

# Socially Feeding Swallows Have Become More Asocial

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## Study Description

Colonial Cliff Swallows (*Petrochelidon pyrrhonota*) feed exclusively on aerial insects caught in flight. In the 1980s, cliff swallows in western Nebraska were a well-known example of how social foraging and information transfer at the colony site led to advantages for birds in the larger colonies. Forty years later, social foraging had declined and information transfer seemed to be unimportant, and the food-related benefits of coloniality had diminished. The reasons for this shift are unclear, but might be related to changes in flying insect distribution and abundance. The results indicate that the benefits of group-living may change over time.

These photographs illustrate the article “Social foraging and the associated benefits of group-living in Cliff Swallows decrease over 40 years” by Charles R. Brown, Mary B. Brown, Stacey L. Hannebaum, Gigi S. Wagnon, Olivia M. Pletcher, Catherine E. Page, Amy C. West, and Valerie A. O’Brien, published in *Ecological Monographs*, <https://doi.org/10.1002/ecm.1602>



### Photo 1

Cliff swallows are colonially nesting birds widely distributed across much of western and central North America. Breeding colonies can range up to 6000 nests in size. The close spacing of their mud nests facilitates the transmission of information on foraging success among colony residents. Photo by Charles R. Brown.



## Photo 2

A typical Cliff Swallow foraging group in the 1980s, illustrating how groups were tightly packed and spatially well defined. By 2016-2022, foraging groups of this size were rare, and most birds were feeding solitarily or in groups of 2-5 birds. Photo by Charles R. Brown.



### Photo 3

A successful parent Cliff Swallow feeding its nestling. A bird like this that was successful in finding food would be followed from the colony by an unsuccessful neighbor on the successful bird's next return to where it had found insects. In this way, colonies functioned as information centers in the 1980s, but following others to food had mostly ceased by 2019. Photo by Charles R. Brown.

**Photo 4**

Nestling Cliff Swallows were ring-collared (left), preventing them from swallowing the bolus of insects delivered to them by the parents on a visit to the nest. Each bolus (right) was collected, allowing determination of the amount of food brought to nestlings and diet composition. Over 40 years, the amount of food declined, while the insect taxa in the diet remained largely unchanged. Photos by Charles R. Brown.



**Photo 5**

Why Cliff Swallows are foraging less socially now than 40 years ago remains unclear, but it may be related to overall changes in insect abundance or how insects have responded to climate change or landscape alteration. Here, the foraging area surrounding this colony site (not shown) that has been occupied by Cliff Swallows for 42 years was all pasture used for livestock in the 1980s (upper) but by 2016 was mostly cultivated row crops (lower). Photo by Charles R. Brown