

Mr. Robert B. Treanor
Executive Director
Fish and Game Commission

August 15, 1994

Subject:

Agenda item for the Fish and Game Commission's October 6-7, 1994 meeting Re: Receipt of the Department of Fish and Game's report on the results of the 1994 population survey of Bank Swallows on the Sacramento River.

On January 19, 1994 the Department prepared a status report on the recovery of the Bank Swallow (Riparia riparia). The report provided background on the species' listing as State threatened and discussed some reasons for the decline and prospects for recovery, especially the population along the Sacramento River. We also stated that a five-year status review would be prepared after the results of the 1994 population survey were analyzed. Finally, we stated that if the survey continued to show a declining population trend, the Department may recommend additional management actions and that this would be reported to the Commission before the end of the year.

In 1994, the Bank Swallow population survey was cooperatively conducted by Department, U.S. Army Corps of Engineers, and U.S. Fish and Wildlife Service (Service) personnel. The latter two agencies have long-term involvement in the Sacramento River ecosystem. The Service provided a jet boat that allowed efficient coverage during early June of 162 miles of the Sacramento River from Red Bluff to its confluence with the Feather River. The reach above Red Bluff from River Mile (RM) 243-292 was not surveyed but the small population likely present was estimated based on past survey results.

Results from the 1994 survey indicated that the population was the second lowest to date. The 1993 population was lower (see attached table entitled "Bank Swallow Population Information"). The total burrow number is the population index most efficiently gathered during field surveys, but a better estimate is the number of breeding pairs which can be estimated by applying a burrow occupancy (percent of burrows in a colony that are actually used by Bank Swallows as nest sites) factor which is derived from intensive field studies of selected individual colonies as well as estimated for all colonies encountered during surveys. From 1986 (the first year the Department intensively studied the Bank Swallow on the Sacramento River) to 1990, average burrow occupancy was estimated at 47 percent. In 1993 occupancy at a single study dropped to 45 percent and was only 32 percent at the same colony in 1994. Average burrow occupancy from 1986 to 1994 is about 45 percent. By applying the occupancy factor to the total burrow counts displayed in attached table, the population of breeding pairs of Bank Swallows has declined from a high of 13,170 pairs in 1986 to a low of 6,260 pairs in 1993. There were an estimated 7,580 pairs in 1994. In addition to the decline in breeding pairs the total number

of colonies has decreased from 72 and 76 in 1986 and 1988, respectively, to 49 and 42 in 1993 and 1994, respectively. The average numbers of burrows per colony was 390 in 1994. The greatest was 410 burrows per colony in 1986 while the lowest was 280 burrows per colony in 1993.

The results of nine years of surveys indicates that the Bank Swallow population on the Sacramento River has dramatically declined in recent years. There may be a combination of factors involved in the apparent decline. A more detailed analysis will appear in the five-year review, but Bank Swallow populations fluctuate because of the dynamics in their nesting habitat. The prolonged drought in the Central Valley coupled with loss of suitable habitat due to bank protection activities may be some of the most significant reasons behind the 44 percent decline in total burrows from 1986 to 1994.

While Bank Swallow populations must be closely monitored in the future, the Department recommends no change in official status at this time. Population fluctuations are to be expected, and the population may be expected to increase if suitable nesting habitat remains to accommodate any population increases. Proposed bank protection and flood control projects must be continued to be reviewed for potential impacts to Bank Swallow populations throughout California.

A copy of the Bank Swallow Recovery Plan (the first such plan for a solely State-listed species) is attached for the Commission's reference. If you have any questions regarding this memorandum, please contact Mr. Terry M. Mansfield, Chief, Wildlife Management Division, at (916) 653-7203. Department staff will be available at the October 6-7, 1994 Commission meeting to respond to any questions.

Boyd Gibbons
Director

Attachments

cc: Ms. Susan Cochrane
Department of Fish and Game
Sacramento, California

Mr. Terry Mansfield
Department of Fish and Game
Sacramento, California

Barry Garrison
Department Fish and Game
Wildlife Management
Sacramento, California

TABLE 1
BANK SWALLOW POPULATION INFORMATION
by River Reach on the Sacramento River, California
1986 to 1994

River Reach	1986	1987	1988	1989	1990	1991	1992	1993	1994	Avg.
RM 81 - 143										
Verona to Colusa										
Number of Colonies	13	12	8 ^b	6	6	6	9	8	6	8 ^c
Total Burrows	2,480	3,720	1,940	750	980	1,870	1,650	1,610	2,470	1,940
Avg. Burrows/Colonies	190	310	240	130	160	310	180	200	410	240
RM 144 - 168										
Colusa to Butte City										
Number of Colonies	15	13	18	14 ^b	15	9	14	15	11	14
Total Burrows	6,060	6,600	7,790	6,370	7,440	6,110	6,840	5,230	4,870	6,370
Avg. Burrows/Colonies	400	510	430	460	500	680	490	350	440	460
RM 169 - 199										
Butte City to Hamilton City										
Number of Colonies	15	16	28	21	15	14	15	11	10	16
Total Burrows	7,530	5,070	9,570	6,970	4,850	3,960	4,500	1,950	3,400	5,310
Avg. Burrows/Colonies	500	320	340	330	320	280	300	180	340	330
RM 200 - 243										
Hamilton City to Red Bluff										
Number of Colonies	23	20	15 ^b	15 ^b	15	13	14	10	10	15
Total Burrows	11,530	8,540	6,220	6,220	6,880	4,300	4,050	3,820	4,440	6,220
Avg. Burrows/Colonies	500	430	410	410	460	330	290	380	440	410
RM 244 - 292										
Red Bluff to Redding										
Number of Colonies	6	5	5 ^b	5 ^b	3	5 ^b	5 ^b	5 ^b	5 ^b	5
Total Burrows	1,660	1,400	1,290	1,290	820	1,290	1,290	1,290	1,290	1,290
Avg. Burrows/Colonies	280	280	260	260	270	260	260	260	260	260
SURVEY TOTAL - RM 81 - 292										
Verona to Redding										
Number of Colonies	72 ^d	66	74	61	54	47	57	49	42	58 ^e
Total Burrows	29,260	25,330	26,810	21,600	20,970	17,530	18,330	13,900	16,470	21,130
Avg Burrows/Colonies	410	380	360	350	390	370	320	280	390	360
Estimated Number of Breeding Pairs ^f	13,170	11,400	12,060	9,720	9,440	7,890	8,250	6,260	7,410	9,510

^a All averages rounded to the nearest single colony and 10 burrows.

^b Indicates year without surveys. Averages for that Reach were included as an estimate for years without surveys.

^c Reach averages based on available survey data for that Reach; these data are the most illustrative of populations trends within the Reach; Reach averages calculated with surveyed years.

^d Annual survey totals include Reach averages for years without surveys; yearly totals are not as accurate for inferring population trends as Reach averages.

^e Includes annual totals that have estimates based on Reach averages.

^f Based on an occupancy rate of 45 percent; $0.45 \times \text{Total Burrows} = \text{Breeding Pairs}$, rounded to nearest 10 pairs.