

BANDING OF GAMBEL SPARROWS IN THE FALL OF 1926¹

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THE EXPERIENCES of the writer during banding operations upon the genus *Zonotrichia* in the fall of 1925 in Modoc County, California, made it seem worth while to return to the same ground the following year at the same season, in order to find out if this sparrow individually migrates along a fixed route. As mentioned in a previous article (Condor, xxviii, 1926, p. 70) the season of 1923-24 had been one of great drought in northern California, and in the fall of 1924 the number of Gambel Sparrows (*Zonotrichia leucophrys gambelii*) found in Surprise Valley was actually astonishing. So great were their numbers that there was afforded a magnificent opportunity for mass banding by any one properly equipped for such work, with the idea of some of them possibly being checked up elsewhere on the line of migration north or south. With this object in view, Eagleville, Modoc County, California, was visited by the writer in the fall of 1925, this time with full banding equipment.

The rainfall that season had been nearly normal, and food and water were plentiful. This condition had the effect of reducing greatly the number of sparrows present, the inference being that this year there were numerous routes of migration along which food and water were obtainable. In 1924, the date of arrival was prior to September 3 (the date of arrival of the Academy party), but in 1925 none was noted until September 12, and not enough to warrant banding were on the ground until ten days later. The greatest number was banded on October 5, after which, with stormy weather, the numbers rapidly diminished. In all, 381 birds were banded during the 1925 operations.

To investigate this matter still further, another visit was made to Eagleville in the fall of 1926, the ground being reached September 1. Like 1924, this was a dry year, but some spring rains had benefited the country appreciably, so that there was more or less food for sparrows, in the way of grass and weed seeds. The first sparrows were noted September 2, when half a dozen were seen by the roadside. After this the numbers increased so rapidly that banding was commenced on September 7. The first station was at the McCully ranch (Station A), two miles north of Eagleville, in a small potato patch, bordered on three sides by a heavy hedge of wild rose bushes, in which banding operations had been carried on in 1925.

Ten two-compartment Potter-type traps were used, and one funnel-door trap of the Sprot type, the latter not proving so successful as in the previous year, for some unknown reason. On the afternoon of September 6 the traps were arranged and baited, with the doors propped open, about 15 yards apart under the edge of the rose-bush hedge on two sides of the patch. The third rose-bordered side had not proved profitable in the previous year, although no apparent reason for this unpopularity presented itself. There was much "pigweed" (*Amaranthus*) in this patch, the seeds of which the birds at first preferred to the cracked grain offered to them; but gradually a bait appetite developed. So many Gambel Sparrows came into a vegetable garden about 200 yards away, in which there was a veritable thicket of raspberry bushes, that four traps were moved over to it; but the quantity of food there was so great that the move proved to be a poor one, especially when a stray family of chickens and a good-sized flock of quail took up its abode in the garden, in which the season's usefulness was about over.

¹ Contribution from the Museum of the California Academy of Sciences.

On the first day of trapping at this station, only 23 birds were taken, but one of them was an immature White-crowned Sparrow (*Zonotrichia leucophrys leucophrys*), which was given a number. This bird came into the traps once each day on September 7, 8, 9, 10 and 17, and four times on the 18th. Incidentally, the traps were moved to Station B from September 10 to 16, but returned to Station A early on the 17th, which may account for this bird not making a straight record of repeats. On September 8 and 9 the numbers banded at Station A were, respectively, 42 and 47, on the former day there being taken another White-crowned Sparrow which repeated several times in the next three days. As birds of this species only came into the traps occasionally, the chance of the few that were taken being picked up elsewhere seemed so remote that no more were banded.

As no "returns" were coming in at Station A, the traps were moved before mid-day of September 10 to the Minto ranch (Station B) and placed along the lane described in the *Condor* article above mentioned. Unfortunately, the ditch that ran through here was temporarily empty and not many sparrows were visiting the lane, although there were plenty of them in the vegetable garden and orchard a hundred yards away—where 50 chickens and a cartload of cats made trapping an impossibility. However, water was turned back into the ditch in two or three days, and the sparrows then increased in numbers. A migratory wave evidently came in on the night of September 13, but very few of the birds seemed to be hungry for the bait offered to them. Yet 38 were banded on that day, and 50 and 51, respectively, in the next two days.

On September 15 the first return was taken, number 169771, originally banded at the same station October 2, 1925. On September 16 the day's result was 52 banded and 57 repeats, the latter figure showing that a large proportion of this particular flight had by this time been banded. On account of this condition of affairs, the traps were moved September 17 back to Station A, where hundreds of the sparrows were feeding, and before night 87 more were wearing bands. During the ensuing night, however, a good many of the birds must have moved on south, for only 48 were banded the next day. Among the visitors to the traps that day was another return, number 169915, first banded October 9, 1925.

As the party's car had to be used for a few days for distant work, the traps were again moved from Station A, on the evening of September 19, this time to a place close to town, the feeding corrals on the Finmand ranch being selected for Station C. So far this fall, the corrals had not been used, and they were largely covered with a heavy growth of seeding thistles. The combination here of a small stream, good cover in the willows on its banks, and the thistle seed had attracted a large number of the sparrows. At first the birds paid no attention to the bait strewn to attract them, but gradually they commenced to pick it up and on September 20 the day's operations netted 80 banded. The next day showed the high tide mark of the season and certainly was a busy one, with 112 sparrows banded and 26 repeats, making a total of 138 captured.

Such rapid work as this had not been anticipated, and by this time there remained only 85 of the bands of proper size that had been brought along. Others had been ordered from the Biological Survey but had not yet arrived, and, as no returns had been found among the sparrows taken at this station, where no banding had been done previously, it seemed advisable to take the traps back to Station B and there try again for returns from 1925. This was done on the evening of September 22, but the supply of bands did not last much over one day. One more return was taken, however, on September 23, its number being 169702, first banded October 1, 1925.

The bands that had been ordered did not arrive until October 2, by which time the number of Gambel Sparrows present had greatly diminished. In fact, at Station C, where there had been hundreds but a few days before, practically none were now to be found. As but few remained in the Minto lane (Station B) the traps again were set at Station A, early in the afternoon of October 2, and 46 birds were taken by nightfall. The numbers of sparrows diminished so rapidly after this that the work was stopped October 6, when there were too few remaining to make it profitable to continue. Another return, number 169989, was taken October 3, originally banded October 9, 1925.

The results of this year's banding work at Eagleville were: Gambel Sparrow, adults banded, 649; immatures, 292; White-crowned Sparrow, immature, 2; total, 943. In addition to this, there were 291 repeats and 4 returns, bringing the total number up to 1236 captured in not quite 22 days of actual work. The age percentages of this lot were: adults, 69; immatures, 31. In the previous year these percentages were 52 and 48; but exactly what this indicates it is hard to say, unless it is that fewer young were raised in the year of partial drought.

As some readers of this report *may* come across one, or more, of these banded birds, the list of numbers used during this work in Modoc County is given herewith: 153201-153300; 171176-171200; 181601-181700; 351201-351500; 470701-470817; A19401-A19500; 38261A-38460A. All of this lot of bands are on Gambel Sparrows except numbers 171187 and 171199, which were put upon White-crowned Sparrows.

It is more than probable that the southern route of these sparrows lies entirely east of the Sierra Nevada, which appears to offer but small chance of any of them being picked up by bird banders. Yet some of them may return by a more westerly route, or, another year, may accompany from the northern nesting grounds other birds of this species that are accustomed to migrating along the western side of the Sierras, where there are enough people interested in bird banding to make capture a little more probable.

NOTE.—Since the above article was written a report has been received from Mr. F. C. Lincoln, of the U. S. Biological Survey, that Gambel Sparrow number 169732 was captured on January 15, 1927, at Lemon Grove, San Diego County, California, by Randolph Morse. It was caught in a chicken house and again released.

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