TABLE 1. Measurements (mean μ) of the ventral apterium of male and female Mourning Doves.

Sex and reproduction period	*n*		Stratum Germinativum			Dermis		
	Ant.	Post.	Ant.	Post.	Mean	Ant.	Post.	Mean
Males								
Mated and egg-laying birds; 1–6 days incubation	4	4	6.5	8.0	7.2	65.9	132.5	99.2
7–15 days incubation	4	2	9.7	8.0	8.8	76.0	75.0	75.5
1–6 day nestlings	1	1	10.0	6.3	8.1	67.5	112.5	90.0
7–15 day nestlings	5	4	7.8	7.5	7.6	61.4	117.5	89.4
Females								
Mated and egg-laying birds; 1–6 days incubation	5	3	6.6	10.0	8.3	59.6	100.0	79.8
7–15 days incubation	5	4	10.8	7.5	9.1	93.8	97.5	95.6
1–6 day nestlings	4	4	8.7	11.0	9.8	73.8	90.0	81.9
7–15 day nestlings	3	3	9.4	8.0	8.7	72.5	110.0	91.2

If the Mourning Dove does develop an incubation patch, it is anatomically meager compared to the incubation patch of many passerine species. In this study no criterion of incubation patch formation enumerated by Bailey, nor any indication of change in the ventral apterium during incubation could be established. This does not dismiss the possibility of a change in the number of nerve endings or in the sensitivity of nerves in the incubation patch area.

It is interesting that the Mourning Dove is capable of incubating eggs in the absence of a hypertrophied incubation patch, and that this incubation not infrequently takes place on a nest weak in insulation qualities and at low ambient temperature.

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Accepted for publication 14 October 1970.

THE STATUS OF *CARPODACUS MCGREGORI*

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Analyses of the evolutionary dynamics of island faunas require data on rates and times of immigration and extinction. Because these processes are rarely monitored, such data are meagre. This paper summarizes what little is known of the history of the McGregor House Finch (*Carpodacus mcgregori*), an island endemic known as a breeding bird only from the San Benito Islands, Baja California. These three desert islands together encompass an area of about five square miles and lie some 40 miles NW of the nearest point on the peninsula of Baja California and 15 miles W of Cedros Island, the nearest land.

The status of this species has been a matter of some concern from the time of its discovery in 1896, and in recent years its extinction has been rumored (Banks 1964). Greenway (1958) did not mention it in his book on extinct and vanishing birds, and Vincent (1968) was unable to document its current status. Anthony (1897) considered *Carpodacus mcgregori* "rare" on West San Benito Island at the time of its discovery in 1896, and, in view of the sparse vegetation of the islands, he was surprised (p. 166) "that a species of this genus should be found there at all." Kaeding (1905) stated that it was "practically extinct" in 1897. According to Anthony (1925:279), the species was common enough in 1898 that "one might have easily collected a dozen . . . in an hour," but the accuracy of this remark, written nearly three decades after the original observation, may be open to question. In 1922, however, Anthony (1925:298–299) found the species "so nearly extinct that I doubt another specimen being taken for science." In two days, four persons were able to collect one specimen and they observed only one additional bird. Grinnell (1928:155) stated that it was "formerly common but now rare," but gave no data to support his interpretation of its then current status. Several years later Bancroft visited the islands and found (1932:89) that it seemed to be "holding its own"; he estimated the population on the two large islands to total 25 individuals. (Middle San Benito Island is hardly more than a sand bar and offers no habitat suitable for house finches.) The exact date of Bancroft's observations is unstated but doubtless was in 1932, for a set of four eggs in the collection of the Western Foundation of Vertebrate Zoology was taken by Bancroft on

1 April 1932 (Ed N. Harrison, pers. comm.). A male was collected on East San Benito Island by G. Willett on 2 April 1938 (Los Angeles Co. Mus. Nat. Hist. no. 19213); an annotation "br." on the label presumably refers to gonad size and not to the actual presence of a nest. There are no subsequent reports. Banks (1964) found no birds "despite a thorough search" of all islands on 18–19 April 1963, and he felt that the species was probably extinct.

I have recently visited the San Benitos on several occasions and have made special attempts to locate this species. On 13–14 April 1969 L. C. Binford and I explored all of the islands except the western half of West Benito but found no finches. A small group of fishermen inhabited the village on West Benito and house finches, if present, would have been expected in the vicinity. On 5 February 1970 M. N. Kirven and I explored all of West Benito Island with negative results; the fishing camp was deserted. On 19–20 April 1970 I searched all three islands, again with negative results; many fishermen inhabited the village. Members of the staff of the San Diego Natural History Museum visited West Benito Island nine times at almost weekly intervals 1 January–15 March 1971; I was present on 18 January, 1 March, and 15 March. The entire island was surveyed on nearly all of these visits, and no house finches were observed. Yet, on each occasion the endemic race of the Savannah Sparrow (*Passerculus sandwichensis sanctorum*) was abundant, particularly in the village where it was a dooryard bird. During this period 5–20 fishermen resided in the village.

Since house finches are noisy and conspicuous birds, especially in the breeding season, it is certain that *Carpodacus mcgregori* no longer inhabits the San Benitos, and that it disappeared between 1938 and 1963. It has been reported twice from Cedros Island (Grinnell 1928), most recently in 1925 (specimen in Mus. Vert. Zool.), but the chance that it still exists on that rugged and poorly-explored island, where *Carpodacus mexicanus* is common, seems slight.

Why McGregor's House Finch disappeared from the San Benitos is unknown. Because it evidently coexisted with *P. s. sanctorum* for millenia, the possible competitive exclusion of finches by sparrows cannot be considered seriously. Anthony (1925) attributed its decline to cats introduced by fishermen, but that explanation is inadequate because the birds persisted for another decade, and because Savannah Sparrows, which would have been easy game, suffered no apparent decrease. Despite the presence of cats on Guadalupe Island, another house finch, *Carpodacus amplus*, remains abundant. At present there is no evidence of feral cats on the Benitos.

Carpodacus mcgregori was never abundant, and its skins and eggs were highly desired. In view of the extensive and at times excessive collecting that took place on islands off northwestern Baja California in the early decades of this century, the activities of collectors and "oologists" could have played an important role in its elimination. Apparently the endemic Savannah Sparrow has always been abundant enough to withstand the demands of science (Kaeding 1905: 136; Bancroft 1932:89).

I am indebted to R. F. Dwyer and to C. L. Hubbs for transportation to the San Benito Islands. Hubbs' research was supported by grants from the National Science Foundation (NSF-GA-1300, NSF-GB-13319).

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Accepted for publication 26 June 1970.

A TECHNIQUE FOR PERFORMING LAPAROTOMY ON SMALL BIRDS

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Domestic fowl have long been castrated to improve flesh qualities and reduce aggressiveness. The testes are exposed for removal by surgically opening the abdominal wall, a procedure called laparotomy. Although references are often made to this operation in experiments with wild birds, it has not been described in detail. Miller (1958, 1968) found laparotomy a convenient way to examine the reproductive structures of living birds in the field. Nembutal was used as an anesthetic. He routinely laparotomized captured wild Andean Sparrows (*Zonotrichia capensis*) without any losses, and released them after an hour in captivity. He reported that they immediately resumed normal behavior relative to their mates and neighbors. Gathering sequential data on gonadal changes by laparotomy eliminated the need to sacrifice birds during the breeding season. In addition to being used to monitor temporal changes in gonad size, laparotomy can also be used to determine the sex of sexually monomorphic species, and to provide access to the peritoneal cavity for implantation of electronic sensing devices.

During the course of experiments on European Starlings (*Sturnus vulgaris*), over 1500 laparotomies were performed on both sexes over a period of six months, usually at 14-day intervals. No deaths occurred which were directly attributed to the operation, and no infections developed, despite somewhat aseptic conditions.

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