

The 2017 influx of Dickcissels in Ontario

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Male Dickcissel. Photo: P. Allen Woodliffe

Introduction

The Dickcissel (*Spiza americana*) is a characteristic species of the Midwestern US, with the core of its range from north central Texas in the south, north through Oklahoma, Kansas and Nebraska to southeastern South Dakota, and east to Missouri, Illinois and Iowa (Temple 2002). It seeks out extensive grasslands or open habitats similar in appearance in which to breed. The species has been described by some as appearing like a miniature meadowlark. Its distinctive appearance together with its characteristic song, which is given throughout the day and at a low enough frequency for most birders to hear, makes it easily

identifiable in these open spaces (Temple 2002).

The bird is an irregular breeding species in Ontario, most often recorded in recent decades during periods of extreme drought in the core of its range. For example, in 1988, there was an extreme drought in the Midwest, which extended to a lesser extent even into southern Ontario and hundreds of individual Dickcissels were noted in Ontario that year with breeding evidence in at least seven counties (Read and Sutherland 2007). A smaller irruption occurred in 2000, and during the second Ontario Breeding Bird Atlas (2001-2005), at

least some birds were recorded in three of the five years with the greatest numbers appearing in 2005 (Read and Sutherland 2007). While some of the larger irruptions could well have been the result of some drought in the core of the species range, there are three other factors to consider when birds appeared in non-drought or lesser drought years: (a) males demonstrate a strong fidelity to a breeding site (Johnsgard 2001), so at least the occurrence of male birds may be individuals attempting to re-establish territories from the previous year, (b) the species has been gradually expanding northward and eastward, which may be partially due to the influence of first factor (Temple 2002) and (c) disruption at their initial nesting sites due to the timing of cutting hay (pers. obs.).

There were a few reports of Dickcissel in Ontario in May 2017, including one or two pairs in mid-May at an old field just east of Wheatley Provincial Park in southwestern Chatham-Kent. This site has blinked off and on with breeding Dickcissels for several years, perhaps the result of an earlier, minor irruption. However, the major part of the considerable 2017 irruption began, or at least was first noticed, about 11 June, when Jim Burk discovered several birds at a roadside grassy area a few kilometres north of Rondeau Provincial Park.

The purpose of this paper is to examine trends in the species recent range expansion focusing on the period since 2010 and to consider factors such as weather conditions in this unusual event of 2017. The time period selected

for this recent historical weather data assessment was from 31 May to 29 June 2017. The most useful database to use for the presence of Dickcissels following their arrival into Ontario (1 June to 31 July) is eBird (2017).

Trends in the Dickcissel Range Expansion

The Dickcissel has one of the longer migration travel distances of any sparrow-like Midwestern species as it winters predominantly in central Venezuela (Temple 2002). As a result, it arrives in the northern part of its breeding range a little later than other sparrow types, arriving in late April through mid-May (Johnsgard 2001).

The gradual expansion of the Dickcissel north and east of its traditional core range may be seen using eBird maps (Figures 1 to 5) from the last several years during the prime breeding period of June and July. In these maps, each purple rectangle, from light to dark, represents from one to an increasing number of Dickcissel reports, respectively. Each rectangle may represent several reports from the same location, or multiple locations within the same rectangle. Dark gray rectangles have eBird data reported during the months shown but do not have any Dickcissel reports. Very light gray rectangles do not have any eBird data for the months shown.

It is clear that from the period 2010 to 2014 (Figures 1 and 2) that there was a noticeable increase to the north and northeast of the Dickcissel's core range based on the range and density of records during the breeding season. The northeast extent of its traditional core

Figure 1.
Dickcissel records
June-July 2010.
Source: eBird 2017

0 100 200 km

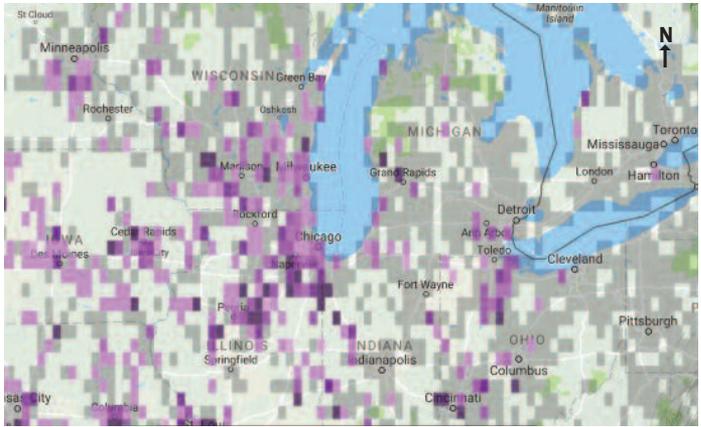


Figure 2.
Dickcissel records
June-July 2014.
Source: eBird 2017

0 100 200 km

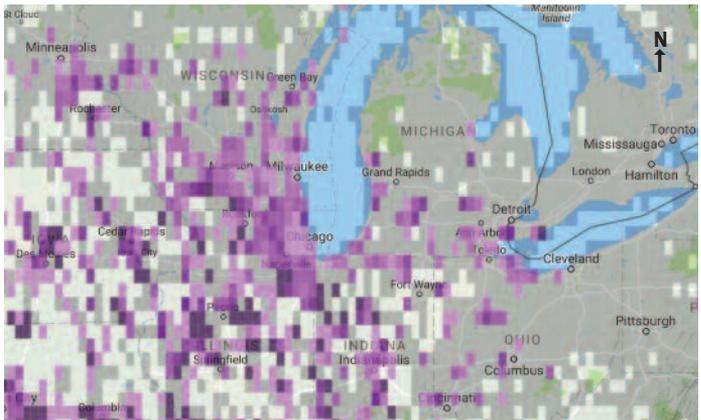
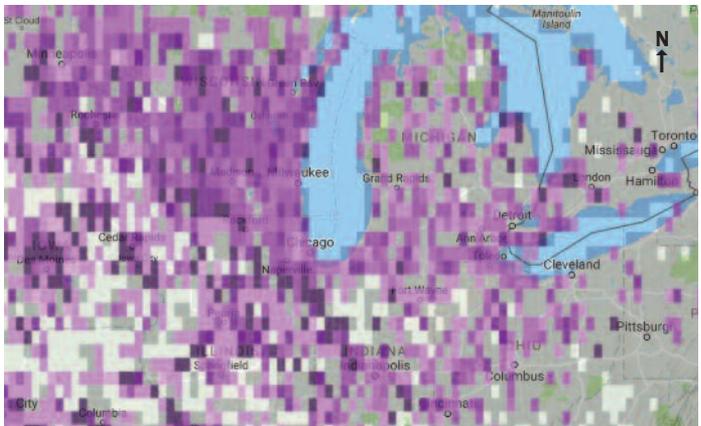


Figure 3.
Dickcissel records,
June-July 2017.
Source: eBird 2017

0 100 200 km



range includes the area at the southwest corner of these maps. However, by 2017 (Figure 3), the area that the Dickcissels occupied increased considerably.

A usual factor cited for irruptions is severe drought in the species core range. However, that does not appear to be the case for Ontario in 2017. Contacts with staff of the Missouri River Bird Observatory (MRBO) confirm that drought in the core range was not an issue in 2017 (E. Duke, pers. comm.), and that is confirmed by weather map summaries (<https://gis.ncdc.noaa.gov/maps/ncei/summaries/monthly>), which show that June 2017 precipitation throughout the core Dickcissel range was normal to slightly wetter than normal.

In the period 2013 to 2016, staff of the MRBO surveyed 91 grassland sites in

western Missouri, and the Dickcissel showed a slight increase during that time (Ripper and Duke 2017), with an initial assessment of 2017 survey data indicating numbers similar to 2016 (E. Duke, pers. comm.).

The 2017 Irruption of the Dickcissel in Ontario

In all probability, the irruption of the Dickcissel into Ontario in 2017 is primarily the result of the species generally increasing its range to the north and northeast over the last few years, in combination with the weather conditions at a time of its arrival at its northeastern breeding grounds. I examined some elements of weather for Chatham-Kent which may have assisted this irruption, focussing on wind speed and direction (Table 1).

Table 1. Chatham-Kent weather data showing dates of strong and sustained winds from a suitable direction to assist movement into Ontario. *Source: Environment Canada (2017).*

Date	Number of hours with wind speed greater than 30 km/h predominantly from SSW to WNW	Highest average wind speed km/h during those hours
30 May	5	39
31 May	2	34
5 June	10	39
6 June	10	41
10 June	7	41
11 June	8	39
12 June	5	41
18 June	8	46
20 June	4	33
22 June	3	39
23 June	3	34
24 June	1	30
25 June	3	32
26 June	2	34
29 June	12	39

It is evident that during this period, there were several days, including some successive days, of strong winds from predominantly the south-southwest to west-northwest which could have made it easier for birds on the move to arrive farther east than they might have normally travelled. It is also entirely possible, that birds arriving at areas where they had bred in previous years, especially in the expanded range closer to Ontario, may have found their grassland habitats and in particular hayfields, unsuitable for nesting. Some of their nesting sites may have been cut during the early stages of the nesting cycle, and some grassland birds in agricultural lands will relocate following the destruction of their nesting site due to haying (pers. obs.). Hence, the need to search for suitable new sites and the corresponding strong winds may have resulted in their arrival in Ontario.

Ontario Distribution

It was indeed apparent from numerous postings on the Ontario Field Ornithologists' Ontbirds listserve, as well as from eBird checklists, that the 2017 irruption of Dickcissels was not just a local event. There were 21 Ontario municipalities in which Dickcissels were reported during the June-July period. They ranged from Rainy River and Algoma in the north, to Prince Edward County in the east, and most municipalities south and west of those areas (Table 2).

Municipalities where birds were only reported in May were not included in this analysis, as they were more likely to

be spring migrants which did not remain to breed. Municipalities where birds were only reported in August were not included either, as they were more likely to be post-breeding wanderers.

The greatest numbers of Dickcissels were reported from the southwestern municipalities, as would be expected since they are the closest to the core range and the potential effects of the weather conditions. The obvious increase of birds in 2017 compared to 2016 is

Table 2. Municipalities, sites and maximum total number of Dickcissels reported in June–July 2017.

County/Municipality	Number of sites	Maximum number of adults reported
Rainy River	3	11
Algoma	1	1
Bruce	5	9
Grey	1	3
Kawartha Lakes	2	3
Peterborough	1	1
Durham	1	1
Northumberland	1	1
Prince Edward	1	2
Wellington	2	7
Halton	1	5
Waterloo	2	6
Hamilton	1	1
Niagara	8	24
Norfolk	1	2
Elgin	2	4
Middlesex	10	36
Huron	3	7
Lambton	30	89
Chatham-Kent	27	107
Essex	26	90
Totals		
Municipalities: 21	Sites: 129	Individuals: 410

clearly shown in Figures 4 and 5. Each blue dot represents a location from which at least one Dickcissel report was made.

When looking at each report on eBird or Ontbirds, I attempted to determine the number of sites, as well as the number of adult birds involved, within each municipality where reports were made (Table 2). The table lists municipalities beginning at northwestern Ontario, moving to eastern Ontario and

finally to southern Ontario, making it easier to compare nearby municipalities. Some interpretation of the eBird checklists was required, as not all observers used the same location name to identify the same site. For example, at the Nat-tamy National Cycling Centre in Hal-ton, there were at least 55 eBird checklists submitted which included Dickcissel, with numbers ranging from 1-5 birds. However, there were many different coordinates depending on where the

Figure 4.
Southern Ontario
Dickcissel records in
June-July 2016.

Source: eBird 2017

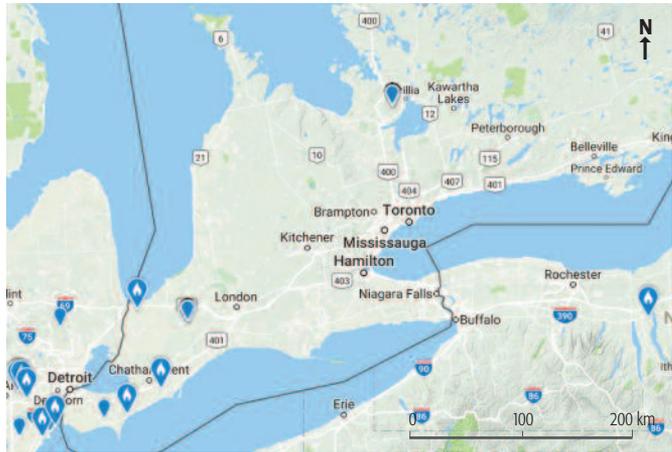


Figure 5.
Southern Ontario
Dickcissel records in
June-July 2017.

Source: eBird 2017

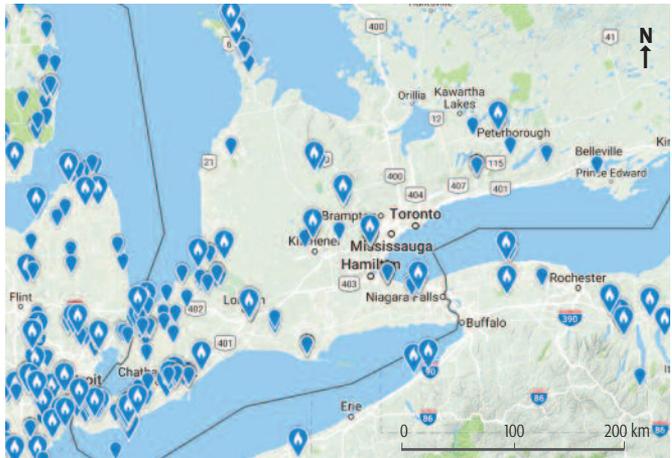




Figure 6. Typical open grassy habitat occupied by Dickcissel, Chatham-Kent, on 7 July 2017.

Photo: P. Allen Woodliffe

observers happened to be standing when they submitted the report. Given that the general size of the grassland area at this site appears to be approximately 350 x 400 m (viewed in Google maps), and the site was easily accessible and presumably easily surveyed, a conservative maximum number of 5 birds was used for this site.

Lambton County had the largest number of sites (30), many of which were in the western part of the county. Given that so much of the land base in that part of the county is in industrial ownership and therefore inaccessible, and with large acreages of those industrial lands left as old field, it is very probable that there were many more undiscovered sites and birds.

The habitat where Dickcissels were most often reported in southwestern Ontario reflected their normally preferred sites in the core of their range and included grasslands, hayfields (Figure 6) and sites where tallgrass prairie restoration had taken place (Figure 7). All sites where I observed Dickcissels were fairly wide-open areas dominated by grasses, with either some shrubs, taller forbs (wildflowers) or overhead wires present which were used as perching sites to sing territorial songs. It was surprising, however, how many sites with these habitat types did not have any Dickcissels present, even when similar sites were occupied nearby.

Most of the observations reported on eBird appeared to consist of males, not surprisingly, since they are more distinctive and sing throughout the day from a reasonably exposed perch (Figure 8). A few females were mentioned, including some carrying nesting material or food indicating young were being fed. If the sex ratio was 1:1, it is likely that the total number of birds was quite a lot higher than the ~410 individuals presented in Table 2. However, since Dickcissel males are known to be polygynous, it is even more likely that the total number of Dickcissels in Ontario in 2017 was considerably higher.

Figure 7. Restored tallgrass prairie occupied by Dickcissel in 2017 at Bickford Oak Woods Conservation Reserve, Lambton, on 16 July 2015.

Photo: P. Allen Woodliffe



Figure 8. Dickcissel singing from an overhead wire at a grassy field NE of Wheatley, Chatham-Kent, on 7 July 2017.

Photo: P. Allen Woodliffe



Conclusions

The irruption of Dickcissels in Ontario in 2017 is likely to have been the result of both a gradual, ongoing north to northeast expansion of its range, which has been occurring over several years prior to 2017, in combination with weather conditions during spring migration in 2017. It does not appear that drought in the core of the species range was a factor in 2017 as suggested for other irruption years (Temple 2002). Of the 2017 reports on eBird, there was evidence of confirmed breeding in at least 9 (7%) of the sites. It is not known whether young Dickcissels successfully fledged or if Brown-headed Cowbirds (*Molothrus ater*) fledged, because in some parts of its range, parasitism by cowbirds occurs in as many as half the nests (Johnsgard 2001). Further surveys at the occupied sites may have resulted in significantly more breeding evidence. Dickcissel males are known to have a fairly strong fidelity to territories in years subsequent to successful breeding (Johnsgard 2001). Therefore, it will be interesting to examine the same areas in 2018 to determine if 2017 was just another irruption year, or whether the continued expansion north and east of the Dickcissel's core range was given a considerable boost due to the conditions that caused this major irruption event.

Acknowledgements

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