

DISTRIBUTION OF THE CARDINAL IN SOUTH DAKOTA

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THE extension of the range of the Cardinal (*Richmondena cardinalis*) and its seasonal status in the upper Midwest apparently have received little attention in ornithological literature. This seems particularly true of the area bordering the upper Mississippi River in Minnesota and the Missouri River in South Dakota. Roberts (1936:335) states that by 1936 this species was established in Minnesota but was "confined as a resident breeding bird to the southeastern portion of the state." However, he found that it was "extending its range northward and westward."

In South Dakota, Visher (1915:332) reported the Cardinal as "a tolerably common resident in the Missouri Valley near Vermillion" (Clay County) by 1913. Five years later, according to Stephens (1918:101) it had "become very well established as a permanent resident" in Union County. Both Clay and Union counties are located in the extreme southeastern part of the state. Few reports of the Cardinal in South Dakota appeared subsequently, and, as late as 1930, Stephens observed (pp. 365-366): "It would be very interesting to know how far up the Missouri River these birds have extended their range at the present time; and also how far up the tributaries in this region they have penetrated." This study has been undertaken in an effort to throw light on some of these queries.

In order to obtain as broad a presentation of data as possible, the historical background was searched and the items in Stephens' (1945) bibliography and in the available literature checked. In addition to notes and observations of some seven years of personal field work, the writers interviewed and corresponded with competent observers located in strategic positions in the state. These persons' generous reports and comments are gratefully acknowledged. Those of Art Lundquist, Alfred Peterson, Ruth Habeger and V. H. Culp have been especially helpful.

The literature on the Cardinal in South Dakota is admittedly scanty. The scarcity of observers and collectors may be held responsible for many of the gaps in the information on this species. It was not listed in the journal of Audubon (1900), who was on the Missouri in 1843, nor was it included in Baird's (1858) list of the railroad survey made during the period 1853-56. The first record seems to have been that of McChesney (1879:78), who observed a pair at Fort Sisseton in the extreme northeastern part of the state in the spring of 1877. During that summer he saw a male several times. Neither collection nor nesting data was reported, however.

McChesney (*op.cit.*) remarked that the Cardinal was "only of casual occurrence in this region." However, it is possible that these individuals

were accidental rather than casual. It is not unusual for a Cardinal to appear far from its accustomed range. Roberts (1936:335) speaks of a male Cardinal reported in Minnesota in 1930 some 300 miles north of any previous record.

It may be significant that in the 75 years following McChesney's report of them, no further mention seems to be made of appearances of Cardinals in the vicinity of Fort Sisseton or in the northeast generally. Agersborg, whose list (1885) is the first important published record for the state by a resident, does not include it either for the state as a whole or for the southeastern part of the state. Larson (1925) did not list the Cardinal in his 10-year study (1906-1916) of the east-central area centering about Minnehaha County. Alfred Peterson, whose field work and publications began in the early 1920's, writes (letter, October 15, 1954) that he has never seen the Cardinal in the central northeastern region. Art Lundquist (letter, October 12, 1954), a veteran field man in the northeast area adjacent to the Fort Sisseton country, does not include occurrences until 1950 and does not report nesting data at this writing.

Though the Cardinal was noticed first in the 1870's, what seems to have been the first report of a Cardinal nest in South Dakota and perhaps the first indication of permanent residence in the state did not appear until after the turn of the century. In 1902 D. H. Talbot published a note regarding the breeding of this species in Union County, not far from Sioux City, Iowa (Fig. 1). Ten years later Visser (1915) noted it as "tolerably common in the Missouri Valley near Vermillion." This represents an advance upstream of some 40 miles. By the second decade, its nesting range seems to have included only the two counties in the extreme southeastern part of the state.

At the same time, as a winter bird, the Cardinal was appearing farther and farther up the Missouri. In the early 1920's it was found at Yankton, 50 miles upstream from Sioux City. In the 1930's it continued its march. In fact, during the period from 1930 to 1946, it apparently extended considerably its winter range in all the eastern part of the state. This species was making headway not only on the Missouri, but also on the James and the Big Sioux rivers, tributaries which drain a major share of the eastern half of the state. Reports of its appearances were noted from the Missouri on the south to the North Dakota border on the north. As early as the winter of 1929 Larrabee mentioned it as a December visitant in Minnehaha County, which is traversed by the Big Sioux. In the spring of 1937 Dr. J. F. Brenckle banded an individual in Spink County, 260 miles up the James River. In the years 1940-42 it appeared as a winter bird in those northeastern counties bordering on North Dakota. This brought it again into the Fort Sisseton area where McChesney had seen it some 75 years before. In some forty-odd

years then, it had traversed the eastern portion of the state from south to north. What is more, apparently this area became familiar ground. In the years following the middle 1940's the Cardinal has been reported fairly regularly in the northeastern portion of South Dakota. In 1954 wintering individuals were reported at Mobridge in the Missouri bottoms, which brings this species to within 30 miles of the North Dakota border in the north-central portion of the state also.

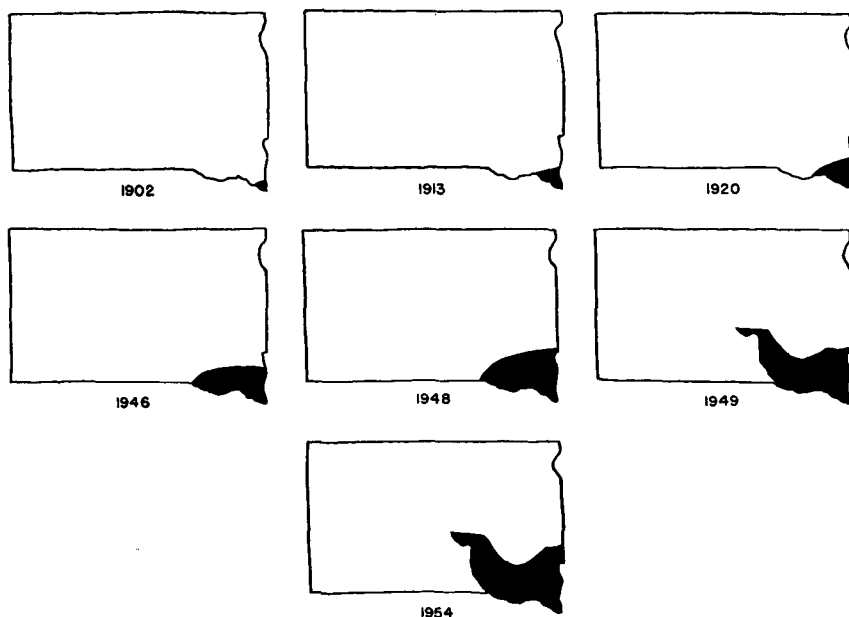


FIG. 1. Extension of the breeding range of the Cardinal in South Dakota based on available nesting records.

However, all these northern occurrences were recorded in fall, winter and early spring, and most involved male birds only. No summer records are available in spite of search by field men such as Lundquist and Peterson.

Meanwhile the breeding range of the Cardinal was advancing northward also. Randall (1953) found nests and young in the Fort Randall (Pickstown) locality in 1946, a 72-mile advance up the Missouri and some 125 miles from Sioux City. In 1950 a nest was reported at Fort Thompson, 100 miles north of Fort Randall. At present (1954) the Cardinal is reported nesting in the river bottoms at Farm Island and at Pierre, some 260 miles upstream from the place in Union County where the first nest was found. This, according to present evidence, is its farthest penetration up the Missouri as a breeding bird.

In the eastern part of the state, Krause in 1948 found two nests and eggs at Sioux Falls, Minnehaha County, an advance of about 80 miles up the Big Sioux River. Since 1948 there have been many reports of nests, eggs, young and juveniles in this area (Froiland, Krause and others). The Cardinal is common the year around in Minnehaha County, and it is continuing to spread northward. According to Ruth Habeger (letter, October 29, 1954) it nests regularly in Lake and Moody counties just north of Minnehaha County, an advance in six years of some 40 miles northward along the Big Sioux River. On the basis of available data, this represents its farthest penetration northward as a breeding bird and perhaps as a permanent resident. Thus in half a century, the breeding range of the Cardinal has advanced some 100 miles northward in the eastern part of South Dakota.

HABITAT DISTRIBUTION

A study of the distribution map (Fig. 2) suggests that the main streams and their tributaries played a part in the widening range of the Cardinal in South Dakota. In almost every instance the reports come from localities on fairly large streams or their tributaries. There are no reports of Cardinals from areas of high land between watersheds. Neither is there information on appearances or nesting on the wide prairies or the hill counties or along the small prairie tributaries of larger streams with their somewhat less abundant vegetation. Few records come from counties which have intermittent streams and which therefore seem to offer less cover and fewer nesting possibilities.

It is perhaps significant that McChesney's sight record of the Cardinal occurs at Fort Sisseton, for this military post was in the lake country in that portion of the northeastern part of the state which is drained by the tributaries of the Big Sioux River and which lies some 200 miles north—almost straight north—of the point where the Big Sioux empties into the Missouri.

Evidently the vegetation bordering these waterways offers the type of habitat suitable for nesting and cover. Generally, in the adjacent areas appear shrubby willow (*Salix* sp.), plum-choke cherry (*Prunus* sp.) and dogwood (*Cornus* sp.) over which in many places tower cottonwood (*Populus deltoides*) and American elm (*Ulmus americana*), hackberry (*Celtis occidentalis*) and boxelder (*Acer negundo*), basswood (*Tilia americana*) and ash (*Fraxinus lanceolata*) trees. Vines, such as wild grape (*Vitis vulpina*) and Virginia creeper (*Parthenocissus quinquefolia*), occur in some localities. This kind of habitat provides not only shelter for the Cardinal but food as well.

EXTENSION OF THE CARDINAL'S RANGE WESTWARD

It is curious that appearances of the Cardinal have been singularly lacking in the area west of the Missouri River. At least available records fail to report them. Visher (1909) does not include this species in his comprehensive "List of the Birds of Western South Dakota" which takes into account the observations of Hayden on the Warren Expeditions in 1857 and 1869, and the Grinnell report on the Custer Expedition of 1874, as well as the reports of such competent observers and collectors as Lee, Sweet, and Behrens, whose collections are still available. The region covered by Visher's "List" includes the Bad Lands and the Black Hills with the adjacent areas. The

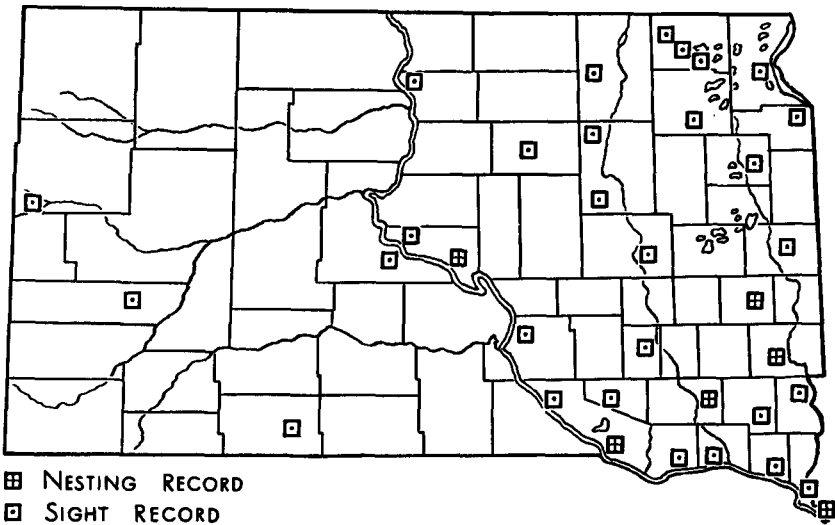


FIG. 2. Distribution of the Cardinal in South Dakota based on available records, 1875-1955.

Cardinal was not found on the Pine Ridge Reservation during Tullsen's (1911) stay there (1901-1908) nor was it seen by Visher (1912) during his survey (in 1908) of the area which also included a good portion of the White River drainage system.

Much of this region is semi-arid in character. The streams for the most part are intermittent and even those which persist during the greater part of the year are generally saline. While streams in the Black Hills are freshwater, they too are frequently intermittent. Plants which produce bushy thickets or viny tangles are not as abundant as in the east nor do they appear as regularly. It may be that the area, including as it does both the Black Hills and the Bad Lands, offers a complex of factors which might

be operative here—factors which involve unusual and often puzzling floral and faunal distribution patterns.

The first mention of the Cardinal in western South Dakota appeared in the literature in 1951, when Haight reported two Cardinals seen near Belle Fourche on the Cheyenne River in the northwestern part of the state. In the early spring of 1955 two occurrences were observed, one by Hyde (1955) in Rapid Canyon near Rapid City in the Black Hills and one by Krumm (1955) at La Creek Wildlife Refuge on the Nebraska border in the southwest. All three appearances were in winter and early spring and involved males. Considering the non-migratory behavior of this species and its sporadic appearances, one wonders whether these individuals came from the Missouri, following its tributaries, the Cheyenne in the north, the White in the south. There is also the possibility that the southern birds came from another tributary of the Missouri, the Niobrara River in Nebraska. At any rate, according to the data, the Cardinal has appeared west of the Missouri three times, all within the last five years. It will be interesting to see whether in the next 20 or 30 years it will increase in numbers as it did east of the Missouri with the possibility of finally establishing itself as a permanent resident in this western region.

SUMMARY

1. During the past 52 years the Cardinal has extended its range as a breeding bird into eastern South Dakota. The initial entry was made in the southeastern portion and to the present time it is distributed approximately over the eastern one-fourth of the state.

2. During this time it has appeared as a wintering bird in appreciable numbers in various places outside the breeding range in the eastern part of the state.

3. The extension of range of the Cardinal closely parallels major rivers and their tributaries. It would appear that these streams play an important role in the immigration of this species by contributing suitable habitat.

4. The Cardinal has not been reported in the area west of the Missouri until very recently. This peculiarity in distribution may be the result of lack of suitable habitat on the frequently-intermittent streams and their tributaries in the Bad Lands-Black Hills region and in the adjacent areas.

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