings were taken down, leaving only the house and the 1915 barn. In c. 2002, the house and barn were sold to a private party.

#### *Barn Swallows*

Subsequent to the 1996 demolitions, approximately 10 to 15 pairs of Barn Swallows nested annually at Graves Farm in the 1915 barn’s hayloft. Although, unfortunately, precise data are unavailable, there were more pairs nesting on the premises prior to the demolition. The removal of these buildings likely affected Barn

Swallows more than Cliff Swallows, as Barn Swallows are much less colonial and their nesting sites are more scattered. Before the 2010 nesting season the owners replaced the hayloft windows, thereby excluding Barn Swallows. Barn Swallows were observed perching in front of the windows, singing, and trying to gain access. At that time the sole places left for them to nest at Graves Farm were two garage bays. It is unknown whether those sites are still available.

Barn Swallows appeared to benefit from the enhancement of the mud puddle at the farm (see below), and during nesting time they were often observed gathering mud there rather than flying to a nearby wetland.

#### *Cliff Swallows*

In 1990, I commenced management and monitoring of the colony of Cliff Swallows, which had dwindled to six pairs. Graves Farm had, at one time, hosted one of the largest Cliff Swallow colonies in the state as well as plentiful Barn Swallows. In *Birds of the Connecticut Valley in Massachusetts* (1937), Bagg and Eliot called the farm “swallow mecca.”

The main obstacles to the colonies’ success at the farm were 1) House Sparrows usurping nests; 2) nests falling from the eaves of the barn; and 3) the lack of a quality, reliable mud source. I enlisted help to 1) control House Sparrows; 2) install 150 ceramic nest ledges (supports I fashioned from stoneware clay and fired for durability that mimic beginning Cliff Swallow nests); and 3) mix about 30 five-gallon buckets of clay into the puddle and closely regulate the puddle water level. The Cliff Swallow population grew and stabilized, averaging 20–30 pairs a year for the next 20 years. Management and monitoring continued annually until 2010, with primary activities being ongoing control of House Sparrows and, just as important, maintenance of the mud source.

In 2010, the owners informed me of the designation of the mud puddle as a wetland. Because this precluded control of the puddle’s water level to maximize mud availability, it was no longer practical to directly manage this resource for swallows at Graves Farm.

#### **Work at Patten Hill Farm, Shelburne, MA, 2011–2012**

In 2011, work moved to Patten Hill Farm in Shelburne, Massachusetts. I attempted to attract Barn Swallows in 2011 and, in 2012, both Barn and Cliff swallows. In 2012, I created a mud puddle to provide nesting material for both species (see Figure 1). The puddle, approximately four by five feet, was lined with vinyl lake liner and filled with mud and 8–10 gallons of soft clay. The clay was kept wet by filling the puddle daily with a hose and working



Figure 1. Mud puddle at Patten Hill (all photographs by the author)

the mud/clay mixture to soften and expose it. The puddle was maintained through the nesting season, even though swallows were no longer building nests. During the third week of May, a three-foot high chicken wire fence was installed to separate the puddle from the barnyard and so protect it from the local cat. Grass was mowed in the entire barnyard, not just the area surrounding puddle. Barn and Cliff swallows more readily use the puddle if the area surrounding it is kept open and predators can be easily spotted.

#### *Barn Swallows*

By 2002, all openings (windows, doors, etc.) of the Patten Hill barn had been secured, thus excluding Barn Swallows from the main barn, including the hayloft, where they had formerly nested in the greatest numbers. For the following nine years Barn Swallows had access solely to a horse shed, and the numbers at the farm declined to just a few pairs.

In the spring of 2011, before the nesting season, the hayloft windows were re-opened. Social attraction had been developed by Steven Kress to lure Atlantic Puffins (*Fratercula arctica*) to previously used but vacant nesting sites. This process is useful in the case of social birds that nest in close proximity to one another. It works by tricking birds into thinking there are conspecifics using the site. We used this technique by broadcasting recordings of Barn Swallows' breeding calls from one of the open hayloft windows at the beginning of May. That year, Barn Swallows were observed at Patten Hill, but none nested. One male explored the hayloft and called from the hayloft window, but did not attract a female. The recording was turned off a few days after the lone male arrived, as it seemed to be agitating him.

In 2012, the Barn Swallow recording was again played from May 1 until May 15, when once again a male Barn Swallow entered the hayloft. This male did attract a female, and this pair nested in the hayloft. In 2012, a total of three pairs of Barn Swallows nested at Patten Hill, the pair in the hayloft, one in the horse shed, and one on the porch of the farmhouse adjacent to the barn. The pair in the hayloft and the pair in the horse shed reused old nests, and both successfully fledged four to five young. The pair on the porch built a new nest using mud from the puddle. This pair did not successfully fledge young. The female disappeared right after the chicks hatched, and the male abandoned the nest. Barn Swallows were seen collecting mud from the puddle in late May during the 2012 season.

#### *Cliff Swallows*

Prior to 2012, there were no records of Cliff Swallows nesting on the Patten Hill Farm barn, and they had not been observed there for the past 50 years. Patten Hill Farm has many features that make it appear ideal for nesting Cliff Swallows, with a large barn surrounded by open fields for foraging. In 2012, efforts to attract Cliff Swallows to the farm began. Thirty nest ledges were installed on the barn adjacent to the barnyard before the nesting season (Figure 2). Most were small ledges, and a few were circular, more complete "beginnings" of nests. Most were installed facing the building, under the eaves. Unlike the situation at Graves Farm, the eaves of the Patten Hill barn were covered, so the ledges were attached to a separate board and attached

to the barn's fascia board, facing inward, to match the configuration found at Graves Farm. Three of the circular ledges were also attached to the outside of the barn facing outward to experiment with a different setup. Finally, as had been done for Barn Swallows, Cliff Swallow breeding calls were broadcast into the barnyard through a barn window that was close to the mud puddle and the nesting ledges. Broadcasting started on May 24, and on May 28, a timer was installed that turned the recording on at 6:00 a.m. and off at 8:00 p.m. The recording ran until July 8, 2012.

One pair of Cliff Swallows built onto one of the outward-facing circular nest ledges between the evening of June 22 and the morning of June 24, using mud from the puddle. Although these circular ledges were intended to be the beginning of a nest "bottle," this pair built on top of this nest ledge and did not complete the bottle. This pair successfully reared three chicks, which fledged during the first five days of August (Figure 3). On August 6, the nest was empty.

#### **Discussion of Work at Patten Hill Farm, 2011–2012**

##### *Barn Swallows*

The first two seasons at Patten Hill Farm were very encouraging. In 2011, after I simply opened the hayloft windows and played the Barn Swallow vocalizations, one male Barn Swallow entered the hayloft and attempted to attract a female. It may be that Barn Swallows did not nest that year because of weather; there was long wet, cool stretch during the nesting season. Swallows, as insectivores, are particularly vulnerable in this type of weather.

The addition of the mud puddle in 2012 appears to have been important for drawing more Barn Swallows to the farm. With other requirements met (barn windows open and fields for foraging) the missing variable appeared to be a mud source that would attract swallows and provide nesting material. Barn Swallows were seen flying over and collecting at the puddle in 2012. Since the Barn Swallow is a somewhat colonial species, broadcasting the breeding song vocalizations appeared to have played a role in attracting them; in 2011 and 2012, Barn Swallows investigated



Figure 2. Cliff Swallow nesting ledges before installation.




Figure 3. First and only Cliff Swallow nest at Patten Hill Farm. Three young successfully fledged from this nest!

the barn while the recording was playing. Because adults and juveniles prospect for potential nesting sites for the following year, it is important to keep the barn windows open until the swallows leave on migration and to maintain the puddle beyond the nesting season. Barn Swallows were seen prospecting on July 22 and July 28. On July 28, Tree Swallows (*Tachycineta bicolor*) and Bank Swallows (*Riparia riparia*) joined the Barn Swallows, and all were observed flocking on the peak of the barn at the end of July.

#### *Cliff Swallows*

In the case of Cliff Swallows, broadcasting breeding calls and creating the mud puddle and the nest ledges appeared to make the farm attractive enough for at least one pair to nest there. Progressively more Cliff Swallows were observed at the farm during the season, even though only one pair took up residence. On July 1, a third Cliff Swallow was seen flying in the barnyard, and three birds continued to be seen flying over the farm. On July 22, six Cliff Swallows were seen flying in the vicinity of the farm. The presence of other Cliff Swallows is especially attractive to this highly colonial species. Mud gathering is also an intensely social activity for Cliff Swallows. In light of these characteristics, it is interesting to note that the Cliff Swallow nest at the farm was built just above the audio player and the mud puddle, although this may have been due, at least in part, to the initial placement of the ledges. When such specific nesting requirements are met, it appears Cliff Swallows can be attracted to a new site.

It should be noted that there is a farm with a Cliff Swallow colony approximately five miles from Patten Hill. It may be that the Cliff Swallows that came to Patten Hill were from that farm, which has a high resident House Sparrow population. Patten Hill Farm is not an active Farm, and there are no House Sparrows in residence. A pair was seen in the barnyard in July of 2012 for a few minutes, but none were observed before or after that date. One reason swallows may be attracted to defunct farms is that House Sparrow populations tend to be lower there. On active farms, grain in the livestock feeds and manure attracts House Sparrows, and Cliff Swallows find it nearly impossible to compete with them. 

#### **References**

- Bagg, A. C., and S. E. Eliot. 1937. *Birds of the Connecticut Valley in Massachusetts*. Northampton, MA: The Hampshire Bookshop, p. 385.
- Brown, C. R., and M. B. Brown. 1995. Cliff Swallow (*Hirundo pyrrhonota*). *The Birds of North America*, No. 149 (A. Poole and F. Gill eds.). Philadelphia: The Academy of Natural Sciences and Washington, D.C.: The American Ornithologists' Union.
- Brown, C. R., and M. B. Brown. 1999. Barn Swallow (*Hirundo rustica*). *The Birds of North America*, No. 452 (A. Poole and F. Gill eds.). Philadelphia: The Academy of Natural Sciences and Washington, D.C.: The American Ornithologists' Union.
- Mass Audubon. 2010a. *Distraction Displays: Mass Breeding Bird Atlas 2*. #131 Barn Swallow <<http://massaudubonblogs.typepad.com/massbirdatlas/2010/04/interim-report-131-barn-swallow.html>>.

Mass Audubon. 2010b. *Distraction Displays: Mass Breeding Bird Atlas 2*. #130 Cliff Swallow  
<<http://massaudubonblogs.typepad.com/massbirdatlas/2010/04/interim-report-130-cliff-swallow.html>>.

New Hampshire Audubon. 2010. *New Hampshire Swallow Core Fact Sheet*.  
<[http://www.nhbirdrecords.org/bird-conservation/library/NH\\_Swallow\\_Fact\\_Sheet\\_21-Jun-10.pdf](http://www.nhbirdrecords.org/bird-conservation/library/NH_Swallow_Fact_Sheet_21-Jun-10.pdf)>.

Silver, M. 1993. Second-year Management of a Cliff Swallow Colony in Massachusetts. *Bird Observer* 21: 150–55.

Silver, M. 1995. Conservation of Cliff Swallows in Massachusetts. *Bird Observer* 23: 327–32.

*Mara Silver studied the colony of Cliff Swallows at Graves Farm in Williamsburg, Massachusetts, for 20 years. In 2011, she transferred her efforts to Patten Hill Farm and was thrilled when she successfully attracted a pair of Cliff Swallows and several pairs of Barn Swallows to that location. Mara holds a Masters Degree in Wildlife and Fisheries Conservation from UMass Amherst. For her masters thesis project she inventoried Bank Swallow habitat along the Connecticut River in light of bank stabilization projects. Mara works as a production editor at a scientific textbook company.*



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