

766 Dickcissels

Musical Weirdos
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May 2, 2005

In considering an estimate of the number of dickcissel calls detected over the Science Academy of South Texas during the spring of 2004, we researched, analyzed, and considered many factors.

One of the most striking factors when one first looks at the data, is the dramatic drop in call detections during the spring of 2002. The previous two years had been fairly consistent percentages of population across the Lower Rio Grande Valley, with a slight rise in detections from 2000 to 2001, so we found 2002 to be such an anomaly that it was not considered as part of the previous or the current tendency which seems to be a recovery from that drop. In fact, we assumed, although we were unable to find supportive statistics for the causes, that there was a huge decrease in dickcissel population in that year, followed by a slow recovery in which 2004 would be the second year.

We found two possible causes for the dramatic drop in population in 2002. When the dickcissels migrate to South America for the winter, they like to eat and live in farmers' fields. Many farmers consider them to be agricultural pests, so since the 1970's there have been eradication efforts in Venezuela. This might be what happened to the dickcissels in winter of 2001. We also researched conditions at the dickcissel nesting grounds in North America where we found several problems which may have limited reproduction. First, dickcissels seem to prefer nesting in alfalfa fields, many of which are cut numerous times a season, possibly destroying dickcissel nests. We also found problems in the Great Plains nesting areas related to the spread of the non-native Canada thistle. This Canada thistle, which the dickcissels do not like, has been overtaking previous dickcissel nesting sites.

Another factor which we tried to relate to dickcissel call detections was the weather in South Texas. Having lived in south Texas all our lives, we know that the most significant weather pattern during the months of March, April, and May are cold fronts, so we looked at the wind directions noting times when the winds shifted from the

prevailing south-easterlies to northeast to north and then back to the south. From the data, we estimated the number of days during the time period in question (from April 26 to May 13) that the wind blew from the north. The results were: 2000-6 days with 23,117 calls counted, 2001-5 days with 33,054 calls counted, 2002-0 days with 1,537 calls counted, 2003-2 days with 7,221 calls counted, and 2004-5 days. Looking at these results alone, it would seem that there is a correlation between the number of days of north winds and the number of calls discovered, but we went a step further. Since north winds are often accompanied by rain, we also looked at the data for rainfall during March, April, and May of each year. (We used March also because the weather during March directly affects the conditions of the vegetation and habitat of April and May.) The results were: March 2000-2.89", April 2000-.39", May 2000-1.87", March 2001-.36", April 2001-1.1", May 2001-.49", March 2002-.22", April 2002-.67", May 2002-0", March 2003-2.07", April 2003-.75", May 2003-.04", March 2004-2.79", April 2004-56.54", and May 2004-3.19". The year 2000, with relatively high rainfall, also had a high dickcissel count, 2001, with very low rainfall, had an even higher count, 2002, with very low rainfall, had an extremely low count, and 2003, with moderate rainfall, had a rising but still low count. So does more rain before and during the time period lead to more calls? It is possible that rainfall affects the number of dickcissel calls identified, if so, 2004 should be a good year, with over 4" of rain in South Texas during March, April, and May.

Another pattern we noticed was that each year the birds seemed to prefer migrating along the upper valley, possibly because of favorable habitat conditions in Santa Ana National Wildlife Refuge and Benson State Park, which are south of the upper valley. It appears that the numbers at both Science Academy and Laguna Atascosa are lower each year than the other areas.

Considering all the factors above, we decided to look at the numbers in a more mathematical fashion. We concluded that 2004 should have been a fairly good year for the dickcissel count, definitely continuing the recovery from 2001 and rainfall, which may be a factor, was up. During the good years, (2000 and 2001) the Science Academy counts were slightly higher than the count at Laguna Atascosa. Therefore, we figured the percent increase for each of those years from Laguna Atascosa to the Science Academy (38%-2000, and 20%-2001), averaged those rates of increase (29%), and applied that average rate to the known Laguna Atascosa count of 2004 to extrapolate a count of 766 for the Science Academy in 2004.