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William Post

Felicia Sanders

Larry Wood

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THE HISTORY OF DICKCISSELS (*SPIZA AMERICANA*) NESTING ON THE SOUTHEASTERN COAST OF NORTH AMERICA

WILLIAM POST¹, FELICIA SANDERS², AND LARRY WOOD²

¹*Charleston Museum, 360 Meeting Street,
Charleston, South Carolina 29403
E-mail: grackler@aol.com*

²*McClellanville, South Carolina 29458*

The Dickcissel (*Spiza americana*) is noted for unpredictable nomadic movements outside its core breeding range in the prairie grassland biome of North America (Temple 2002). Dickcissels have intermittently established small colonies in peripheral areas, often long distances from the edge of their traditional range. Some of these extralimital breeding populations appear to have existed for relatively long periods (Murphey 1937), but most have been abandoned after several nesting seasons (McNair 1990a).

Since about 1950, Dickcissels have been reported as rare, local breeders in different localities in the Piedmont and upper coastal plain of Georgia and the Carolinas (McNair 1990a, McNair and Post 1993, Beaton et al. 2003). Until 1988 the species had been found nesting only as far south as Darlington County, South Carolina (McNair 1990b), 115 km from the Atlantic, and Dublin, Georgia (Patterson 1991), 200 km from the Atlantic. The species was first confirmed nesting in Florida (Orange County) in 1999 (Pranty et al. 2002). Here we report the occurrence of a large breeding-season concentration of Dickcissels on the central coast of South Carolina, within 5 km of the Atlantic. To place this record in context, we review the recent breeding distribution of Dickcissels in the Southeast.

RESULTS

On 2 May 2005, Wood heard Dickcissels singing in an old-field at the confluence of Jeremy Creek and the Intracoastal Waterway, within the town of McClellanville, Charleston County, South Carolina. The field (200 m × 1100 m; 22 ha) is located on an old dredge spoil site, and is surrounded by salt marshes. On 13 May Sanders and Wood returned to the field and estimated ≥60 males, many of which were singing from exposed treetop perches, 30-40 m apart. They saw several instances of territoriality (male-male chasing). In addition, they found at least 10 females, two of which were carrying nesting material.

On 20 May, Wood found a Dickcissel nest containing five eggs. The nest was 30 cm above the ground in a 1.5 m vervain (*Verbena* sp.), and was completely hidden by surrounding dead grasses. The female flushed when Wood was within 5 m of the nest. On 1 June, the nest contained 4 large young, near fledging. On 5 June the nest was empty except for three dead grasshoppers, each 2.5 cm long. Since the nest and nest site were undisturbed, and food was in the nest, we assume that the young fledged. On 19 June, a male was singing near the nest but the female was absent. By 27 June most Dickcissels had abandoned the site. Only two males could be found, singing in one of the most open areas of the field.

The nest was saved (Charleston Museum 2005.2.019). Its dry mass is 15.6 g, outside depth 7 cm, inside depth 5.5 cm, outside diameter 10.5 cm, and inside diameter 6 cm. The outer rim of the nest cup is made of coarse grass stems. The inside of the nest consists of finer weed- and grass stems, and the bottom is lined with fine plant fibers and rootlets.

The McClellanville site is an old-field, which in 2005 was estimated to be in at least in its third year of abandonment. In late May 2005 about 10% of the area was bare ground. Vines, primarily passion-flower (*Passiflora incarnata*) covered about 5% of the field. Grasses (0.1- 0.6 m high) covered 45%. The grass layer was composed of Johnson grass (*Sorghum halepense*), Bermuda grass (*Cynodon dactylon*), paspalum (*Paspalum* sp.), panic-grass (*Panicum* spp.), crab grass (*Digitaria* sp.), and oat-grass (*Arrhenatherum* sp.). The forb layer (30%) was composed mainly of pure stands of pokeberry (*Phytolacca americana*) 1.0-2.5 m high, and vervain, 1.0-1.5 m high. Less important forbs, in order of importance, were dogfennel (*Eupatorium capillifolium*), sourdock (*Rumex* sp.), blackberry (*Rubus* sp.), and thistle (*Cirsium* sp.). About 10% of the field was covered by trees and shrubs, 2.0-4.0 m high, mainly groundsel (*Baccharis halimifolia*), wax myrtle (*Myrica cerifera*) and black cherry (*Prunus serotina*).

Associated bird species, in decreasing order of abundance, were Indigo Bunting (*Passerina cyanea*), Blue Grosbeak (*Guiraca caerulea*), Red-winged Blackbird (*Agelaius phoeniceus*), Painted Bunting (*Passerina ciris*), Northern Cardinal (*Cardinalis cardinalis*), Common Yellowthroat (*Geothlypis trichas*), Orchard Oriole (*Icterus spurius*), and Northern Bobwhite (*Colinus virginianus*). Flocks of ≥ 50 Bobolinks (*Dolichonyx oryzivorus*) were in the field in May, but had left by the first week of June.

In 2006, Post visited the field on 28 April, 16 May, and 18 May. On the latter date he found one singing male. Sanders visited the field in 2007 (8 May), and found one singing male. In another visit to the field, on 11 May 2007, Post and David Abbott located no Dickcissels.

DISCUSSION

Dickcissels were first found nesting on the immediate coast of South Carolina in 1988 on Hog Island (“Patriots’ Point”) in Mt. Pleasant, Charleston County (Beckett 1990), when breeding also occurred in the Piedmont in Marlboro, Saluda, and York counties, South Carolina (McNair 1990a). The Hog Island nest was found on 22 May, and contained five eggs, but produced no young. It represented a breeding range extension of 160 km from nearest inland nesting localities, in Darlington and Lexington Counties, South Carolina. (McNair and Post 1993).

As far as we can determine, the McClellanville and Mt. Pleasant nests provide the first evidence that Dickcissels nest on the immediate coast of southeastern North America. McClellanville is the ninth confirmed nesting location in South Carolina, and the second coastal locality. The McClellanville colony site is 45 km northeast of Mt. Pleasant, and 110 km south of the nearest inland nesting locality, near Darlington Airport (McNair 1990b).

The McClellanville field is similar to the site where Beckett (1990) found the Mt. Pleasant Dickcissel nest, an old-field with scattered shrubs, and an understory of grasses and forbs, abandoned ≥ 3 yr. Both sites resemble those that have been used by summering Dickcissels at other South Carolina localities (McNair 1990a). The latter author suggested that Dickcissels nesting in old-fields require a high volume of vegetation, as well as dense near-ground cover, and he noted, as have others (Smyth 1930, Murphey 1937, Burleigh 1958), that they often nest in fields with legumes, (clover, vetch, lespedeza). Another habitat characteristic noted in the present study and also by McNair (1990a) is the large number of short-horned grasshoppers (Acrididae) in the fields where Dickcissels summer. Orthopterans are known to be important food for nestling Dickcissels (Kobal et al. 1998). In 2006 and 2007, when we found no evidence that Dickcissels bred in McClellanville, we noted that there were few grasshoppers in the field.

In 1999, in a very similar occurrence, which represented the first instance of nesting in Florida, Dickcissels established a large colony at Lake Apopka, Orange County, 25 km NW of Orlando, and 100 km from the Atlantic. In June-July 1999, Harry Robinson found 13 singing males as well as two nests, located in a 2000 ha old-field established on a previously flooded area known as Zellwood Muck Farms (Pranty et al. 2002). Dickcissels occupied the Lake Apopka site at least through 2005, when during 19-22 May, Robinson (in Anderson 2005) counted 134 singing males and nine females, as well as a nest with four eggs. The Florida habitat appears to be similar to that described for the South Carolina sites: fields with a cover of groundsel-tree, dogfennel and pigweed (*Amaranthus*), which were ≥ 3 m high by June (Pranty et al. 2002).

The appearance of extralimital populations of Dickcissels in the Southeast may represent re-occupation of former breeding range (AOU 1998). In the 19th century the Dickcissel was widespread in agricultural grasslands from New England to South Carolina (Rhoads 1903, Gross 1956). By the 20th century, the species had abandoned most of its range east of the Alleghenies, most likely due to large-scale changes in agricultural practices (Temple 2002). During the 20th century the species occurred regularly from southeastern South Dakota to central Oklahoma and to west-central Illinois. Lower numbers of the species were unevenly distributed as far east as western Ohio and south to southern Texas (map in Temple 2002). It appeared only sporadically along the Atlantic coastal plain, as exemplified by its recent history in the Carolinas and Georgia (McNair 1990a).

Today, the Dickcissel's status is about the same for all physiographic provinces (coastal plain, Piedmont, mountains) within each of the southeastern states. It is most commonly found in the upper coastal plain and lower Piedmont, but is rare on the lower coastal plain (McNair 1990a). Considering all reports through 1989, the latter author listed 17 locations in South Carolina where Dickcissels had been found in summer. Eight of these were confirmed as breeding sites (eggs or young found). The comparable figures for North Carolina were 13 and 4, and for Georgia, 30 and 11. Since 1989 there has been no significant change in the Dickcissel's breeding status: eight suggested nestings in the Carolinas (six Piedmont and two coastal plain), and five confirmed (four Piedmont, one coastal plain).

Dickcissels appearing outside their core range late in the breeding season may have moved in response to drought or habitat alteration (Emlen and Wiens 1965, Igl 1991). In contrast, birds seen early in the nesting season, such as those that we found in McClellanville in 2005, may be migrants that have stopped short on route to nesting areas farther north (Gross 1956).

Contrary to Fretwell's (1986) prediction, the Dickcissel is not yet extinct, but because of volatile fluctuations in population numbers, the species has been "blue-listed" (Tate 1981). Due to increased land values in Middle Western North America, marginal habitats such as scrubby field edges are being converted to cropland, reducing habitat available to nesting Dickcissels. In comparison, the Southeast still has relatively large areas of uncultivated open land, and as a result more breeding colonies may become established in that region. In view of the increasing alteration of rural landscapes, any information about Dickcissels outside their core breeding area is important. Some questions might be addressed; for example, are Dickcissels as flexible in their choice of nesting habitats in the Southeast as they are their core area (Temple 2002)? How does Dickcissel reproductive success vary between regions,

and what are the causes of nest failure? Do Dickcissels that breed in the Southeast continue their migration, and nest again farther north (Temple 2002)?

Since the 1970's, field workers in the Southeast have been looking for Dickcissels in suitable habitats, but documenting the occurrence of breeding has been difficult. After an observer has spent considerable time and energy finding a colony, the birds may, for unknown reasons, abandon the site, a behavior reported for other peripheral breeding populations (Temple 2002). Another problem is the difficulty of obtaining positive evidence of nesting. Although singing males are easily located, females are secretive, and nests well hidden. Once singing males are located, however, other Dickcissels may be found in nearby fields (McNair 1990c), increasing the chances of finding nests within a limited area, and reducing the amount of search time per nest.

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