



Dawn Chorus 2024 - The Beginning

Observer: Manjul Bhushan (Hopewell Junction, NY, USA)
Dawn Chorus Analysis: Hemant Sogani and Manjul Bhushan

[Introduction](#)

[Data Collection](#)

[Observations and Analysis](#)

[Summary](#)

[Songbirds: All Year Residents](#)

[Songbirds: Summer Residents](#)

[Songbirds: Winter Residents](#)

[Other Avian Species](#)

[Concluding Remarks](#)

Introduction

On a cold winter day, I may hear a Carolina Wren singing outside even though all the windows are closed to keep the house warm and cozy. An agitated Blue Jay's loud 'jeer' and an American Crow's cawing sounds may also come through. When I step outside, I may hear a Black-capped Chickadee, a White-breasted Nuthatch or a Tufted Titmouse calling as they pass through the woods behind the house. Occasionally, a Northern Cardinal may give his 'psit' calls or a White-throated Sparrow may burst into part of his spring song. At dawn, however, there is silence. When does dawn chorus begin?

In 2023 when we started tracking the birds singing at dawn on March 24th, just after the spring equinox, there were already five species singing. An American Robin initiated the chorus 30 minutes before sunrise, just at the onset of civil twilight. The number of participants increased as the season progressed with summer migrants joining in. A total of 49 species were noted to participate, some only once. We learned that the singing *StartTime* of an American Robin nesting close to the house tracked with sunrise irrespective of the sky conditions and light level. Chipping Sparrow, one of the smaller birds with proportionally smaller eye size, often started to sing soon after the robin. Other species, such as the House Finch, sang close to sunrise. These findings are contrary to some scientific reports claiming that dawn singing is initiated by light level and that birds with larger mass or eye size begin to sing earlier. Dawn chorus began to fade towards the end of the breeding season with some species switching from continuous singing to occasional calls as soon as their last brood fledged. We stopped our dawn chorus study on September 9th with only six remaining participants.

We wanted to know when the birds begin vocalizing at dawn in anticipation of the breeding season and when some species switch from calling to singing. For this study, carried out in the winter and



spring of 2024, we started listening at dawn from the beginning of the calendar year. Whenever possible I noted the type of vocalization, whether it was a call or a song. For some species this distinction is easier to make, and we focused on those species only. The evidence of nesting in the vicinity was also observed for some of the participants. Our findings are documented in the following sections.

Data Collection

Following the methodology developed in 2023 as described [here](#), I started listening at dawn on the first day of January 2024. It was all quiet until the end of that month except for the Carolina Wren singing just before sunrise on two random days. Starting from January 27th other species began to vocalize just before sunrise in the *Q1* and *Q2 Quarters* (15-minute duration). The number of chorus performers began to increase in February with the participation of all year and winter residents. Migrants joined in March, April and May, soon after their arrivals. The number of species vocalizing in each *Quarter* in a week is shown in Fig. 1. Initially vocalization was only in *Q1* and *Q2*. By late February some chorus members began in *Q3* and *Q4*, shifting to *Q5* in April and May. By this time (8th week of the year), I, the observer, was waking up an hour and a half before sunrise.

On some days early rising was not convenient, and I recorded observations only in *Quarter Q1* and *Q2* to get a species count. These observation days on which *StartTimes* for species vocalizing earlier are not known are called *ObsDays*. These *ObsDays* are excluded from *StartTime* plots in this document. The term *StartTimeDays* is used for days on which complete observations were recorded for all species. Fig. 2 shows *StartTimeDays* and *ObsDays* for 2024 along with sunrise.

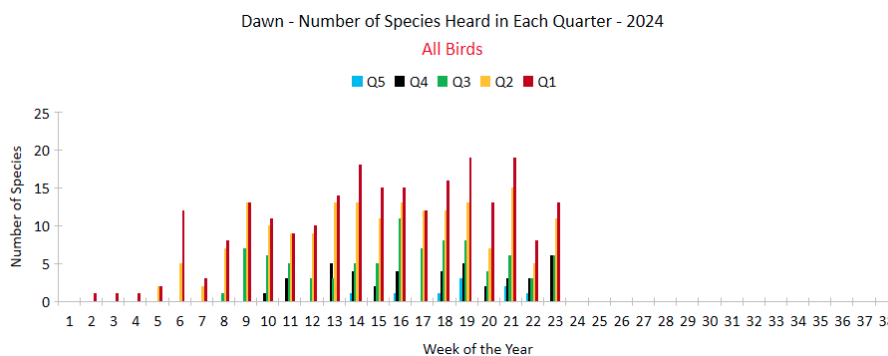


Fig. 1 Number of bird species heard vocalizing in each *Quarter* before sunrise by week.

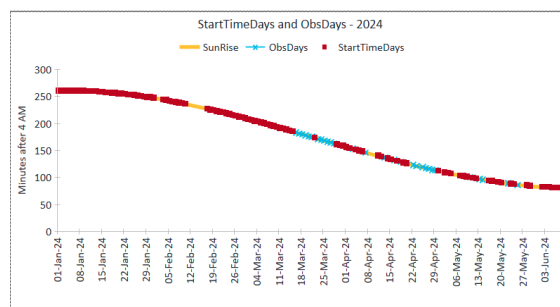


Fig. 2 *StartTimeDays* and *ObsDays* during the observation period of January 1 through June 7, 2024. The plot also shows sunrise time (yellow line) in minutes after 4 AM.



Observation and Analysis

Summary

Table 1 lists the number of total observations days, number of *StartTimeDays* and *ObsDays*, and the number of species heard in 2023 and 2024. Note that in both years no data were collected on 24 days spread over the observation period. There were 29 *ObsDays* in 2024, 21% of total number of observation days. The number of species heard in 2024 was 42, seven less than in 2023. This may be partly because dawn chorus observations were terminated on June 7th, at the beginning of the breeding season for summer migrants, three months earlier than in 2023.

Table 1. Dawn chorus participation summary for 2023 and 2024

	2023 (March 24 – September 9)	2024 (January 1 – June 7)
Total number of days	170	159
Total days observed	146	135
<i>StartTimeDays</i>	146	106
<i>ObsDays</i>	0	29
Total species heard at least once	49	42
Songbird species (order <i>Passeriformes</i>)	37	31
All-year resident songbirds	19	18
Summer resident songbirds	15	10
Winter resident songbirds	3	3
Other species (woodpeckers etc.)	12	11
Species with confirmed Breeding Code	20	16
Species with nests located in the Home 'patch'	4	4

The weekly species count for 2024 is shown in Fig. 3. By the beginning of March, the number of species singing or calling by sunrise each week varied from 15 to 23.

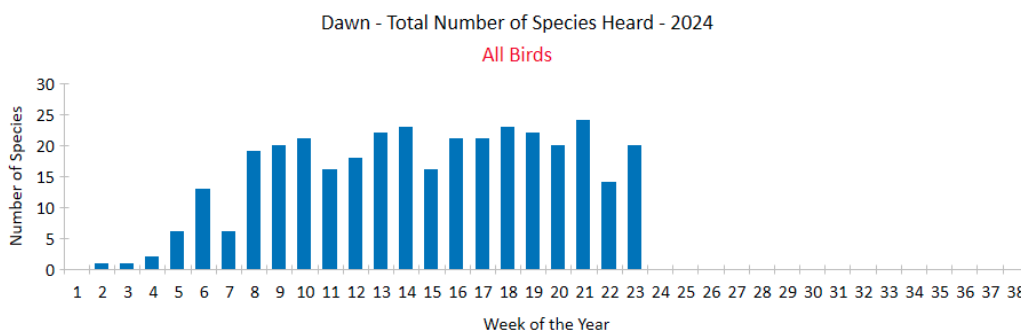


Fig. 3 Species count participating in dawn chorus by week.



There were 10 species heard only in 2023, and three species heard only in 2024. These species and the number of days each participated in the dawn chorus are listed in Table 2. These birds either do not nest nearby or were heard only when passing through during migration. In 2024, hearing American Woodcock’s nasal ‘*peent*’ just before the onset of civil twilight on three different days was a special treat. This bird is well-camouflaged in wooded areas and his presence could only be detected by his characteristic call. A pair of Golden-crowned Kinglets were spotted in the Home ‘patch’ through winter. The male began singing at dawn in early spring before migrating north. Although Hairy Woodpecker is an all-year resident in this area, his call at dawn was a rare event.

Table 2. Avian species heard only in 2023 and only in 2024 and the number of days heard

	Only in 2023	Number of Days		Only in 2024	Number of Days
1	Barn Swallow	9		American Woodcock	3
2	Barred Owl	13		Golden-crowned Kinglet	5
3	Eastern Kingbird	7		Hairy Woodpecker	1
4	European Starling	1			
5	Red-eyed Vireo	2			
6	Red-tailed Hawk	2			
7	Ruby-crowned Kinglet	1			
8	Warbling Vireo	2			
9	Wild Turkey	1			
10	Yellow Warbler	1			

Carolina Wren’s loud songs are heard all through the winter. It was the first bird to be heard just before sunrise (*Quarter Q1*) on January 12th and sporadically on five other days in this month. Other birds began vocalizing at dawn towards and end of January: Red-bellied Woodpecker calling on January 27th and Dark-eyed Juncos singing by January 30th. House Finch and Northern Cardinal began singing on February 7th and February 17th respectively. Mourning Dove began cooing regularly in February.

Most species have several different types of vocalizations. For some species ‘calls’ and ‘songs’ could be easily differentiated. I heard Black-capped Chickadee’s first call “*chik-a-dee dee dee dee*” at dawn on January 30th. By February 8th, the chickadee switched from this call to the “*hey-sweetie*” song. American Robins arriving from the south were heard calling (not singing) at dawn starting on February 9th. Robin’s spring ‘*charlie, cheerie, cheer-up*’ song was heard intermittently from March 1st onwards and then daily after April 6th. Northern Mockingbird gave his harsh ‘*chewt*’ for a few weeks before switching to his repertoire comprising many song imitations in late April. Red-winged Blackbird switched from his short downslurred alarm call to the ‘*kong-ka-ree*’ song after a few days but then switched to ‘calls’ again during the nesting period. Table 3 lists *FirstCall* and *FirstSong* dates of some of the participants.

Fourteen of the 42 species heard at dawn were confirmed nesting in the vicinity. Nests were located of four species or recently fledged young seen with adults for others. Some species were either



nesting further away or their nests were not in view, and some were singing as they passed through in spring in search of suitable locations for nesting or feeding.

Table 3. ‘FirstCall’ and ‘FirstSong’ dates of some species

	Species	‘FirstCall’	‘FirstSong’
1	Black-capped Chickadee	30-Jan	08-Feb
2	American Robin	09-Feb	01-Mar
3	Northern Mockingbird	24-Feb	29-Apr
4	Red-winged Blackbird	20-Feb	27-Feb

Fig. 4 shows the *StartTime* of American Robin in 2023 and 2024. The vertical dashed lines demark the observation periods in these two years. To differentiate the two types of vocalizations, *StartTimes* symbols for ‘call’ are magenta triangles and red squares for ‘song’. Transition from song to call in the fall of 2023 and the mixed transition from call to song in the spring of 2024 is clearly seen.

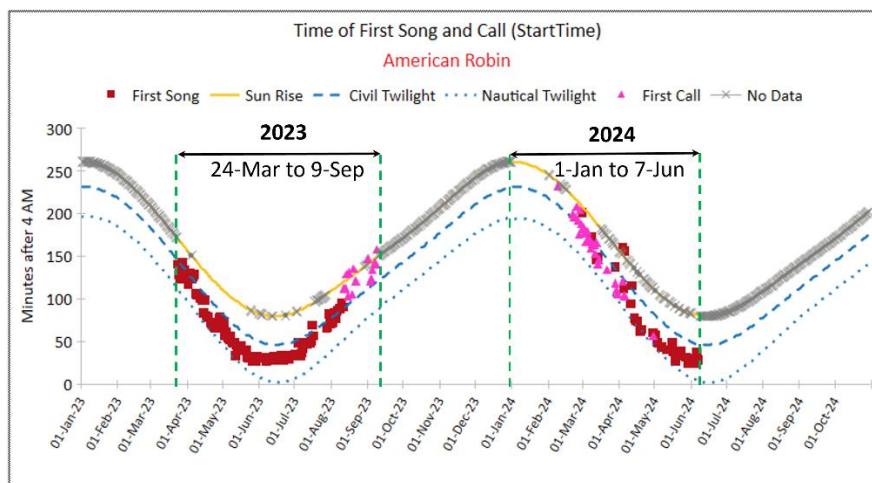


Fig. 4 Song and call *StartTimes* of American Robin, sunrise, civil and nautical twilights in 2023 and 2024. Vertical lines demark observation periods in 2023 and 2024.

For ease of viewing, *StartTime* plots in this document cover the period from March 1, 2023, to June 30, 2024. An example chart for American Robin in this format is shown in Fig. 5 and is a subset of the data shown in Fig. 4.

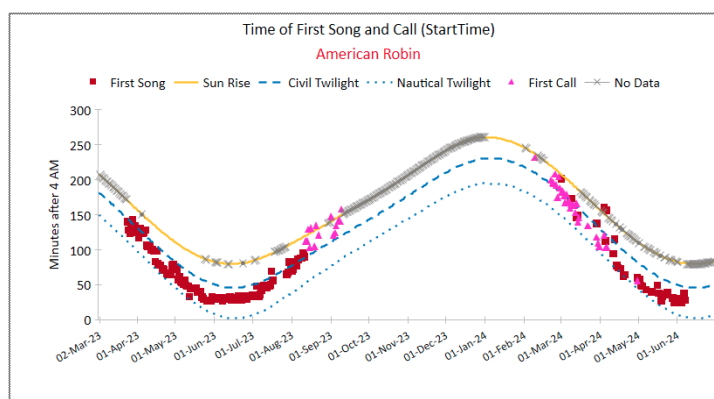




Fig. 5 Standardized *StartTimes* plot from 1-Mar-23 to 30-Jun-24.

Songbirds: All Year Residents

Eight of the 18 all year residents participating in the dawn chorus were confirmed breeding in the Home ‘patch’ or nearby. The breeding codes for these species are listed in Table 4. Nests of Carolina Wren, Northern Mockingbird and House Finch were spotted in the Home ‘patch’ during the observation period. A pair of Northern Cardinals were in the backyard all year, but their nest with eggs was discovered only in late June when our dawn chorus study had already ended. Unlike past years, American Robins did not nest close to the house but were seen with fledglings, as were Eastern Bluebirds and Tufted Titmice. Blue Jays were seen picking up nesting material and flying away with it.

Table 4 Breeding codes for all year residents participating in dawn chorus in 2024.

	Species	Breeding code	Comment	Category
1	American Robin	FY	Feeding Young	Confirmed
2	Northern Cardinal	NE	Nest with Eggs	Confirmed
3	Carolina Wren	NY	Nest with Young	Confirmed
4	Northern Mockingbird	NE	Nest with Eggs	Confirmed
5	Eastern Bluebird	FY	Feeding Young	Confirmed
6	House Finch	NE	Nest with Eggs	Confirmed
7	Tufted Titmouse	FY	Feeding Young	Confirmed
8	Blue Jay	CN	Carrying Nesting Material	Confirmed

1. American Robin

A small number of American Robins stay in this region all through winter. Larger flocks begin to arrive by the beginning of March. Throughout March robins were calling or occasionally singing at dawn. Some of these birds continued their northward journey after a brief stop here. By early April, the local resident robin had settled down and happily singing ‘charlie, cheerie, cheer-up’ before the onset of civil twilight. On some days it was not the first bird to sing at daybreak when a Killdeer beat him to it.

Fig. 6 shows the *StartTime* and number of *Quarters* in which an American Robin was singing. The number of quarters increased as the season progressed in 2024, similar to the observation in 2023. Additionally the *StartTime* with respect to sunrise varied somewhat in the early nesting period as in 2023.

Note that in 2023, we tracked the *StartTime* with light level from May 23rd to June 26th when the sunrise time was fairly constant and robins were nesting right next to the listening station. In previous years there were two to three pairs nesting within the Home ‘patch’. In 2024, there was only one pair nesting further away from my house, and some of the variation in *StartTime* noted by the observer may be because of the distance from its nest.

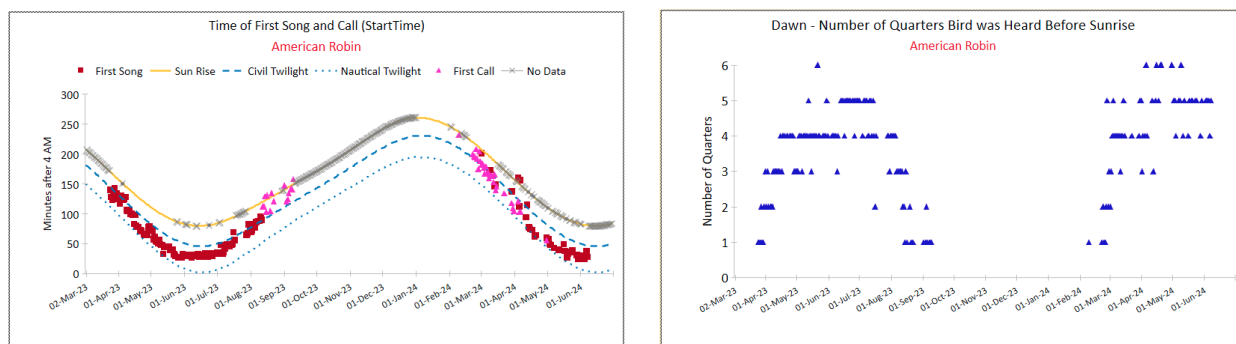


Fig. 6 *StartTimes* of **American Robin**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

2. Northern Cardinal

A pair of Northern Cardinals was spotted in the backyard all winter. The male often perched on the tangled branches of the forsythia hedge at the border of my property. Singing at dawn began on February 17th, which was also the first day of his singing at any time of the day. From then on he continued to sing every day, and the number of participation *Quarters* increased rapidly.

Only one nest was located, on June 6th on a tree in the woods behind the house. This was after the end of this year’s dawn chorus study.

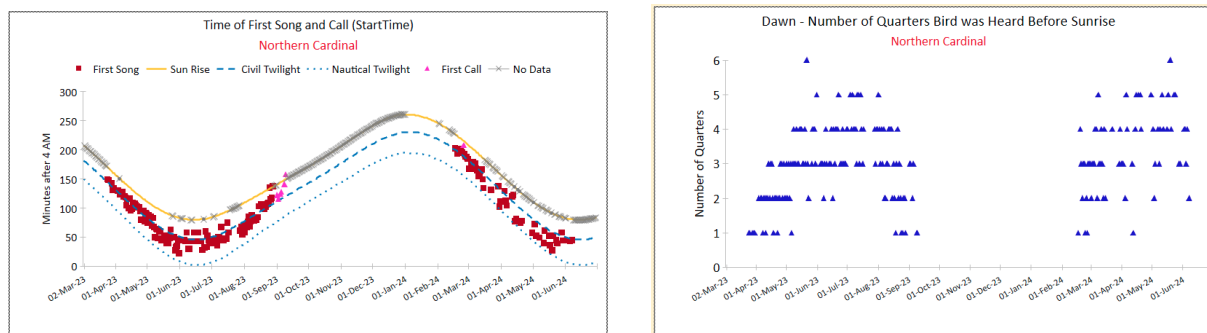


Fig. 7 *StartTimes* of **Northern Cardinal**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

3. Carolina Wren

Carolina Wren, one of the most enthusiastic singers, with a repertoire of as many as 50 song types, was the first bird to be heard at dawn in 2024. He continued to participate all through the study, although the *StartTime* varied from day to day. A pair built a nest under the lid of a propane tank next to the house by mid-April. The female was on the nest for over two weeks and then abandoned the nest leaving behind a couple of dead chicks and two unhatched eggs. Note that even though the nest was right next to the house, his observed *StartTime* was not as precise with respect to sunrise as was that of an American Robin in 2023.

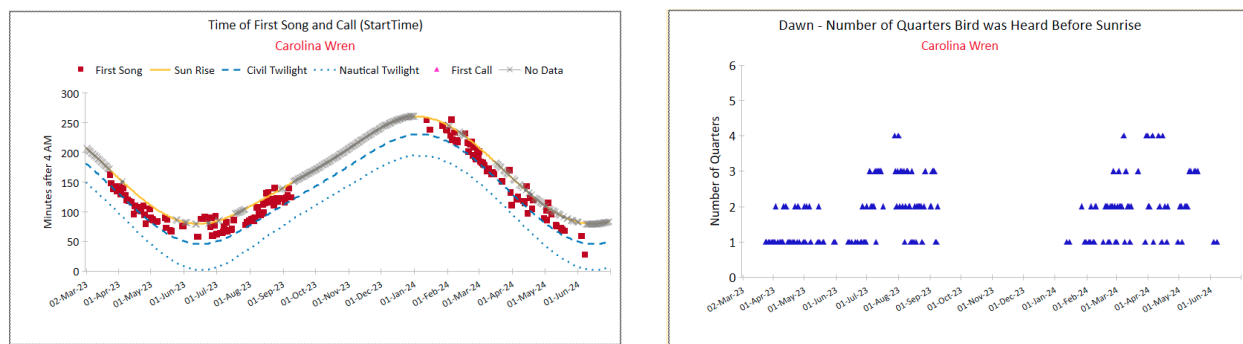


Fig. 8 *StartTimes* of **Carolina Wren**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

4. Northern Mockingbird

A Northern Mockingbird was seen all winter, often perched on a deciduous shrub. Sometimes he made harsh ‘*chewt*’ calls at dawn. In the middle of March another mockingbird joined him, and the two together built a nest in a small evergreen tree at the end of April. The nest was only about three feet off the ground. Two eggs were laid, and then the nest was robbed. The male joined the dawn chorus in late April, singing his full repertoire, but his singing began well after sunrise on most days.

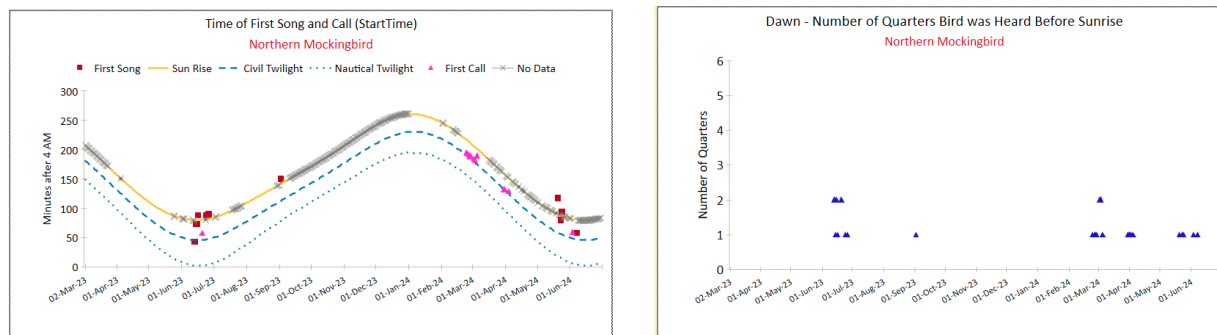


Fig. 9 *StartTimes* of **Northern Mockingbird**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

5. Eastern Bluebird

Eastern Bluebirds nest in the vicinity, and fledglings were first seen on July 22nd. As in 2023 this bird rarely participated in the local dawn chorus before June.

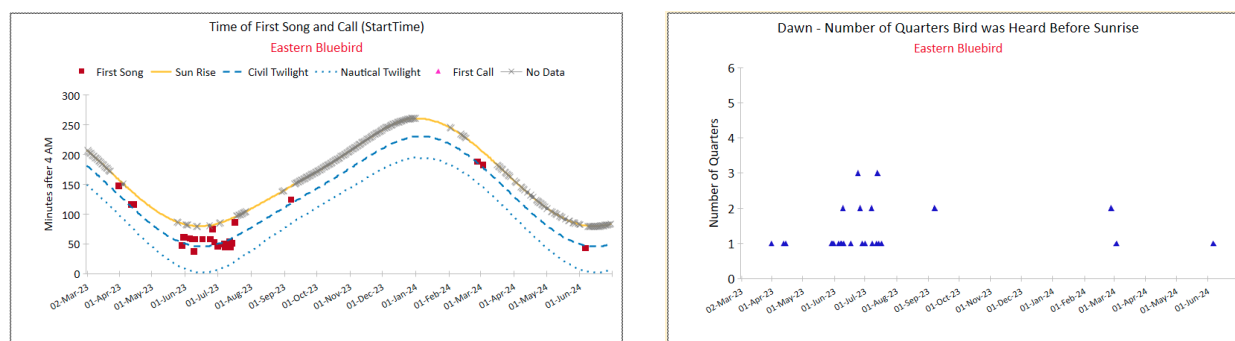


Fig. 10 *StartTimes* of **Eastern Bluebird**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

6. House Finch

A male House Finch was first heard singing at dawn on February 7th. A pair started nest building on the gutter at the end of March, and there were four eggs in the nest on April 10th. The nest was robbed after a few days. This pair stayed in the vicinity, and the male continued to sing after the onset of civil twilight, a little earlier on many days than in 2023. Fledglings following adults were seen on June 16th, evidence of successful nesting somewhere nearby.

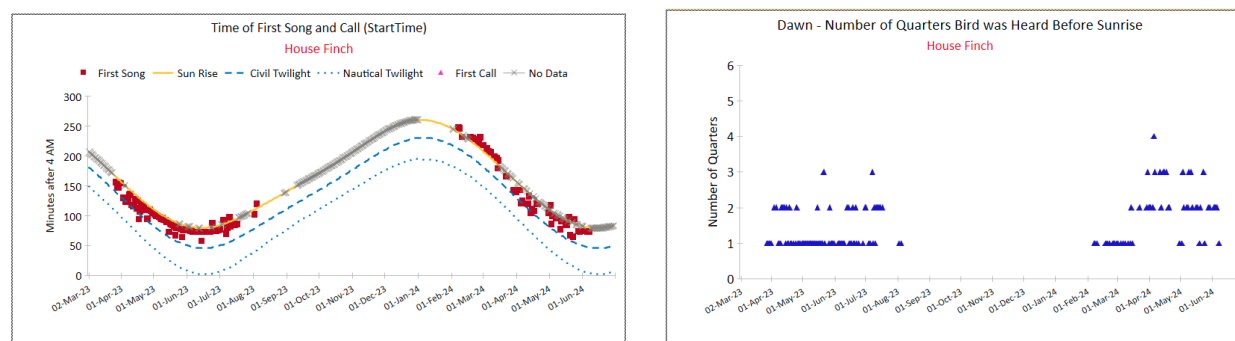


Fig. 11 *StartTimes* of **House Finch**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

7. Tufted Titmouse

Tufted Titmouse joined the dawn chorus on February 22nd and remained a regular participant until the end of the observation period. Parents were seen feeding recently fledged young on June 8th, confirming that these birds nested in the vicinity.

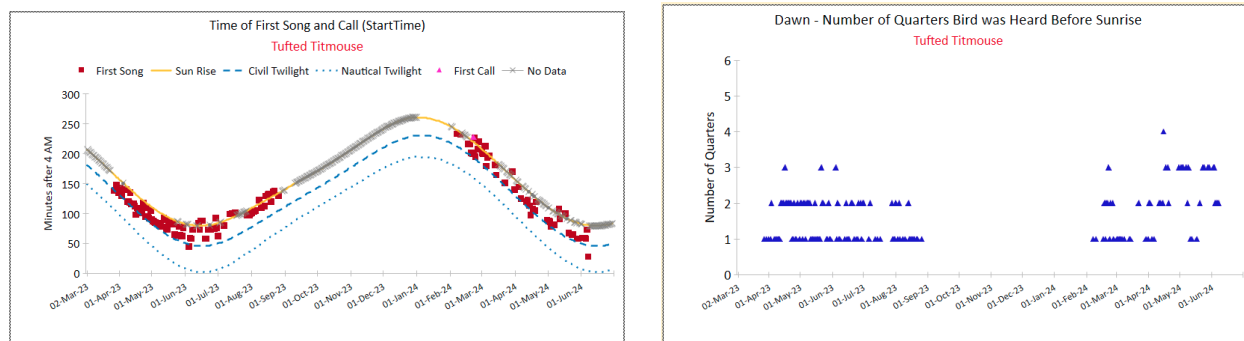


Fig. 12 *StartTimes* of **Tufted Titmouse**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

8. Blue Jay

The Blue Jay’s common ‘*jeer*’ call was heard all winter and at dawn in early spring. A pair was picking up nesting material from the woods behind the house on several days in the second week of April. The frequency of participation in 2024 was similar to that of 2023 in the same period.

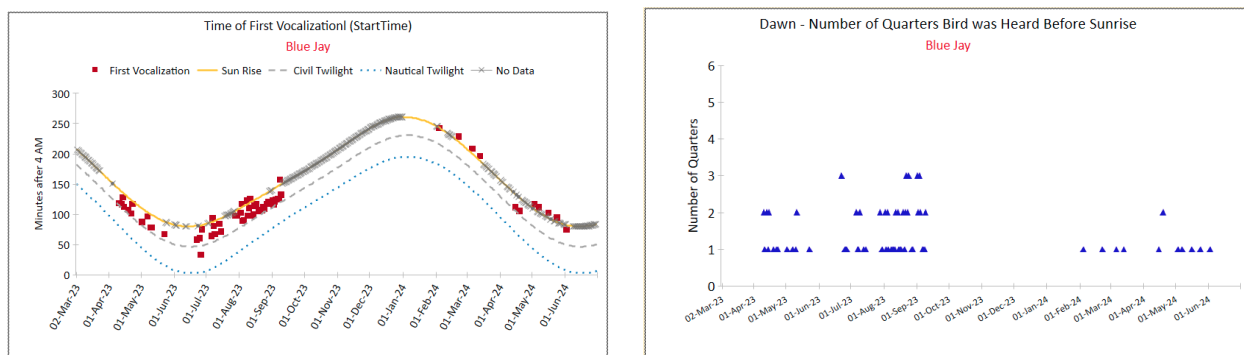


Fig. 13 *StartTimes* of **Blue Jay**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

9. Black-capped Chickadee

The “*chik-a-dee dee dee dee*” call of a Black-capped Chickadee was heard during the day all winter. I first heard this call at dawn, just around sunrise on January 30th. On February 4th, this bird was attempting to sing the ‘*hey-sweetie*’ song, but the phrases were irregular. By February 8th he had mastered his song, and from then on he continued to sing at dawn. Fig. 14 shows the spectrograms of the ‘*hey-sweetie*’ songs on February 4th and February 8th. Note that on February 4th the song was not repeated well. His voice appeared to be rusty after the long winter break. By February 8th, he had had mastered his song. Note that the repeat period on these two days increased from 2.8 s to 3.8 s, still shorter than other chickadees recorded in previous years where the repeat period of about 5 s. Perhaps he needed more time to get in tune.

The *StartTime* and number of participation *Quarters* of a Black-capped Chickadee are shown in Fig. 15.

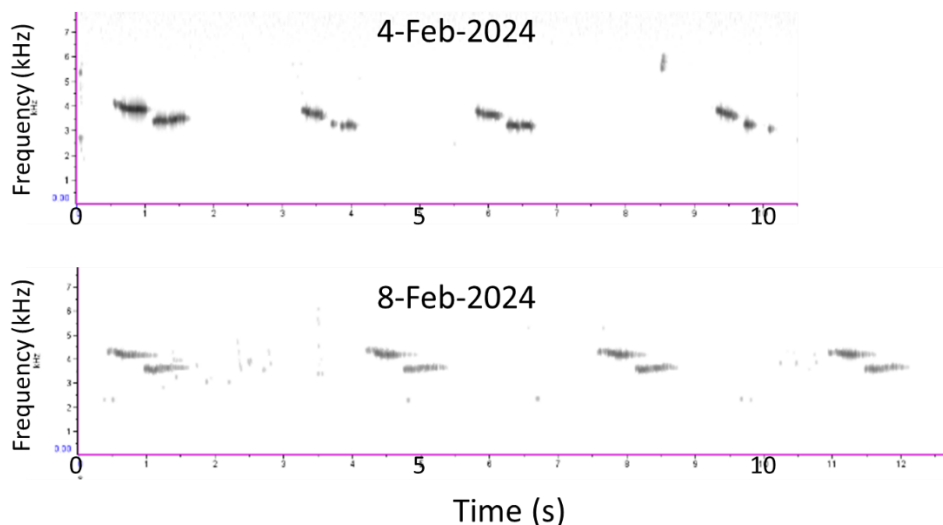


Fig. 14 Spectrograms of Black-capped Chickadees dawn songs on February 4th, and February 8th, 2024.

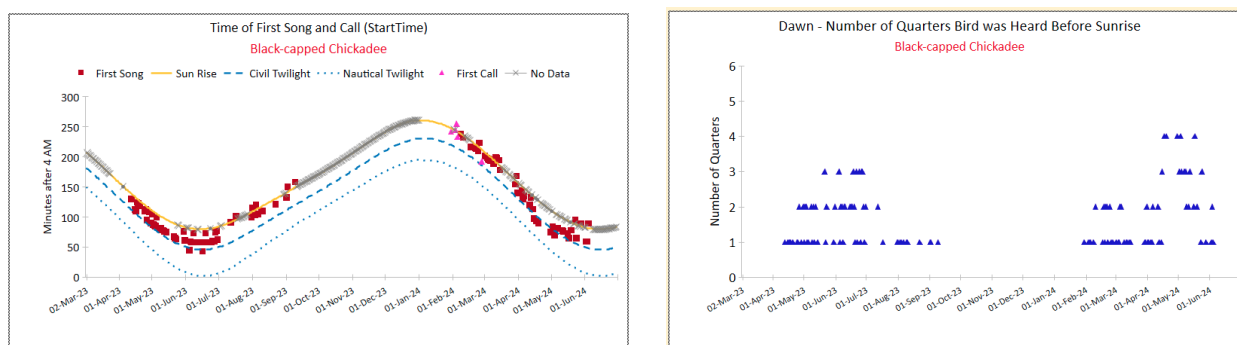


Fig. 15 *StartTimes* of **Black-capped Chickadee**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

10. Song Sparrow

At least one Song Sparrow was roosting in the shrubs during winter. Dawn singing began on February 26th. At first he was singing regularly at dawn, but after mid-March he appeared to be away on some days as shown in Fig. 16. Nesting was not confirmed in 2024, so these birds may have nested further away from the ‘patch’.

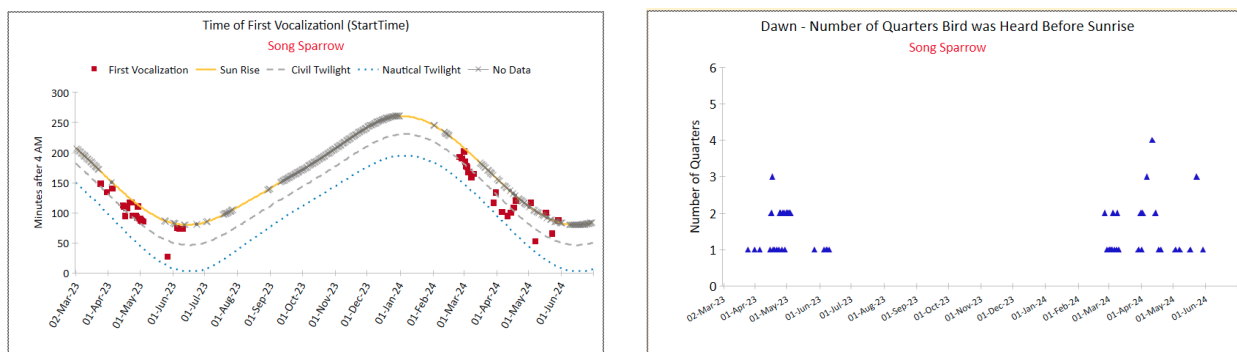


Fig. 16 *StartTimes* of **Song Sparrow**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.



11. White-breasted Nuthatch

A White-breasted Nuthatch was a regular participant in the dawn chorus from February 3rd until the middle of March, but less afterwards.

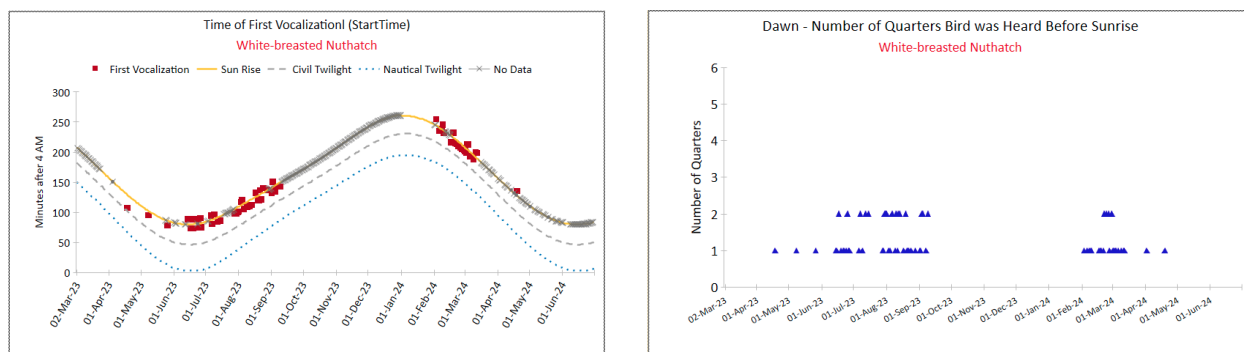


Fig. 17 *StartTimes* of **White-breasted Nuthatch**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

12. Red-winged Blackbird

A male Red-winged Blackbird announced his arrival with loud calls at dawn on February 20th and soon switched to the familiar ‘kong-ga-ree’ song. During the beginning of nesting season, he was calling at dawn instead of singing, perhaps to defend his territory.

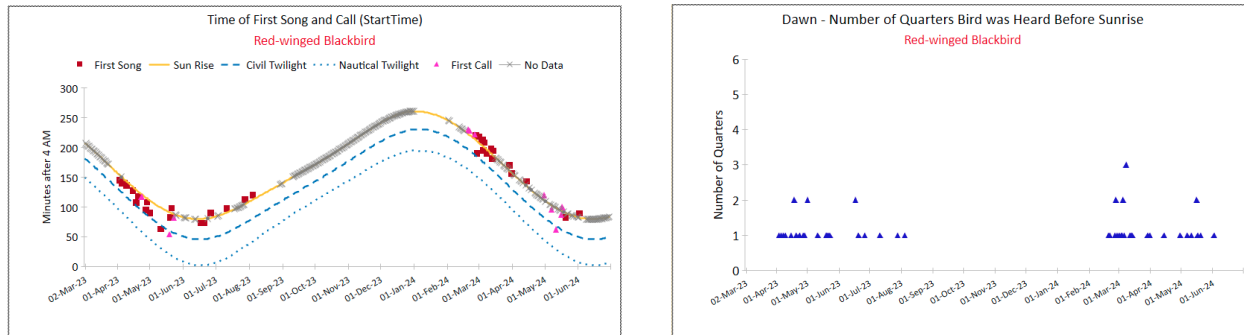


Fig. 18 *StartTimes* of **Red-winged Blackbird**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

13. American Goldfinch

American Goldfinches typically nest in the July-August timeframe. In 2023 they were singing regularly during that period. The participation in 2024, observed at an earlier period, was sporadic.

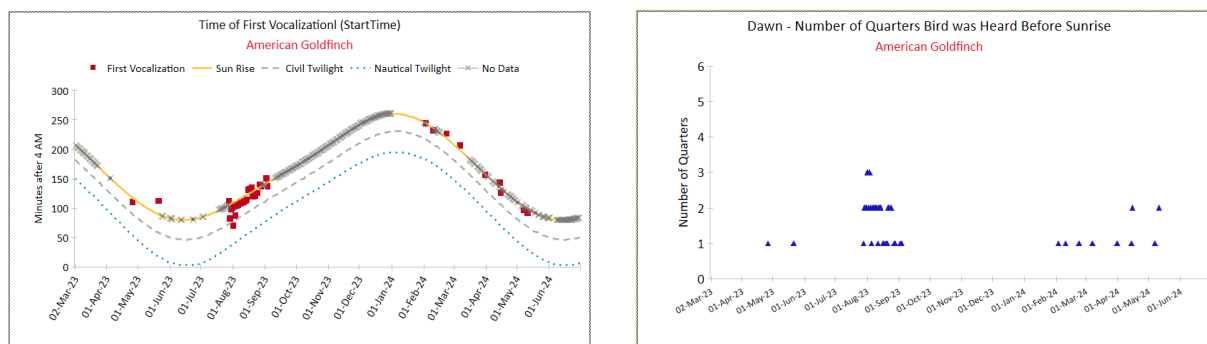


Fig. 19 *StartTimes* of **American Goldfinch**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

Songbirds: Summer Residents

There were 10 summer resident species heard at dawn. Out of these 10 species four were confirmed breeding in the area, although no nests were located. Great Crested Flycatcher which vocalized his ‘WEE-der’ song after the *P1 Quarter* is not included in this document.

	Species	Breeding code	Comment
1	Chipping Sparrow	FY	Feeding Young
2	Eastern Phoebe	FL	Recently Fledged Young
3	Gray Catbird	CF	Carrying Food
4	Great Crested Flycatcher	FL	Recently Fledged Young

1. Chipping Sparrow

Chipping Sparrow’s arrival on April 11th was detected by his singing at the onset of civil twilight. As the season progressed, his singing began earlier. I was not able to locate a Chipping Sparrow nest in the ‘patch’. However, an adult was feeding a fledgling on the ground on June 12th, evidence of nesting in the vicinity.

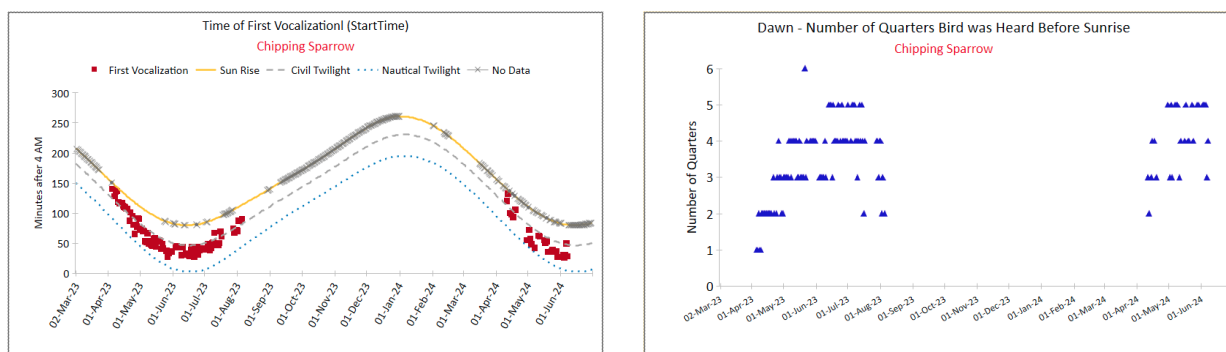


Fig. 20 *StartTimes* of **Chipping Sparrow**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.



2. Eastern Phoebe

An Eastern Phoebe was first seen on March 12th and first heard at dawn on March 14th. The presence of two adults in spring and fledglings by July 7th confirmed that the birds were nesting in the area.

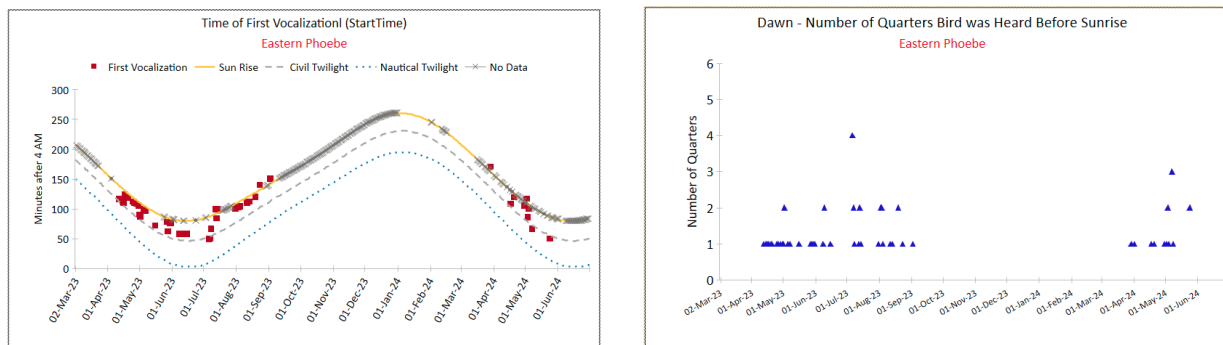


Fig. 21 *StartTimes* of **Eastern Phoebe**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

3. Eastern Wood-pewee

Eastern Wood-pewee announced his arrival singing his namesake ‘*PEEawee*’ song at dawn on May 15th, on the same day as in 2023. He sang a few more times before the dawn chorus observations ended on June 7th, 2024. Note that his participation in dawn chorus in 2023 was more regular in July and August.

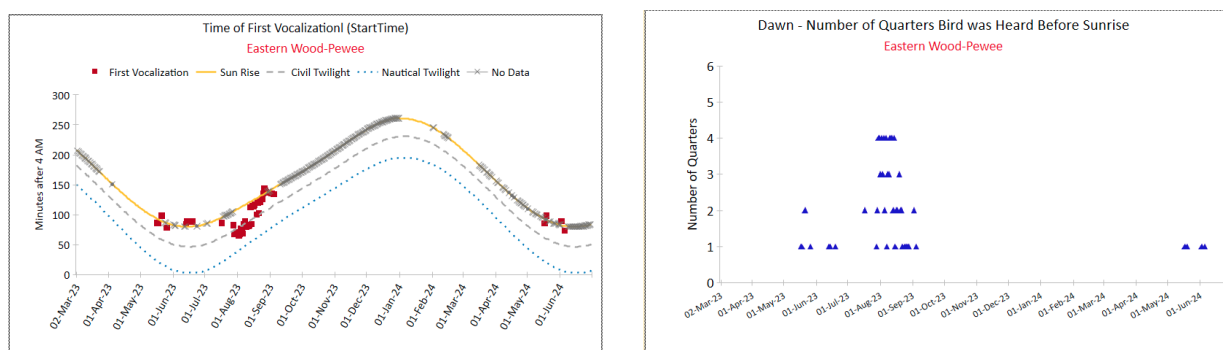


Fig. 22 *StartTimes* of **Eastern Wood-pewee**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

4. House Wren

House Wren was singing during the day on April 29th, the first sighting of this season. He was first recorded singing at dawn on May 10th, at least 12 days after arrival. Most of the spring and summer his presence was detected by his vocalization.

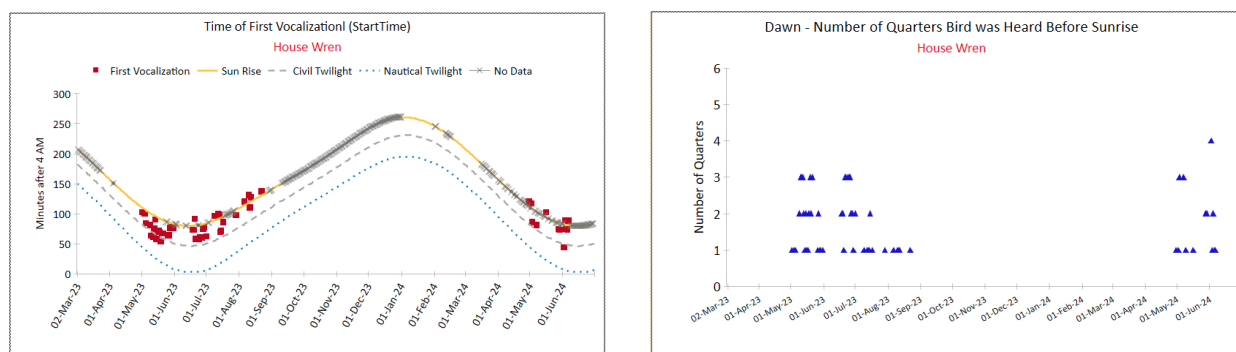


Fig. 23 *StartTimes* of **House Wren**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

5. Gray Catbird

First seen on April 28th, Gray Catbird was heard singing at dawn on May 11th. His song comprised many different phrases, mimicking different sounds of the woods. His participation in the dawn chorus, often while perched on a shrub, continued as in 2023. I could not locate the nest in this dense shrubbery, but I did see the pair carrying food for the nestlings.

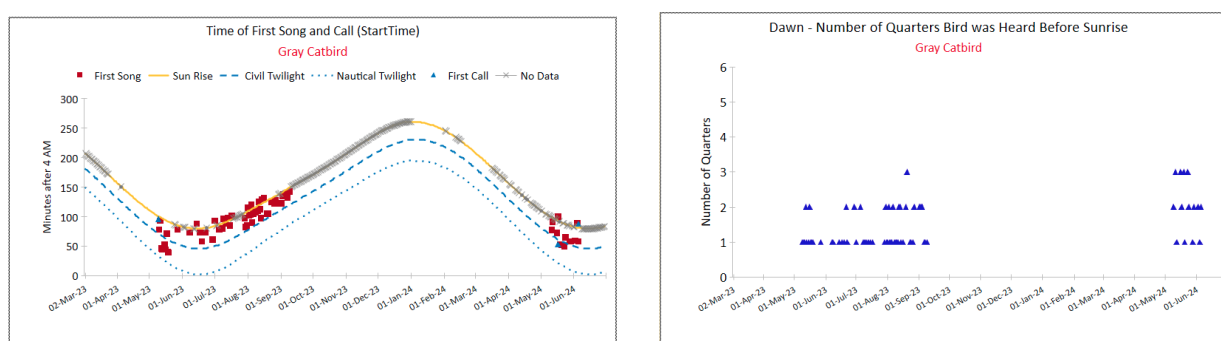


Fig. 24 *StartTimes* of **Gray Catbird**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

Songbirds: Winter Residents

Dark-eyed Juncos and White-throated Sparrows, two commonly seen winter residents, participated in the dawn chorus as in 2023. Golden-crowned Kinglet was a new addition to the chorus in 2024. Ruby-crowned Kinglet, heard only once in 2023, was not heard at dawn in 2024 even though it was regularly seen in the Home ‘patch’ in April before migrating north.

1. Dark-eyed Junco

A small flock of 6 to 12 Dark-eyed Juncos roosted in the deciduous and evergreen shrubs in the Home ‘patch’. Often, they moved out of the roosting areas before sunrise. Fig. 25 shows the days on which juncos were heard vocalizing. The first day of dawn singing was January 30th and the last day heard was April 7th. The songs comprise complex trills and were difficult to discern when



many other birds began singing in April. The last day these birds were seen was April 16th in 2023 and April 21st in 2024.

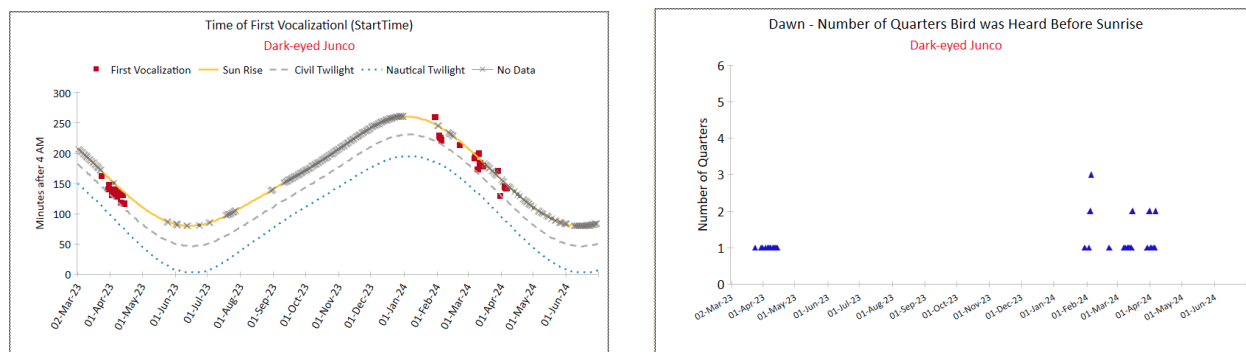


Fig. 25 *StartTimes* of **Dark-eyed Junco**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

2. White-throated Sparrow

A few White-throated Sparrows were moving with a flock of Dark-eyes Juncos in the Home ‘patch’ in March and April of 2024. The full ‘old sam, peabody, peabody, peabody’ song of these sparrows was heard at dawn from March 22nd through April 28th. The birds migrated north for breeding and were last seen in the Home ‘patch’ on May 8th in 2024, and May 15th in 2023.

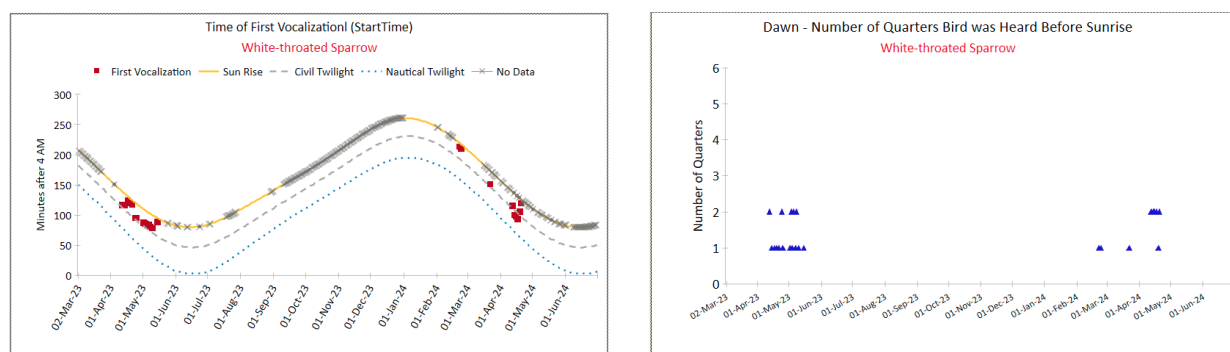


Fig. 26 *StartTimes* of **White-throated Sparrow**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

3. Golden-crowned Kinglet

A pair of Golden-crowned Kinglets was spotted in the woods behind the house in the 2023 – 2024 winter season. The high-pitched song of the male was heard at dawn several times between February 24th and March 24th. Towards the middle of March, the male was flashing his red crown, displaying aggression or delight. These birds were last seen in the woods on March 25th before leaving for their breeding grounds further north.

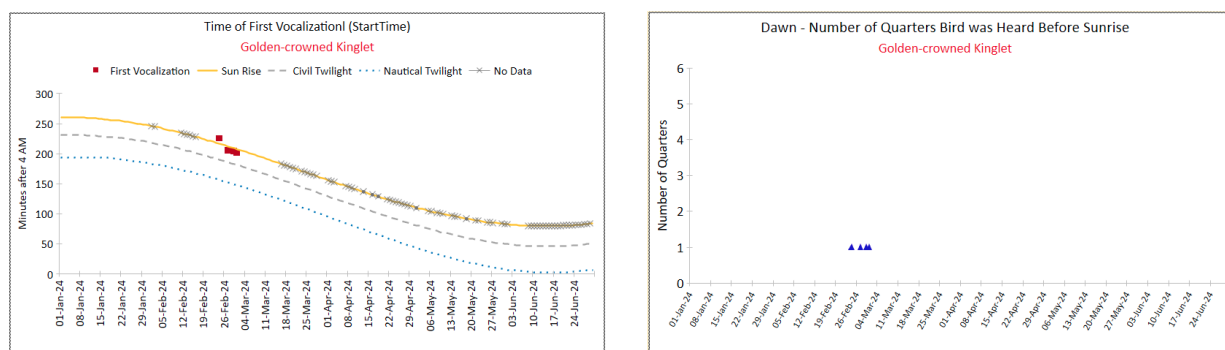


Fig. 27 *StartTimes* of **Golden-crowned Kinglet**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from January 1st to June 7th in the year 2024.

Other Avian Species

StartTimes and participations of six other species belonging to orders other than *passeriformes* (songbirds) are described below. Red-bellied Woodpeckers and Canada Goose were breeding in the vicinity as confirmed by the sightings of recently fledged young following adults. A pair of Mallards was in the pond across the street from February through April. Mourning Dove pairs were seen in the woods and on the power line all spring and summer. Two summer residents, American Woodcock and Killdeer, vocalizing even before the onset of civil twilight in early spring were not seen in daylight.

Table 4 Breeding codes for all year residents participating in dawn chorus.

	Species	Breeding code	Comment	Category
1	Red-bellied Woodpecker	FD	Feeding Young	Confirmed
2	Canada Goose	FL	Recently fledged young	Confirmed

1. Red-bellied Woodpecker

A Red-bellied Woodpecker called in the *P1 Quarter*, just at or soon after sunrise. A pair was often seen in the woods in the winter and may be nesting somewhere close by. A recently-fledged- young was seen following an adult male and being fed by his devoted father in August.

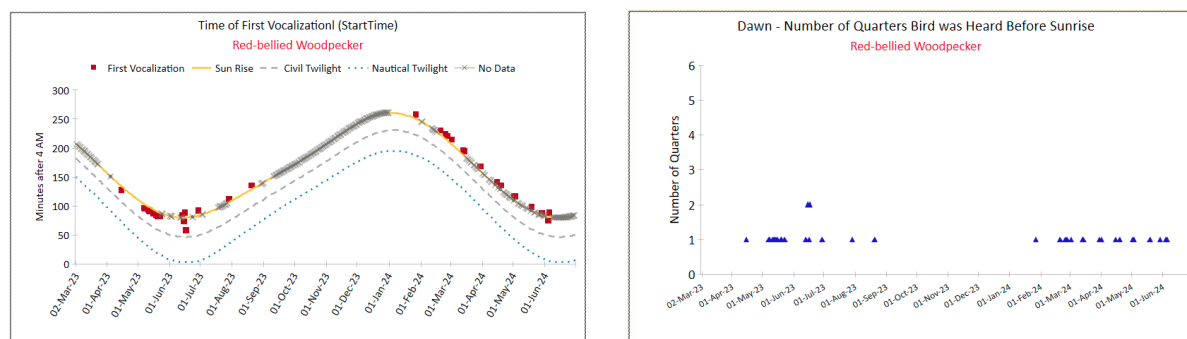


Fig. 28 *StartTimes* of **Red-bellied Woodpecker**, sunrise, civil and nautical twilights; and number of participation *Quarters* from March 24, 2023, to June 7, 2024.

2. Canada Goose



Skins of Canada Geese honked as they flew by in early spring, typically after the onset of civil twilight but before sunrise. Their call was first heard on February 10th and again on many days until June 7th. As in 2023 a pair was nesting by the pond across the street from my house. Precocial goslings covered with yellowish down were spotted by the pond on May 2nd.

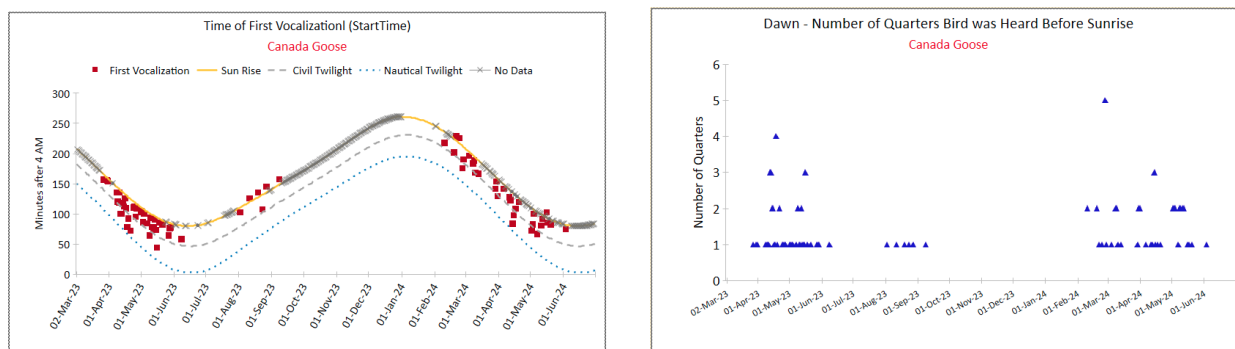


Fig. 29 *StartTimes* of **Canada Goose**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

3. Mourning Dove

A Mourning Dove's cooing at dawn was first heard on February 9th. As in 2023 the *StartTime* was variable.

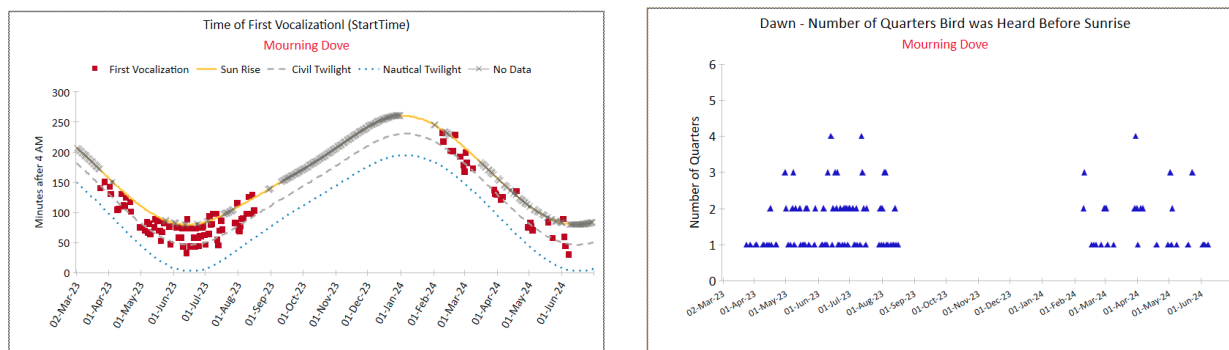


Fig. 30 *StartTimes* of **Mourning Dove**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023 to June 7, 2024.

4. Mallard

Mallard, another early riser, called only before or just at the onset of civil twilight. These ducks were in the pond across the street early in the season but moved elsewhere for breeding.

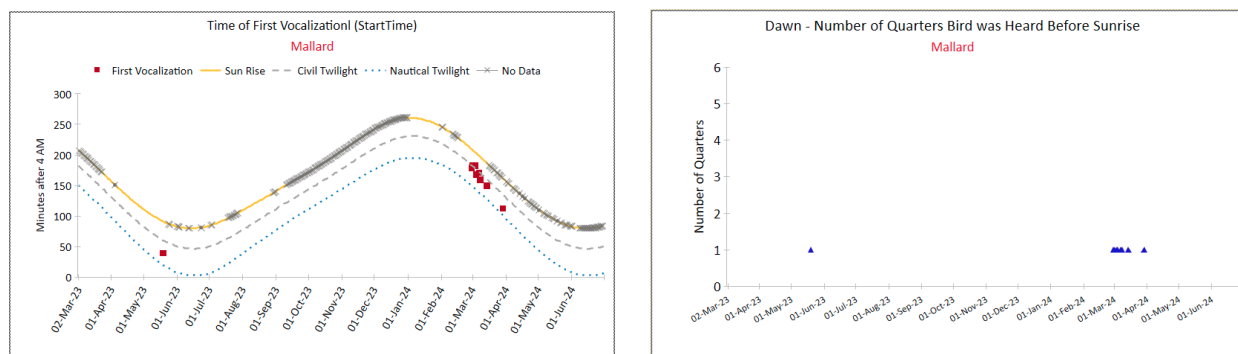


Fig. 31 *StartTimes* of **Mallard**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

5. Killdeer

Killdeers arrive here in early March. I heard its namesake ‘*kill-deer*’ song on many mornings at dawn starting on March 2nd. The sound came from across the street somewhere in the farmer’s field, but I did not see this bird all season. It was often the first bird singing at dawn in March and April, even before an American Robin.

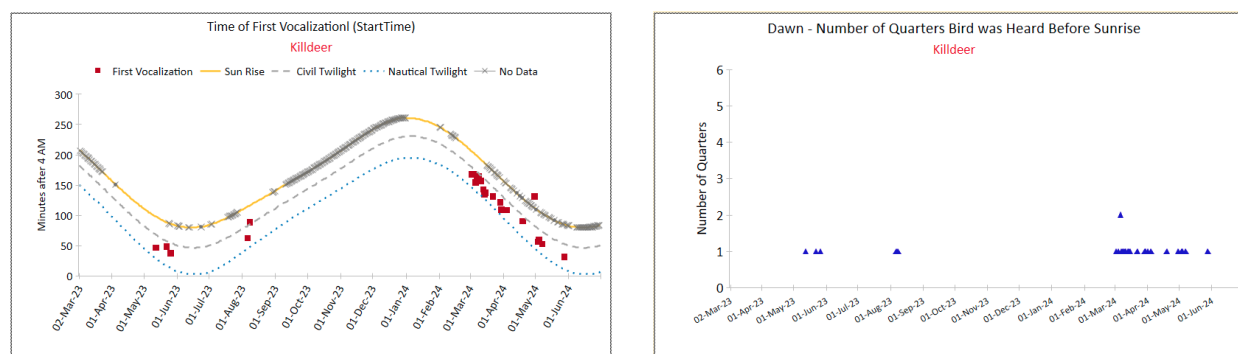


Fig. 32 *StartTimes* of **Killdeer**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from March 24, 2023, to June 7, 2024.

6. American Woodcock

It was a great surprise to hear the ‘*peent*’ calls of an American Woodcock through my window at 5:55 AM, 37 minutes before sunrise on February 27th. Both American Robin and Canada Goose, two other early callers, also called at about the same time. The woodcock calls were repeated the next day and then again once more on March 4th. I could not locate this bird, nor could I hear it at dusk, just after sunset when it is known to call and carry out flight displays. Data shown in Fig. 33 are for the year 2024 only.

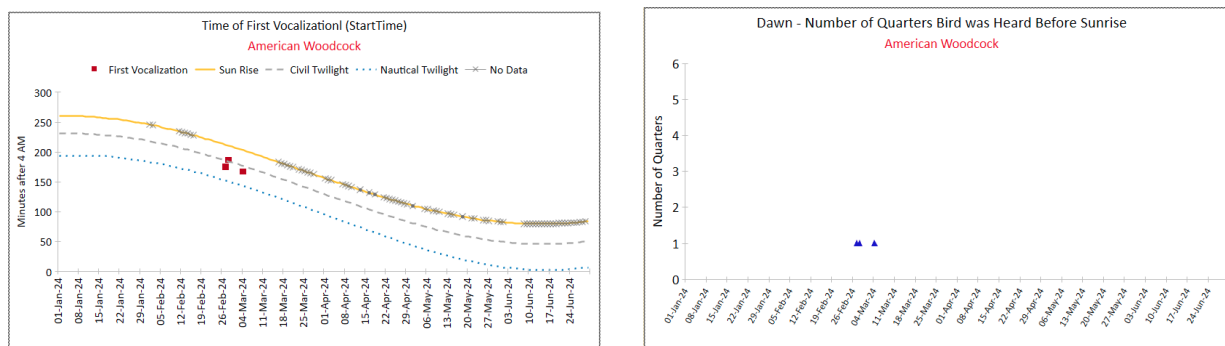


Fig. 33 *StartTimes* of **Amerian Woodcock**, sunrise, civil and nautical twilights; and number of participation *Quarters*, from January 1st to June 7th in the year 2024.

Concluding Remarks

We learned more about bird behavior by starting our dawn chorus study at the beginning of the year. We learned that many of the all-year residents begin to sing at dawn in February – some switching from calling to singing as in the case of Black-capped Chickadee. Migrating American Robins made various calls at dawn as they were passing through and switched to singing when a pair settled down in the area. Winter residents were singing at dawn before migrating north – they would be well rehearsed on arrival at the breeding grounds. Summer residents were singing soon after arrival, their throats already tuned for the nesting season, ready to establish their territory with the chosen mate. We detected the presence of Killdeer and American Woodcock from their vocalization in the dark but did not spot them in daylight, another great feature of listening to dawn chorus.

In this year’s work, we used the AAV database developed in 2023 and added additional tools for analysis. We plan to continue some aspects of this study in 2025.