

A STUDY OF ROOSTS OF THE BRONZED GRACKLE AT NASHVILLE

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The Bronzed Grackle, *Quiscalus quiscula æneus*, known to the public generally as "blackbird," is one of the most familiar birds of the Nashville region. The species is highly gregarious and gathers in flocks of thousands at certain seasons. These flocks form large roosts, preferring for that purpose the rows of shade trees growing along city streets, or the plantings found in parks, college campuses, cemeteries and other public grounds. This habit brings them to the notice of nearly everyone. Considerable attention has been given to this subject by bird students and a paper on the Grackle Roosts at Oberlin College, by Dr. Lynds Jones, is a classic in its field. Nashville observers have long been interested in our local roosts and programs have been devoted to this topic by the local bird society.

Other birds with similar flocking habits join the Grackles in their roosts, and often outnumber that species. In the writer's experience, eight species have been found in the roosts at various times, although five is the largest number known to be present in any one gathering. These additional species are Starling (*Sturnus vulgaris vulgaris*, Linn.); Cowbird (*Molothrus ater ater*, Bodd.); Purple Martin (*Progne subis subis*, Linn.); Red-winged Blackbird (*Agelaius phœniceus*, subsp.); English Sparrow (*Passer domesticus domesticus*, Linn.), and Robin (*Turdus migratorius*, subsp.). The Cedar Wax-wing (*Bombycilla cedrorum*, Vieill.) may also join a roost, as flocks have several times been noted flying with Grackles at dusk. The Rusty Blackbird (*Euphagus carolinus*, Mull.) undoubtedly occurs, but has not been identified by the writer. These other birds, however, are not considered in this paper, since this study was concerned only with the Bronzed Grackle, and chiefly as observed in Centennial Park in Nashville, Tennessee, during the last sixteen years.

Since Grackles live in flocks throughout the year, it seems best to follow the birds through their annual cycle in considering their roosting habits. It is impracticable to separate the gatherings of different seasons, such as "spring roosts" and "fall roosts," as they run into one another, and the same habit is involved in all. In many gregarious species, as the Robin, the flocks break up into pairs in the breeding season, and it might be supposed that the Grackles do likewise. But this is not the case, as they usually nest in colonies, thus preserving the flock organization, although on a reduced scale. Isolated breeding pairs may be found, but they are not the rule with this species. The persistence of the group habit is further seen in the maintenance of roosts through the breeding season, in spite of the

strong pull of the reproductive instincts at that time. Close observation of the Grackle will reveal a roost every night the species is present in the region.

Large flocks of Grackles sometimes winter in the Nashville region, while stragglers and wandering bands of varying size are occasional in most winters. These birds are believed to be largely from the territory north of the Ohio River. Probably few local breeding birds remain here through the winter. At any rate they do not stay on their nesting grounds during that period and the return to their breeding sites in the spring supplies a convenient point at which to begin an account of their roosting habits.

The return of the Grackle to its breeding territory can be as accurately determined as in the case of other summer residents. The first arrivals appear in February, but the dates vary much. Only a small portion of the total breeding population comes in at first, but their numbers soon reach normal. It is an easy matter to distinguish these birds from the stragglers that may appear at any time in the winter. The behavior of the two types is entirely unlike. The resident birds occupy a definite territory, often a single tree, and remain in its vicinity. Unattached birds, on the other hand, seem to be interested only in food, and wander continually.

From the first day of their arrival these birds go to some roost. Usually it is located some distance from the nesting area, but sometimes a colony will roost within their breeding territory. The Centennial group of about twenty-five pairs did this in 1928. One might well ask, "How do the small, scattered groups know where the flock will gather that night?" Probably they simply return to a roost site used in former years, just as they have returned to a familiar nesting site.

Since the number of Grackles present in the region is at first small, it follows that the early spring roosts are also small. In time they will increase in size, but rarely exceed five hundred birds. They are rather local in scope and a number of them will be found scattered in various parts of the city. It would require a corps of observers to discover and study all of them; one person can only hope to follow the fortunes of a few located in a small section of the region.

The following incomplete list of the roosting sites used by the Centennial colony will give some idea of the number and diversity of such gatherings at this season. For a number of years the regular night resort was a haw thicket on the Park hill. In 1923 a change occurred, the flock using some locality in west Nashville. Each evening they gathered in the trees on the hill as had been their habit for many years, then, when nearly time for roosting, flew off to the west. The same procedure was followed in 1924, but a change was made in the third week of March, and the birds resumed roosting on the Park hill. This was continued until 1927, when the Grackles were first noted using a grove of magnolias on the campus of Fisk

University. About April 1 they again changed back to the hill. The next year, 1928, the colony used two honey locusts growing in the border of bushes and trees that marks the northern boundary of the Park. This site closely adjoins the shop buildings of a railroad, whereas the hill thickets are remote from buildings and command a wide prospect. In 1929 and 1930 the Fisk University roost was again used, but in the latter year some of the birds went to two other localities. A few went to a roost near Cedar Lane in Belmont Heights, and others flew to a grove of magnolias on the Hillsboro Pike at the city limits. A map (Fig. 1) shows these three localities to be from one to two and a half miles from the Park. It would be interesting to know why the Grackles traveled so far and widely

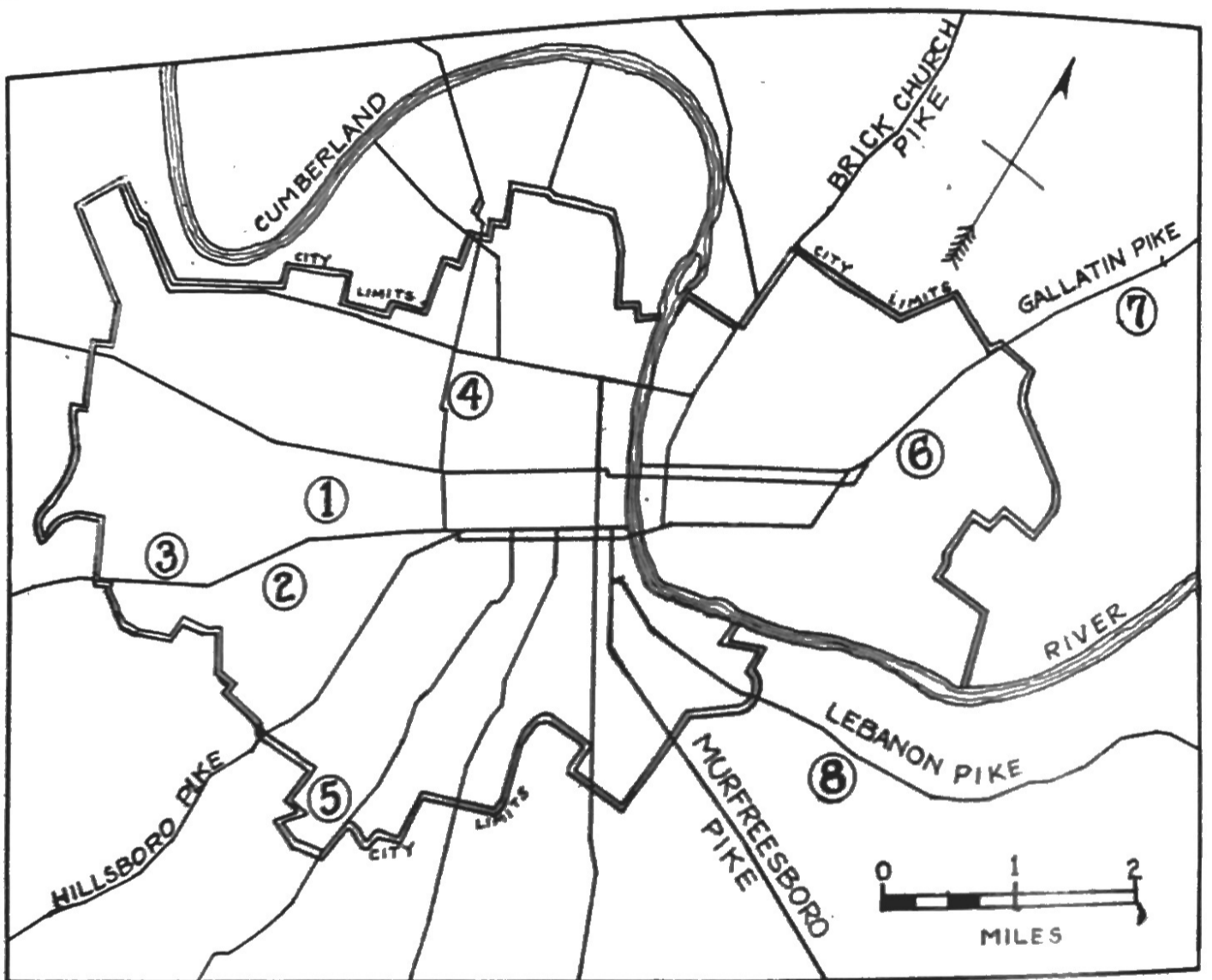


Fig. 1. Roosts of the Bronzed Grackle at Nashville. 1. Centennial Park; 2. Wellington Ave.; 3. Richland Ave.; 4. Fisk University; 5. Cedar Lane; 6. Stratton Ave.; 7. Greenwood Ave.; 8. Mount Olivet Cemetery.

when the old roost site on the hill was only a few hundred yards away. At the same time there were undoubtedly a number of undiscovered roosts in different parts of the city.

Occasionally a roost was placed away from the city. An example was discovered on April 9, 1933, on the Elm Hill Pike at Merritts Lane, where several hundred Grackles were roosting in a clump of cedars. This site was four and a quarter miles from the city limits. It was located by following the fly lines of the flocks that traveled to it each evening. On their route lay another and larger cedar grove, but this was not used.

In the spring small parties of Grackles may be attracted to roosts of other, more numerous species. On February 24, 1929, about fifty were found in a tree in the center of a thicket in the rear of Cavert School on Jones Avenue. The rest of this area was crowded with many hundreds of Starlings and Robins.

It is an interesting sight to watch a colony leave for the roost. One by one, as sunset approaches, the birds leave the lawns where they have been feeding, or their song perches in the prospective nesting trees, and move up into the top of some nearby tree. There the little flock gathers, chattering and singing the while. Soon they spread their wings and set their course straight for the place where they intend to spend the night. It may be far over the rows of houses and the low hills beyond, or close by in plain view—it matters not—their flight is direct and unbroken until they arrive at the appointed spot. At the roost itself many such small parties may be seen arriving from widely separated localities. The birds do not always go to the nearest roost. Flocks from the suburbs have been observed passing over the Centennial hill roost en route to the Fisk University campus, a mile farther from their starting point.

The small size of these spring roosts is pretty good proof that they are composed only of local breeding birds. The details of the migration of more northern breeding birds through this region, if such a movement occurs, are unknown. It would most likely be over before the first of March. In January and February there are frequent reports of large flocks of Grackles in the outlying country. These flocks are not known to come into the city to roost as they would in the fall, and they probably remain distinct from the Nashville nesting group. At present their roosting habits are unknown.

Thus, at the beginning of the nesting season, it is found that the breeding population of Grackles spends the day in their nesting grounds throughout the city and suburbs, and gathers for the night in a number of widely scattered roosts of small size and local character. Such roosts are not firmly fixed and are subject to change from year to year, even from one week to the next in some cases. They are usually located within the city and occupy either evergreen or deciduous trees indifferently. Spring roosts are continued on into the breeding season.

The breeding season begins in March. The earliest date for nest building is March 19, 1927, but this was delayed in 1929 until April 5. It is largely dependent upon the development of the vegetation, for the first nests are usually placed in evergreens or trees that put out their leaves very early, such as the weeping willow. In a late season some impatient pairs will build in privet hedges and boxwood bushes. There is a spread of a month between early and late egg dates, with the majority being laid from April 15 to 25. As a result, there is a like spread during which the broods of young are going out into the world. The family parties do not join the roosts at one time, but appear gradually, as the young attain flight powers.

Roosting is continued without interruption through the breeding season. This is apparently due to the male birds leaving their homes at night to join others of their sex in a roost. Then, too, late nesting pairs are believed to continue to use the roosts until family cares keep the females at home. Possibly there are a few non-breeding Grackles in the population, and they may help maintain a roost at this time. The exact nature of the Grackles making up the roosts could not be learned in this study. However, roosts reach their lowest ebb in the breeding season, and some of them are abandoned entirely. This fact is sometimes concealed by a combination of two or more of the small, local roosts, resulting in an apparent increase at one point, but the sum total of individual roosts and roosting birds here reaches its annual low.

The small roosts of the spring season, that have been described, are gradually brought together during the summer and fall into one large gathering. This change is usually first noted in the breeding season, as above noted. In 1925 and 1926 the Centennial Park hill roosts were used as a nucleus for an enlarged group of this type. On March 2, 1925, there were forty Grackles in this roost. By April 12 the number had grown until the roost was estimated to contain one thousand birds. This large flock must have gathered from a considerable area and almost certainly represented a union of two or more small spring roosts. It was continued on into the summer and went through the breeding season without loss of numbers. In 1926, the growth was slower and the flock did not reach the thousand mark until May 17.

The flight into these breeding season roosts is rarely organized into flocks. Usually the birds travel in pairs or alone, with an occasional group of three or four. The gregarious instinct that causes the Grackles to form these roosts does not seem to be strong enough to bring them together into flocks while traveling to a roost in this period. For example, on April 9, 1926, the writer found that fully 75 per cent of the birds flying into the Centennial Park roost arrived in pairs. Later, on May 17, the flight was composed of twos and threes, with a few groups of six and eight birds.

The breeding season may be said to end in June, for in that month the last young birds leave the nests. The earliest broods take wing about the middle of May, and for the next month other groups are going out into the world. The Grackles are now freed from their nesting sites, where they have confined themselves since arrival months before. Concerned only with securing food for their clamorous offspring, they wander freely, and soon widely, about the countryside. These changes are soon reflected in the roosts.

A rapid increase in the size of the roosts begins in the last week of May, when the first young birds join the gatherings. On June 6, 1919, a roost in the Park contained 360 birds; one week later on the 14th, there were 705 present. Another example: June 8, 1926, 644 were counted flying past one point at the edge of a roost; on the 16th the number had grown to 829. In the last case the count

included only about one-third of the roosting group, as most of the birds passed into the roost by other routes. The total was about 2,500. At the end of June this roost had doubled. Five thousand birds was the usual size of the Centennial roost in mid-summer.

The growth of a roost is accompanied by an increase in the size of the flocks that fly into it. After the young take wing we see the family parties enlarge into the groups that in time become the flocks of thousands of birds observed in the fall. Some examples of this development in the month of June are as follows: June 19, 1918, it was noted, "saw a flock of twenty; yesterday the largest contained eight." Later, on June 30, "flocks range from thirty to fifty individuals." July 9, 1926, "saw flocks running up to one hundred birds." June 19, 1928, "many groups of eight and ten," and on the 25th, "eighteen and twenty are frequent." If the roost continues to grow through the summer this increase in the size of the flocks will go along with it. Following the breeding season, it is generally true that the size of the flocks flying into a roost is directly related to the size of the gathering itself.

Roosts are often moved to new locations after the breeding season. These new sites are usually the same ones that have been used in previous years. Centennial Park was the scene of large roosts every summer and fall for many years. The last of these gatherings was that of 1927, and the writer knows they were established before 1914, when he first observed them.

Throughout the period mentioned, the Park roosts followed a definite pattern in their growth and development for each year. The increase that began in May was continued through the summer and into the fall. If a spring roost had not been located in Centennial, one would be formed at the end of the breeding season. A favorite site for these early summer roosts was a double row of maples growing along the drive leading to the railroad shops gate.

At first these trees would be occupied by only a few hundred birds, but in a couple of months would be overflowing with Grackles. When this occurred the excess would move into some other group of trees in the Park. In the case of the large spring roosts on the hill, the entire group would move into the lower part of the Park when the thickets became crowded. The increase in size continued at an apparently even rate and further extension of the bounds of the roost would be necessary from time to time. Thus the birds would overflow into the playground (where they were very unwelcome), and into the jungle, as well as into the trees on the islands and shores of the lake.

Since 1927 a variety of sites have been occupied by the Grackles following the breeding season. These will be mentioned in detail below. In 1928, the roost was placed in a grove of young trees east of the Park and in the rear of Father Ryan High School. In the same year a very few Grackles roosted in the shade trees in the 3500 block on Richland Avenue. This was the beginning of the Richland roost. In 1929, a small roost was discovered on Welling-

ton Avenue at Thirty-first Avenue, South. The available trees at this point were strictly limited, and this group soon outgrew its shelter. This roost was found deserted on July 28, and the birds were flying to a larger roost along Cedar Lane. This last roost was flourishing in August, but in October the birds had moved several miles across the river to the Stratton roost, which was named for the Stratton home place on the Gallatin Pike. This roost extended several blocks east and north from that point and was very large. This suburb possessed an unusually thick stand of shade trees. In 1930, the same history was followed. The Wellington, Richland and Cedar Lane roosts were used in turn by the birds in the early part of the summer, but on September 17 most of the Grackles were flying east over the city towards the Stratton area. A visit to that locality on October 11 showed the roost to be very large, with an additional group gathered farther east on Greenwood Avenue. Substantially the same procedure was followed in the two succeeding years and the cycle for 1933 is tracing the same course. However, some change may again be made, since the tornado of March 14, 1933, destroyed many of the fine trees in the Stratton roost.

From the foregoing accounts of the long continued Park roosts and the scattered gatherings of more recent years it might be inferred that a change had occurred in the Grackles' roosting habits. However, the writer believes that the former concentrated roosts in Centennial Park, and the widely separated gatherings of more recent years really follow the same plan, and are in fact identical. When roosts are growing, as in the summer and fall, most of the changes in sites occupied are due to overcrowding of the first selected localities. In the Park there were a number of closely associated areas where a roost might be placed. The overflow did not have to move far. As a result the Grackles could expand their roost without moving from the neighborhood. Outside the Park, however, an overgrown roost may necessitate a removal of several miles to the next available site. This seems to explain the removal of the Wellington and Richland roosts to Cedar Lane, and later to the Stratton region. In former years the whole roosting cycle from small spring roosts to the large fall gatherings could be observed in Centennial Park; but in later years the same scheme has been carried out upon a broader stage, the successive scenes taking place in widely separated neighborhoods. The Stratton roost has thus taken the place of the one in the Park in the fall, just as the Wellington and Richland roosts have become the summer rendezvous.

The observer soon learns to know the symptoms that indicate a roost is to be moved. The whole flock becomes restless, and after settling into the roost trees will arise and make short flights about the neighborhood. A disturbance that would ordinarily cause very little uneasiness among the birds will, at this critical time, send the whole colony off on an extended flight. The spring roosts that formed on the hill in Centennial Park were moved in June or July into the lower portion of the Park, a few hundred yards away. In

that case the flock would make short flights from the old roost to the new site and then return to the regular shelter. A few birds might occupy the new locality at once; and it would be but a few days, or a week at most, after the flight maneuvers were first noted, that the change would take place. After a roost is deserted the birds will sometimes continue to fly to it and pass over the site as if it were a landmark, or still associated in their memories with the roosting habit. It is remarkable that the whole group seem to know at the same time the plans that are to be followed and consequently are able to act as a unit.

Roosts reach their maximum size in October and November. When at their height the Centennial Park gatherings covered an area of about twelve acres, all closely planted in trees. More than half of the birds that thronged this grove belonged to other species, but even so, the number of Grackles must have reached a hundred thousand. The Stratton roost occupied about ten city blocks, and while this area was entirely built up with residences, there was a thick stand of trees. The number of birds in this roost doubtless compared favorably with the former gatherings in Centennial Park. Large roosts were often reported in Mount Olivet Cemetery, but the author has had no experience with them.

The final stage in the annual cycle of roosts was reached in the late fall. The Centennial Park roosts were moved to Mount Olivet Cemetery at that time. This change was made abruptly in the last part of October, except in two years. In 1917, the roost remained in Centennial Park into the first week in December, giving the latest date for a major roost in this locality. In 1918, the roost moved in November, the movement being spread over several weeks during which the huge gathering gradually dwindled away. The reasons for this change that came every year are unknown to the writer, but it is interesting to note that the trees in the Park are all deciduous, while many evergreens are growing in the cemetery. Mount Olivet Cemetery thus became the Grackles' last stand in the Nashville region, and for many years it was axiomatic among local observers that if none of the birds were to be found at that place the species had left the region. Usually they did leave the region before the first of the year, and Mount Olivet roosts are included in only three of the Christmas lists made by local students. The relationship of the Stratton roost and the cemetery locality is not known to the writer.

The Grackle population of Middle Tennessee doubtless receives large accessions from more northerly parts of the country. Summer and fall blackbird roosts are known to be formed in many localities. A map compiled by McAtee (1926, p. 373) shows them from the Atlantic Coast to Kansas, and from the latitude of Tennessee north to the Great Lakes. Nashville lies just south of the center of this wide belt and can hardly escape whatever migratory movements take place. Birds banded in Indiana are shown by Perkins (1932) to migrate through western Tennessee in numbers. These birds did

not reach our state until October and we may infer that the huge roosts observed in Nashville in that month and in November are made up at least in part of transient birds. We may expect banding operations to throw much light upon the make-up of fall and winter Grackle flocks.

Only two instances of the Grackles wintering in this region in any considerable numbers have come to the writer's attention. In November, 1920, a flock of thousands of Grackles was found roosting in a dense and extensive haw thicket on the north slope of the hill in Centennial Park. The group went through the winter without any noticeable decrease in size, and the same thing occurred in the succeeding winter, 1921-1922. The site selected for this roost was the same one that had been used many times for the spring and early summer gatherings, and these wintering groups were continued into June by the local birds. These roosts were established after the much larger concentrations had left the Park and may have been derived from them, or formed by birds newly arrived from the north.

The thicket occupied by this roost was exposed to the coldest winds, and as the bushes were entirely bare of leaves, could offer very little shelter from the elements. The growth was very dense, however, and this doubtless gave protection from predators, as well as permitting the birds to roost close together. A visit to this roost one moonlight night showed the birds gathered together in a narrow belt or layer several feet below the tops of the bushes, at the point where they were thickest. The effect was much like the exposure of a coal vein. This grouping of the birds undulated with the variations in size of the bushes in different parts of the thicket, and was interrupted entirely at two points where openings occurred in the stand. Three species were using the roost and were intermingled without regard to size or color. A calculation based upon the area covered by the thicket and the observed density of the birds in the roost indicated that 50,000 Grackles might be in this flock. The birds spent the day far afield and were only observed in the neighborhood of their roost when flying into it or away, at the end or beginning of the day.

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