

fancied security. Once fully convinced that he is seen he waddles off and never stops until out of sight.

I brought back with me a young *hirundo* almost ready to fly. It very soon learned to take fish from my hand, and always manipulated them so that they were swallowed head end first. A four inch cunner was swallowed whole. Morsels too large to be handled entire were soon dropped. When exceptionally large pieces of fish were swallowed, some very interesting muscular movements took place. A telescope motion of the neck and body was accompanied by a spasmodic movement like that of shivering, for a few seconds. The bird would then "huddle up" and ruffle up its feathers several times.

When in an open place, the bird would frequently raise its wings above its back in the motion of flight and in a couple of days could rise several inches from the ground in this way.

Unfortunately, my pet grew very noisy in the course of a few days and I had to keep him out doors. The following morning he disappeared, and I know not how or when he went. An interesting study of the development of the color patterns of the first plumage was thereby interrupted, but a few facts had been noted. The general coloration of the upper parts, as seen from above, consisted of mottled grays and browns. The primaries, however, have the adult coloring of light bluish gray. As the bird is seen crouching on the ground the primaries are not conspicuous, being folded against the sides of the body, and the upper, probably primitive coloring, is far less conspicuous than the sharply contrasting black head and ash gray back of the adult. The eggs and downy young are admirable illustrations of the principles of protective coloration. The downy nestling with light brownish coloration above, very easily escapes notice even when in the nest, so long as he lies on his breast. The dead nestlings, however, when they lie on their backs, by reason of their light ventral coloration are quite conspicuous against the darker ground. Even the bill and feet show protective coloration as they are a plain brownish and lack the bright red of the adult.

R. M. STRONG, *Wood's Hole, Mass.*

SUMMER BIRD STUDY.

If indications count for anything, the summer days, with their dense foliage, swarms of mosquitoes, and debilitating weather, are days of almost total inactivity with the average bird student. We are only too

willing to take for granted that work and study at such a time is too unprofitable to be indulged in. It may not be wholly out of place here to show briefly what a class of twelve students has been able to accomplish during a summer term of eight weeks, just closed.

There were one hundred and eight hours of field work required, eighty-eight of which was done under the personal supervision of the teacher. Eighteen trips, including two all day trips, made up the eighty-eight hours. All times of day, from four o'clock in the morning to eight at night and all temperatures between 48° and 96° in the shade, are represented in this work.

During these eighty-eight hours ninety-two species were recorded and 734 records made. Of these ninety-two species the highest number recorded was sixty-nine during an all day trip on July 24, and the lowest number was nineteen, in the face of a thunderstorm on the evening of August 3, the average record being forty-one species.

The following species were recorded on each of the eighteen trips: Chimney Swift, Mourning Dove, Red-headed Woodpecker, Kingbird, Crow, Blue Jay, Meadowlark, Goldfinch, Song, Field, Vesper and Chipping Sparrows, Purple Martin, Barn Swallow, House Wren and Robin; and the following species were recorded but once: Common Tern, American Bittern, Sora, Red-bellied Woodpecker, Nighthawk, Traill's Flycatcher, Lark Sparrow, Dickcissel and Blue-winged Warbler. Only six of the remaining eighty-three were not well seen and easily studied. It is interesting to note that thus far in 1899 but ninety-eight species have been recorded as breeding within the county, so that the summer's work is nearly complete.

During the all day trip of July 24, when about thirty-five miles of country roads were covered, a careful count was made of the number of individuals of twenty-one species seen from the wagon. The day was one of the warmest of the year, with but a light breeze from the south, and a cloudless sky. The list follows:

Common Tern, 3.	Flicker, 15.
Green Heron, 1.	Chimney Swift, 48.
Spotted Sandpiper, 2.	Crow, 16.
Killdeer, 4.	Meadowlark, 75.
Mourning Dove, 16.	Song Sparrow, 48.
Cooper's Hawk, 1.	Grasshopper Sparrow, 1.
Sparrow Hawk, 5.	Field Sparrow, 20.
Belted Kingfisher, 3.	Loggerhead Shrike, 3.
Red-headed Woodpecker, 35.	Purple Martin, 22.

Catbird, 12.

Bluebird, 8.

Wood Thrush, 2.

This was the day on which sixty-nine species were recorded, the most of them without leaving the wagon.

Another all day trip, on July 10, under a threatening sky, a temperature ranging below 70, with a brisk north-west breeze blowing, resulted in the following record for twenty-one species :

Bartramian Sandpiper, 4.

Goldfinch, 35.

Red-shouldered Hawk, 1.

Vesper Sparrow, 79.

Downy Woodpecker, 1.

Grasshopper Sparrow, 1.

Belted Kingfisher, 2.

Cardinal, 2.

Kingbird, 77.

Towhee, 1.

Phoebe, 1.

Cedar Waxwing, 2.

Wood Pewee, 35.

Barn Swallow, 400.

Blue Jay, 16.

Louisiana Water Thrush, 1.

Bobolink, 78.

Redstart, 1.

Red-winged Blackbird, 66.

Robin, 68.

Bronzed Grackle, 37.

On this trip much more time was spent in the woods and near the swamps in search of birds.

The opening week of the summer term gave evidence of an unusually advanced season, with small promise of much from the birds. Few of them were singing, while the most of them seemed to be in perpetual hiding ; but as July grew old the songs began anew and the birds were far more willing to pose for the class. There was unmistakable evidence of change of plumage among nearly all species, often resulting in perplexing patterns ; but many of the birds were in full breeding plumage, while some were still nesting, even among the earlier breeders.

The summer's work clearly shows that the student of birds cannot leave the summer months out of his study if he expects to cultivate a broad acquaintance with the birds. On the contrary, sustained study during the months of July and August is greatly needed before many problems can hope to be solved. Let there be more summer study.

LYNDS JONES, *Oberlin, Ohio.*

ROSE-BREASTED GROSBEAK.

Up to the time I was fifteen years old I considered this a rare bird, though since then I find it not uncommon. That spring I found my first



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