

RANGE EXPANSION OF THE BREWER BLACKBIRD IN EASTERN NORTH AMERICA

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The Brewer Blackbird (*Euphagus cyanocephalus*) has long been regarded as a western species, a bird typical of much of the United States west of the Mississippi River. It was a common summer resident east to North Dakota and western Minnesota in the 19th century. Blakiston (1862:7) found it breeding in 1858 at the forks of the Saskatchewan River, Saskatchewan, and he recorded it from northwestern Minnesota that year and in 1859 (Roberts, 1932:738). In the same state, Coues (1874:200) found it "breeding abundantly" in the Red River Valley. Roberts (1932:314-315) recorded nests found in Kittson County in 1896 and in Marshall County in 1901. He had written earlier (1914:538) that the species regularly bred "in considerable numbers in *north-western* Minnesota, especially throughout the valley of the Red River of the North and the region immediately adjacent to the eastward. A few scattered observations confirm its occurrence as a migrant further [sic] east in the state . . ."

Roberts (1932:314) also described the first nests at Minneapolis which were discovered by F. H. Nutter in 1914. The following year the species was found in Isanti and Sherburne counties. By 1928 it had spread into Carlton and Pine counties, Minnesota, invading the Canadian Zone.

Anderson (1907:306) termed the Brewer Blackbird "a western species . . . a rather rare straggler in Iowa during the migrations, occasionally reaching even to Illinois and Wisconsin."

In the 20th century, particularly since 1925, the Brewer Blackbird has extended its range as a breeding species eastward across Wisconsin, the entire Upper Peninsula of Michigan, the southern part of western Ontario to Sault Ste. Marie, through northern Illinois and northern Indiana, and across much of the Lower Peninsula of Michigan. A similar spread in the nonbreeding season has carried the species to the Atlantic coast and, in winter, to the Gulf states and southeast as far as Key West, Florida.

This paper attempts to document this remarkable expansion of range. We have endeavored to locate all records of the Brewer Blackbird east of the Mississippi River. It is impossible to list them all here, but summaries of records for southern Ontario and the states east of Minnesota are presented. Most accounts of the Brewer Blackbird in the East are based on sight identifications and have been published in the "seasonal record" sections of national, state, and local journals. In order to obtain further details and to provide a check on the published accounts, we have corresponded with many of the original observers responsible for these records, or with persons acquainted with them. Some obviously doubtful records have been encountered; others have proved upon investigation to be unreliable. These are either not cited or are listed with pertinent details. We feel that the great majority of published reports are accurate and that interpreted en masse they provide strong evidence of the change in distribution of the species.

Some records are based on our own unpublished data and on those generously supplied by persons in many states and provinces. The cooperation of these people is gratefully acknowledged. Their assistance has contributed materially to the accuracy and completeness of this paper. For this cooperation and for other courtesies we wish to thank A. E. Allin, J. L. Baillie, L. C. Binford, W. J. Breckenridge, M. Brooks, T. D. Burleigh, L. W. Campbell, B. B. Coffey, Jr., J. B. Cope, Dr. and Mrs. W. P. Cottrille, John Davis, J. L. Diedrich, W. A. Dyer, J. T. Emlen, Jr., J. B. Flugel, O. J. Gromme, R. Grow, P. Hovingh, Jr., E. E. Kenaga, H. Mayfield, B. L. Monroe, Sr., R. E. Mum-

ford, V. Nolan, Jr., C. S. Robbins, S. D. Robbins, Jr., A. W. Schorger, D. E. Snyder, Dr. and Mrs. J. M. Speirs, R. W. Storer, P. B. Street, J. Van Tyne, H. Wing, and D. W. Warner.

RECORDS INDICATING EASTWARD EXPANSION

The Brewer Blackbird has been collected at least once in each state or province discussed beyond except Maryland, Delaware, Pennsylvania, New York, West Virginia, and Virginia. Sight records for these six states are as follows:

Maryland.—Stewart and Robbins (1958:325-326) term the Brewer Blackbird a "casual visitor" in Maryland, listing six records in 1946, 1951, and 1956, between November 8 and April 8.

Delaware.—Three were seen at Bombay Hook, November 3, 1951 (Potter and Murray, 1955:248). Cutler (1955:34) observed others in the same area between October 24 and December 27, 1953. The species now appears to be a regular visitor in Delaware in winter (P. B. Street, written communication).

Pennsylvania.—One was seen at Lake Ontelaunee, near Reading, on October 15, 1951 (Potter and Murray, 1955:248). A flock of 120 was reported on December 19, 1953, and one female on January 16, 1954, at Exton (Cutler, 1955:35). Maurice Broun saw one at Hawk Mountain, September 29, 1954 (Potter and Murray, 1955:16).

New York.—Two were seen at Monticello, September 26 to October 10, 1953 (Nichols, 1954:9), and one was seen at Jamestown on December 26, 1953 (Baillie, 1954:250).

West Virginia.—Brooks (1958:354) wrote: "The writer has a circumstantial account of a nesting pair of Brewer's Blackbirds near Grafton, W. Va. On May 14, one visited my feeding place in Morgantown."

Virginia.—About 50 were seen on November 26, 1956, at Princess Anne Courthouse (Potter and Murray, 1957:15).

The following accounts pertain to states in which the occurrence of the Brewer Blackbird has been verified by specimens.

Wisconsin.—Kumlien and Hollister (1903:89-90) reported Wisconsin's first Brewer Blackbird nest at Lake Koshkonong on June 14, 1862. They believed the species to be of more regular occurrence in western Wisconsin but reported that F. H. King had rarely met with it in the eastern part of the state.

Schorger (1945:81) listed two specimens taken in Walworth County, on June 6, 1904, and April 14, 1910, but the same author (1934:482) wrote that this blackbird was "rare" in Wisconsin prior to 1926—the year which he considered to mark the beginning of the influx in that state. By 1934, according to Schorger, the species was "a common summer resident, breeding in a narrow area extending from Polk County in the northwest, to Walworth County in the southeast." There were, by that year, records from ten Wisconsin counties, with evidence of breeding from nine (Adams, Dane, Jefferson, Polk, Portage, Sawyer, Walworth, Waukesha, and Wood). By 1954 there were summer reports of the species from more than 30 counties, with published breeding records for eleven. These are summarized beyond.

In Walworth County a male was collected on May 29, 1926 (Ford, 1930:566), and near Madison, Dane County, a nest was found on June 9 of that year (Main, 1926:548). The species was common at Hayward, Sawyer County, in June, 1927, and specimens were collected there in 1929 (Eifrig, 1933:442). Eggs were taken in Walworth County in 1928, and in 1930 a nesting pair was found in Polk County where 12 pairs bred the following year (Schorger, 1934:482, 484). In 1931 and 1932, Schmidt estimated 500 birds in Adams, Portage, and Wood counties (Schorger, 1934:483). Near Belleville, Dane County, Schorger (*op. cit.*) discovered eight nesting pairs in 1932. The species first bred in Waukesha County in 1933 (Curtis, 1933:142). That year, Walkinshaw observed two birds at Odonah, Ashland County, on June 29. In 1936, he saw a male in Waupaca County on May 29. Three years later Richter (1939:127) wrote that the species was then a summer resident in the marshes near Green Bay. Two pairs appeared at Wind Lake in 1939 (Strelitzer, 1939:109). In 1940, the species was reported from Vilas, Door, and Juneau counties (Barger, 1940a:82; 1940b:93; 1940c:102), and later from Bayfield County (Barger, 1941a:45; Feeney, 1942:53). It was subsequently reported from other counties: Brown (Barger, 1941b:93), Sauk and Winnebago (Barger, 1946:93), Price (seen

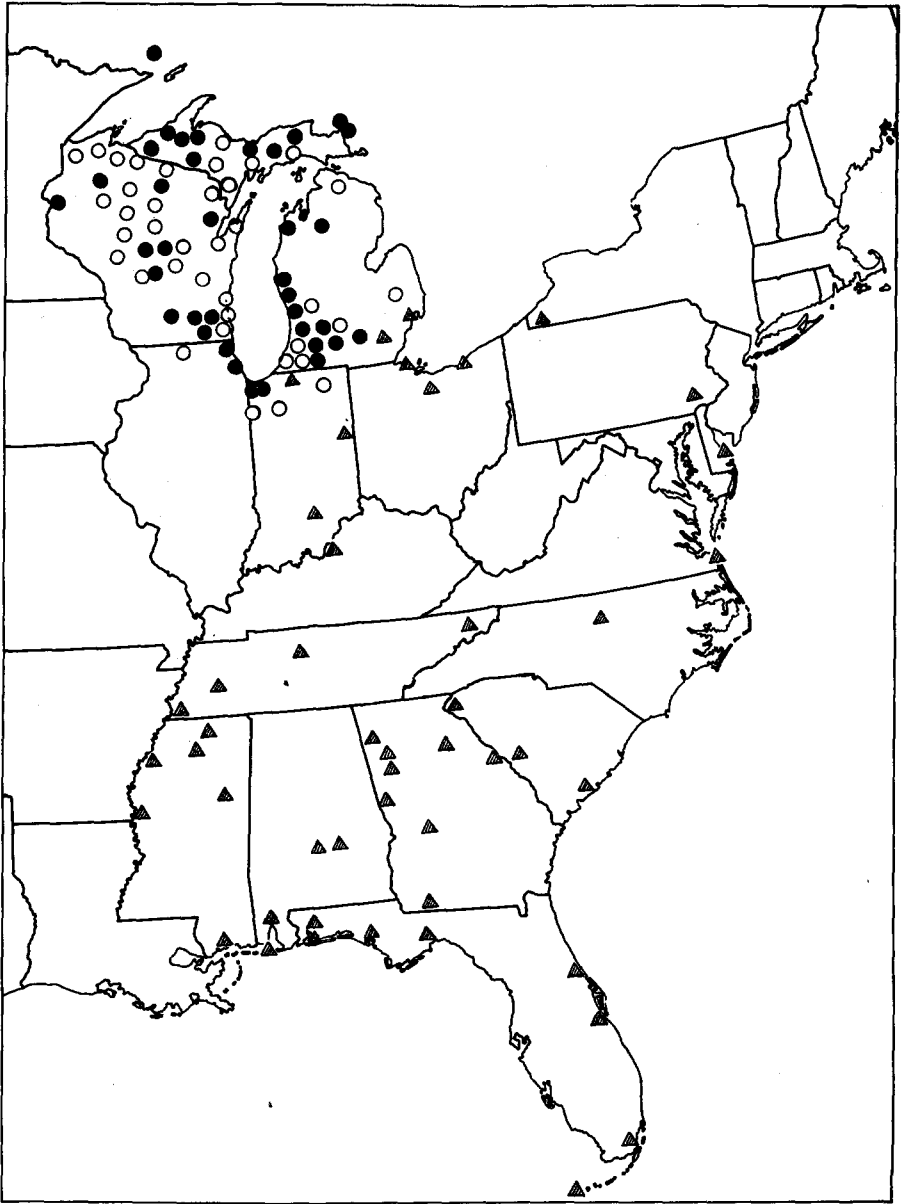


Fig. 1. Recent records by counties of the Brewer Blackbird (*Euphagus cyanocephalus*) east of the Mississippi River. Solid circles designate breeding records; open circles, breeding season records (late May to July); triangles, winter records (late November to February). Map by D. A. Zimmerman.

July 7, 1947, by A. W. Schorger), Taylor and Clark (Robbins, 1947:151), Oneida and Outagamie (Robbins, 1948:122), Jackson, Marathon, Rusk, and Ozaukee (Robbins, 1949a:51), Iowa (Robbins, 1949b:90), Eau Claire (Robbins, 1949c:138), Iron and Waushara (Robbins, 1949d:190), Green (Robbins, 1950a:142), Columbia and Lincoln (Robbins, 1950b:181, 182), Manitowoc and Racine (Strelitzer, 1952:120), Rock (Besadny, 1953a:85), Chippewa (Besadny, 1953b:141), Marinette and Fond

du Lac (seen June 17, 1953, by J. T. Emlen), Vilas (seen June 22, 1953, by Zimmerman), Dodge (Besadny, 1954:41), and Trempealeau and LaCrosse (Lound and Lound, 1956:184).

In June, 1957, Walkinshaw, Zimmerman, and W. A. Dyer observed Brewer Blackbirds in every northern Wisconsin county traversed by United States Highway Number 2.

Michigan; Upper Peninsula.—Blackwelder's (1909:368) early reference to "*Scolecophagus carolinus*" seen along Iron County roadsides during June, July, and August, 1908, probably refers to *E. cyanocephalus*. The birds were seen chiefly in the vicinity of farms. This fact, and the birds' predilection for roadsides, does not suggest the Rusty Blackbird, a species not known to occur in Michigan in summer. However, there was no positive record of the Brewer Blackbird in the state until July 26, 1932, when Wing (1940:193) collected one at Ironwood, Gogebic County. Two years later, on October 3, 1934, M. B. Trautman and G. B. Saunders observed four at Bergland, Ontonagon County. Christofferson (1936:16) saw one at Blaney Park, Schoolcraft County, on October 30, 1935, and he banded one there on October 31, 1939 (notes in Univ. Mich. Mus. Zool.). In 1941, Ammann (1944:48) observed a pair near Crystal Falls, Iron County, on May 1. Near McMillan, Luce County, O. M. Bryens (MS) saw three (including a probable immature bird) on August 10, 1943, and noted others in 1944 and 1945. A pair was reported from near Escanaba, Delta County, in July, 1950 (Gunderson, 1950:277), and on June 17, 1953, J. T. Emlen observed the species there and at Naubinway, Mackinac County. On the same day Walkinshaw, Zimmerman and others found two pairs and a nest at Sleeper Lake, Luce County. Other 1953 summer records include: two at Seney, Schoolcraft County, on June 20 (Walkinshaw, Dyer, and others); a nest at Chatham, Alger County, on June 21 (Zimmerman); adults at Sagola, Dickinson County, and at Arnold, Marquette County, on June 21 (Zimmerman); a nest at Matchwood, Ontonagon County, and eight adults in Gogebic County, on June 21 (Zimmerman); adults near Covington and at Three Lakes, Baraga County, June 27 (Zimmerman).

In 1954, Walkinshaw and R. E. Mumford found three nests and saw ten pairs of birds at Seney on June 23. In 1955, Mr. and Mrs. A. W. Peters found a nest and collected a pair of adults at Ewen, Ontonagon County. Walkinshaw and J. Van Tyne observed nine food-carrying adults near the east branch of the Fox River in Luce County in June. In June and July, 1956, L. C. Binford recorded the species in several different areas: Beechwood, Iron County (nest); Nagueanee, Marquette County (female carrying nest material); Channing, Dickinson County; and Greenland, Ontonogon County. Walkinshaw and others found seven nests along the Fox River in Luce County (June 18-19), saw 18 pairs and found three nests in Schoolcraft County (June 25), and noted eight adults and one nest at Kenton, Houghton County (June 21). Binford and Walkinshaw also found three pairs and a nest at Covington, Baraga County, on June 21.

In 1957 and 1958 Walkinshaw and others again recorded the species summering in Luce and Schoolcraft counties east of Seney. In parts of Upper Michigan it is now the most frequently seen blackbird and is fairly common in the nonforested areas.

Michigan; Lower Peninsula.—The Brewer Blackbird first appeared in Lower Michigan near Kalamazoo where Fleugel (1948:63-64) saw birds on May 16, 17, and 18, 1947. He found a nest there on June 12 of that year. In the next two years the same observer (written communication) found the species in Van Buren, Berrien, Cass, St. Joseph, and Kalamazoo counties. By 1952, it had spread north during the breeding season to North Muskegon, Muskegon County, where it was recorded in May and June by G. Wickstrom and Walkinshaw.

Searching for the species in 1953, we found it during the breeding season in the following counties: Cheboygan, at Tower, June 28 (one male, Zimmerman); Benzie, at Beulah, June 21 (Hovingh, Ponshair, Walkinshaw), a nest in July (D. Porter), and a male collected on August 1 (Walkinshaw); Oceana, at New Era, June 28, five and a nest (Walkinshaw); Muskegon, at Montague, 18 seen, two collected, and three nests found (P. S. Humphrey and Walkinshaw); Ottawa, in Blendon, Allendale, and Zealand townships, June 23 and 24 (Hovingh, Ponshair); Allegan, in Heath Township, first seen June 6, 1953, and a nest found July 9, 1954 (Walkinshaw); Calhoun, in Lee Township, May 25 and 27, 1953, three, one collected (Walkinshaw); St. Joseph in Florence Township, adults and young July 19, and a nest on July 21 (Walkinshaw).

We failed to find the Brewer Blackbird in suitable habitat in 24 Lower Michigan counties searched by us in 1953. Except for the single male seen in Cheboygan County, the easternmost breeding season record was from Calhoun County. However, on September 30, 12 birds were observed in Clinton



Fig. 2. Upper: damp field nesting habitat of the Brewer Blackbird near New Era, Oceana County, Michigan, 1953.

Lower: bog nesting habitat of the Brewer Blackbird near the Fox River, Luce County, Michigan, June, 1956. Photographs by L. H. Walkinshaw.

County in south-central Michigan (Wickstrom, 1954:12) and a male was seen on December 27 at Ann Arbor, Washtenaw County, by H. W. Hann (Black, 1954:123).

During 1954, the species again appeared in Allegan County where Walkinshaw observed four on May 9. He found many nests in the course of the summer at Montague and North Muskegon in Muskegon County, and several others in Lee and Marshall townships, Calhoun County. Two migrants or wintering birds were reported by M. Griebel at Rochester, Oakland County, from March 29 to April 1 (O'Reilly, 1956:48).

In 1955 the blackbird appeared in Leoni Township, Jackson County, where C. Haehnle and H.



Fig. 3. Female Brewer Blackbird at nest in leatherleaf bog, Luce County, Michigan, June 22, 1956. Photograph by L. H. Walkinshaw.

Wing saw a male on May 15. Wing and Walkinshaw found a nest there four days later. The species has not yet been found breeding farther east in Michigan.

During 1956 territorial adults were seen by Walkinshaw in Walker Township, Kent County, and nine birds and a nest were found by Walkinshaw in Orangeville Township, Barry County, on June 4. Sight records in fall were made in Lapeer County (single males observed near Imlay City on October 18 and 21 by L. M. and L. P. Zimmerman), and Macomb County (a male seen at Anchor Bay by B. Daubendiek and others; O'Reilly, 1957:2).

Walkinshaw found five birds apparently nesting on May 19, 1957, in Eaton County (T3N, R3W, Section 6). G. Thomas and R. Tompkins found a pair and a nest in Kalkaska County (Section 33) on May 26. Walkinshaw observed 12 adults and collected a female there on May 30, 1957.

The species is not yet known to breed in the extensive muck lands of southeastern Michigan—areas very similar to those selected by breeding Brewer Blackbirds in the western part of the state. However, the easternmost, and most recent, specimen from Michigan was a male found dying of poison at Imlay City, Lapeer County, by L. M. Zimmerman on June 2, 1959. This bird was not fat and its testes were sufficiently enlarged to suggest that it may have been breeding, or about to breed, near that locality.

Ontario.—The first record for this province was that of a male collected by C. E. Hope on June 5, 1939, at Lake Attawapiskat in the Kenora District (Baillie, 1953:307). Subsequently, there were few or no published records until Allin and Dear (1947:175–176) recorded eight, collected a male, and found a nest at Port Arthur in the Thunder Bay District in 1945. E. E. Kenaga (written communication) saw 12 Brewer Blackbirds at Longlac, Algoma District, on September 1, 1948. In 1952, Allin and Dear found a colony in Paipoonge Township. D. Amadon and J. Carleton (Baillie, 1953:307) saw a pair at Garden River on June 17, 1953, and Mr. and Mrs. J. M. Speirs identified a male on September 19 at Echo Bay. At Sault Ste. Marie, between May 18 and June 6, 1954, Mr. and Mrs. Speirs (written communication) found several pairs and a nest. Later in the summer they, with M. Wood, found other nests and discovered a pair feeding young at nearby Echo Bay.

Illinois.—The first record from Illinois of the Brewer Blackbird was made by Ridgway (1889:324) who collected one at Mt. Carmel, Wabash County, in December, 1866. Apparently the species was not again noted in the state until over 60 years later. Lyon (1930:214) reported the first nests on June 17 and June 26, 1929, at Zion, Lake County (Ford, Sanborn and Coursen, 1934:66, recorded the year as 1930). There were several breeding records during the early 1930's and the species persisted in the Waukegan area at least to May 11, 1952 (L. C. Binford).

In Northfield Township, Cook County, Ford (1930:566) observed six pairs and found a nest in June, 1930. During the same month Brodtkorb and Stevenson (1934:101) collected a female which contained an egg. White (1935:94) collected a pair near Winnetka on June 15, 1930; he found eight pairs in the same area (Skokie Marsh) in 1931, about 14 pairs in 1932, and 20 pairs in 1933. The colony was reduced to 12 pairs, which moved to a nearby location, in 1934. There were numerous breeding and summer records from Cook County during the 1940's, and the species persists there in many localities to this date.

Mayfield (1949:211) wrote that the Brewer Blackbird was "established as a summer resident" at Rockford, Winnebago County, in 1949. He also mentioned the occurrence of the species in southern Illinois on March 16, 1949. Among the earlier Illinois migration records was that of a male collected on April 9, 1933, at White Heath, Piatt County, by C. R. Naeser (*vide* C. T. Black).

Indiana.—Brewer Blackbirds were first seen in Indiana on April 8, 1949, when R. E. Phillips and others noted them near Schererville, Lake County. The state's first specimen was a territorial male collected north of Ligonier, Noble County, on May 18, 1950, by R. E. Mumford (1950:62–63; 1951:47). In 1950, the species had been observed at South Bend, St. Joseph County, on March 8 by McErlains, and on May 2 by Dykeman. Binford found the species southwest of Whiting, one-half mile east of the Illinois line, on July 22, 1951, and the same year it was seen again in Lake County. The first Indiana nests were found in Pine Township, Porter County, and in northern Lake County, in 1952 (Mumford, 1954).

On March 29 and 30, 1952, T. Nork, Charles Clark, and others observed two Brewer Blackbirds at Willow Slough Game Preserve, Newton County, where the species has subsequently been seen nearly every spring. Others have been reported during migration in Pulaski and Wayne counties (Mumford, written communication).

Winter records include a male collected by Mumford on January 4, 1954, and one banded and released by Macklin (1954:57) on January 9, 1954, at Bryant, Jay County.

WINTER AND MIGRATORY RECORDS

The Brewer Blackbird has been recorded positively only during migration or in winter from Ohio, Kentucky, Tennessee, North Carolina, South Carolina, Mississippi, Alabama, Georgia, and Florida. Brief summaries of the records known to us for each of these states are given here:

Ohio.—On April 12, 1936, Campbell (1936:452) collected a Brewer Blackbird from a group of five in Spencer Township, Lucas County. On April 3, 1938, Campbell (1939:186) found 55 Brewer Blackbirds in Jerusalem Township, Lucas County, and collected two. The species since has been found occasionally in northern Ohio. Sight records include birds from South Bass Island, Ottawa County, on February 22, 1955 (Nolan, 1955:335); in the Sandusky Marshes on October 20, 1956 (Nolan, 1957:30); at Cedar Point on February 27, 1954 (Cutler, 1955:35); and at Buckeye Lake on October 20, 1956 (Nolan, 1957:30).

Kentucky.—There are two early sight records from Kentucky: Rowan County, April 9, 1934 (Welter in Barbour, 1952:23–29), and Woodford County, May 12, 1938 (Figgins, 1945:300). Ten years later, Monroe and Monroe (1949:73) collected one of eight males which they discovered at Brownsboro, Oldham County, on March 28, 1948. On the same day they collected one of four Brewer Blackbirds from a flock of grackles at Worthington, Jefferson County. Monroe (1957:153; 1958:161) listed the species on Christmas bird counts at Louisville on December 23, 1956, and December 22, 1957.

Tennessee.—Apparently the first record of this species in Tennessee was of one seen April 20, 1935, near Johnson City, Washington County, by Tyler (1935:73–74). Tyler and Lyle (1936:26) reported another there on February 1, 1936.

Burdick (1943:77) observed several on December 11, 1943, near Memphis, and Tucker (1945:58, 60) counted 25 there on December 30, 1945. Coffey (1956:9–10) published numerous winter records, stating that "the species is more frequently seen in November and December . . ." than later in the winter. From March 21 to 23, 1944, Herndon (1950:66–67) reported the species at Elizabethton, Carter County, and F. Behrend reported one from near there at about the same time. Herndon (1951:18) observed another there on March 13 and 14, 1951. Near Jackson, Madison County, three Brewer Blackbirds were shot from a flock of 2700 otherwise unidentified blackbirds on December 29, 1952 (Roever, Roever, and Shaw, 1952:70–72). Ganier (1957:155) first reported Brewer Blackbirds (110 individuals) from the Nashville area on December 22, 1956.

North Carolina.—South of Asheville, Henderson County, Burleigh (1933:111) collected the first Brewer Blackbird for North Carolina on November 25, 1930. He secured a male and saw a female on April 6, 1931, in Buncombe County. In these two areas Burleigh found the species common in the fall of 1931. On December 22, 1957, Mrs. H. W. Walters observed 800 Brewer Blackbirds at Chapel Hill (Blake, 1958:128).

South Carolina.—Loomis (1887:76) collected three males and two females from a flock of 12 Brewer Blackbirds on December 9 and 10, 1886, at Chester, Chester County, but the species was not again recorded from South Carolina until Sherman and Hudson (1927:567) reported specimens taken on April 17, 1926, and December 18, 1926, at Clemson College, Oconee County. Sprunt and Chamberlain (1949:501) report one taken on November 25, 1932, at Dale, Beaufort County. Post (1951:97) observed three individuals on December 31, 1950, at Aiken, Aiken County, but gave no details of his observation. At Charleston, R. D. Edwards observed 75 birds on December 27, 1956 (Chamberlain, 1957:128).

Mississippi.—Burleigh (1944:464) reported Brewer Blackbirds at Saucier, Harrison County, on December 11, 1935 (one female collected), and he observed the species regularly during the next few winters, collecting several specimens. Burleigh has written us that during the time of his observations, this blackbird "was a common winter resident in Harrison County, flocks of 20 to 100 birds being seen from early November until early April (extreme dates: November 9, 1939, and April 5, 1938)."

At Gulfport, a Brewer Blackbird which was banded May 6, 1942, at Wisconsin Rapids, Wisconsin, was recovered on November 30, 1943 (Searles, 1944:43). At Oxford, Lafayette County, Stevenson (1943:80; 1944:16) observed the species on December 11, 1943, and March 10, 1944. Coffey (1956:9–10) saw Brewer Blackbirds in DeSoto County on March 8, 1936, and near Lula, Coahoma County, on December 30, 1950 (Coffey, 1951:12). Vaiden (1952:4) reported three sight records, without dates, for the Yazoo-Mississippi delta region, and mentioned Ganier's collection of a female on November 18, 1951, at Grace, Washington County. At nearby Glen Allan, Coffey (1956:10) saw 18 on December 31, 1955. Coffey (*loc. cit.*) cited January records from Oktibbeha and Madison counties in 1954 and 1956, respectively, and Smith (1958:167) reported four seen at Hickory Flat on December 26, 1957. Among the few April records is one of several seen at Greenville on April 3, 1955, by D. and M. Zimmerman.

Alabama.—On March 23, 1936, Burleigh (1936:452–453) collected a female Brewer Blackbird, the first for Alabama, near Foley, Baldwin County. On November 30, 1937, he secured a male and female from a flock of approximately 100 Brewer Blackbirds near Montgomery (1938:545). Near Orion, Ruff (1940:575) observed several individuals on March 16, 1939. Lochridge, Rice, and Summerour (1954:147) saw two on December 31, 1953, at Hayneville, Lowndes County. At Mobile, Dorn (1957:158) observed 250 on December 28, 1956, and Imhof (1957:157; 1958:166) reported small numbers from Dauphin Island in late December of 1956 and 1957.

Georgia.—The Brewer Blackbird was first taken in Georgia by D. V. Hembree, who collected a male on March 1, 1931, at Roswell (Greene, 1934:91). Burleigh (1958:592) lists numerous records for eleven years between 1932 and 1953. Oliver *et al.* (1940:95) report a sight record from Atlanta on December 21, 1939.

More recent records from Georgia include a female found dead in Thomas County on March 25, 1954, and given to H. L. Stoddard (written communication); 620 reported at Rome on December 30, 1956, by Anderson (1957:130); and an estimated 10,100 seen there on December 29, 1957, by Anderson (1958:135).

Florida.—The first record of the Brewer Blackbird in Florida is apparently that of Hallman (1940:574) who collected two birds in Bay County, 20 miles north of Panama City, on December 10, 1939. Burleigh and Lowery (1940:574–575) recorded a flock of eight, two of which were collected, at Vernon, Washington County, on April 8, 1940. In 1941, at Panama City, Hallman secured another on January 30 (Sprunt, 1954:442). No Brewer Blackbirds were then reported from Florida until February 27, 1949, when F. M. Weston saw 50 in Santa Rosa County, 15 miles east of Pensacola (Sprunt, *loc. cit.*). In the same area, Weston observed large numbers of these blackbirds on March 19 and December 10, 1950, and 20 on January 21, 1951. In 1953, Stevenson (1954:15) reported the species on November 21 at Newport, Wakulla County. Stimson (Stevenson, 1954:248) observed four near Miami on January 16, 1954. A small flock which appeared at Key West in October of 1953 built up to about 25 in January, 1954 (Stevenson, *loc. cit.*). The same author (1955:253) reported one seen by several observers at Daytona Beach on December 30, 1954. The species was next reported in 1957: one was observed at Melbourne on January 7 (Stevenson, 1957:262) and a count of 4650 at Pensacola on December 28 (Weston, 1958:144).

GEOGRAPHIC VARIATION IN NESTING HABITATS

Bendire (1895:495) wrote that Brewer Blackbirds nested “mainly in oak, fir, cypress, juniper, pine, willow and apple trees, and in wild-rose, service-berry, and sagebrush thickets. Ordinarily the nests are placed not over 8 feet from the ground, and in certain localities, as near Camp Harney, in southeastern Oregon, they are more frequently placed . . . in the ground, the rim of the nest being flush with the surface.” He found “more than fifty” ground nests and noted that “in every case the nest was placed close to or directly on the edge of a perpendicular bank of some small creek . . .”

Dawson (1923:86) cited Bowles' observations of a Washington colony in which, in one season, all nests were at most four feet from the ground in small bushes, and in the next season they were all in cavities in the tops of tall fir stubs, none lower than 150 feet above ground. Dawson (*loc. cit.*) also wrote that “although isolated nests may now and then be found, colonies are the rule; and we sometimes find as high as twenty nests in a single tree, or forty in a given patch of greenery . . . Tyler found [Brewer Blackbirds] breeding at Shaver Lake (elevation 5300 ft.) in the old dead pine stubs standing out in the water.”

Williams (1952:3) reported that most of the Brewer Blackbirds in a colony in Monterey County, California, nested in thick tufts of pine (*Pinus radiata*) needles, usually at or near the ends of branches from seven to 43 feet above ground. Occasionally planted cypresses (*Cupressus*) were used. Most nests were from 20 to 30 feet from the ground.

La Rivers (1944:437) listed sagebrush (*Artemisia tridentata*) as the plant most frequently used for nest sites at Reno, Nevada, in 1934. Other plant species which served in this capacity in the order in which they were most used, were *Pinus ponderosa* var. *jeffreyi*, *Cercocarpus ledifolius*, *Prunus demissa*, *Prunus andersoni*, *Amelanchier alnifolia*, *Purshia tridentata*, *Libocedrus decurrens*, *Abies concolor*, and *Ribes nevadense*. La Rivers found that nest mortality increased from the higher levels to the lower ones (below five feet). The average height of 107 nests reported by him was 5.07 feet (extremes: six inches to 20 feet).

Coues (1874:202) quoted Trippe who referred to Colorado nests “in wet meadows

and brushy swamps . . . placed on any dry spot in the swamp, the centre of a clump of bushes being preferred, and . . . always on the ground."

In western Minnesota, Roberts (1932:315) wrote that this species nested two to eight feet above ground in willows, poplars, or bushes, whereas in the eastern part of the state it nested on the ground in thick grass or under marsh plants. Of 15 nests found in 1942 at St. Paul, four were on the ground; the others were from three to 20 feet high in hedges and trees (Roberts, 1942:10). Formerly only ground nests had been found near St. Paul.

In Wisconsin, Schorger (1934:484) found Brewer Blackbirds nesting on the ground "in dry marshes from which the previous year's growth has been burned . . . nests were found, entirely devoid of cover."

In the Upper Peninsula of Michigan we found the species in wet or damp meadows and fields, along marsh, stream, and lake margins, and in bogs. In a slightly flooded meadow in Alger County, Zimmerman found a nest placed just above the water on a dry hummock. Vegetation surrounding this nest was 25 to 30 centimeters in height and consisted of grasses (*Poa* sp.) and sedges (*Carex* and *Scirpus* spp.) with some buttercups (*Ranunculus* sp.), horsetails (*Equisetum* sp.), and scattered red osier shrubs (*Cornus stolonifera*). In Ontonagon County he found another nest which was well concealed beneath a low *Ribes* plant in a patch of immature goldenrods (*Solidago* sp.). It was on dry ground but only two meters from a water-filled ditch choked with cattails (*Typha latifolia*) and shrubby willows (*Salix* sp.). The first nest found in the Upper Peninsula was in a sphagnum bog at Sleeper Lake, Luce County, and was sunken into the moss under a rather dense growth of cranberry, blueberry (*Vaccinium* spp.), leatherleaf (*Chamaedaphne calyculata*), and other low bog shrubs.

Similarly placed nests were found by Walkinshaw and others in Schoolcraft and Luce counties in bogs east of Seney in 1955, 1956, and 1957. Two others were located beneath very small blueberry bushes about three to five meters from the paved traffic lanes of a state highway. In Houghton County, in 1956, Walkinshaw found two nests in dry fields; one was in a pasture closely cropped by cattle but where several untouched clumps of sedges provided nest sites. The second nest was concealed under a hummock in a grassy meadow.

At Sault Ste. Marie and Echo Bay, Ontario, J. M. and D. H. Speirs found the species nesting in small white spruces (*Picea*) planted along the highway. The nests were close to the trunks and about 2.45 meters above ground. Nests found in western Ontario by Allin and Dear were situated similarly to those found in northern Michigan, being on the ground under grasses or sedges and in or near bogs. Brewer Blackbirds occupy similar nest sites in parts of the Lower Peninsula of Michigan: in Oceana County, Walkinshaw found a nest on the side of a grass-shaded hummock in a dry marsh consisting of sedges, grasses, willows, and goldenrods, and bordered by a grove of arbor vitae (*Thuja occidentalis*). The first nest found in Kalamazoo County, in 1948, was in a similar area.

In southern Kalkaska County, Michigan, several pairs nested on the ground beneath sweet-fern plants (*Comptonia peregrina*), adjacent to a dancing ground of some Sharp-tailed Grouse (*Pedioecetes phasianellus*), on an area managed for that species and burned regularly at two-year intervals by the Michigan Conservation Department. This area was very dry and at least one-half mile from permanent water.

However, the main nesting areas in southern Michigan have been in muck lands, farming regions where the black soil is drained by many small ditches, discharging at the field edges into larger ditches. From these, the water is continuously pumped to keep the soil sufficiently dry to cultivate. Early in the season, in May, nests have been found

beneath the grasses and sedges on the ditch banks, or on unfarmed plots supporting rank growths of grasses, sedges, meadow rue, nettles, goldenrods, and other plants. The areas apparently had been dry marshes, suitable for such birds as the Short-billed Marsh Wren (*Cistothorus platensis*) prior to draining. In places the blackbirds have nested underneath old corn stalks left from the previous season, but in most areas they have nested beneath the growing plants in rows of celery, onions, spearmint, spinach, carrots, or potatoes. Usually the birds have been in loose colonies in certain fields, neglecting other, apparently favorable, fields nearby. The species nested in abundance on muck farms at Muskegon and Montague, Muskegon County, between 1952 and 1955, but from 1956 through 1958, only one nesting pair was found on either of the two areas. Possibly the pronounced lowering of the water table during the latter period was responsible for their absence.

With the exception of three nests elevated a few feet in bushes, found at Glencoe, Illinois, by L. C. Binford, all reported nests in Wisconsin, Illinois, and Indiana have been on the ground.

Many times we have watched breeding Brewer Blackbirds in Michigan feeding at distances of one mile or more from their nesting sites. Usually the birds feed on or along relatively dry ridges such as railroad grades or highway shoulders. When they return to the colony their mouths often are packed with grasshoppers, dragonflies, and other insects. Flight is direct from feeding grounds to nesting areas and both sexes feed the young. Less frequently, the birds feed in the bogs or fields in which the nests are located. Schorger (1934:485) wrote that in Wisconsin the species preferred to feed on cultivated land and always brought food from a distance.

Nests of the Brewer Blackbird vary in structure through the range of the species. Dawson (1923:86) found the interior mould or matrix to be of dry cow dung or mud in California. Some writers have reported that nests appeared like those of crows or jays when placed in trees. In Michigan all ground nests are quite similar to one another. Those in *Sphagnum* moss, in bogs, consist mainly of fine rootlets and grasses, with some coarser materials, such as dead plant stems, between the lining and the moss. These nests usually are sunken to the rim in the soft substrate. The average depth of 19 Michigan nests was 49.9 mm. (extremes: 33 to 61 mm.). The average inside width was 77.3×90.8 mm.

NESTING SUCCESS

At Reno, Nevada, La Rivers (1944:436) recorded 205 young maturing from 521 eggs laid (39.4 per cent); young fledged from 53 of 107 nests found (49.5 per cent). On one heavily-farmed muckland area in Calhoun County, Michigan, Walkinshaw found 16 nests of which only two were successful; of 76 eggs laid, eight hatched, and seven young (9.2 per cent) fledged. Two nests were flooded; three were robbed, apparently by Crows, and the remainder were plowed under during cultivating operations. In contrast to this, however, is the high number of successful nestings elsewhere in Michigan. Excluding the single Calhoun County area referred to above, 25 of 32 nests were successful. Of 138 eggs laid, 96 hatched (69.7 per cent), and 77 young (55.8 per cent) left the nests.

SUMMARY

During the 20th century the Brewer Blackbird has extended its breeding range eastward through the Great Lakes region to Sault Ste. Marie, Ontario, and to central, and possibly eastern, lower Michigan. In migration and winter it now appears on the Atlantic seaboard from New York to Key West, Florida. Since the mid-1930's it has apparently become rather regular, and at times common, in the Gulf states in winter.

Between 1914 and 1928, it spread into eastern Minnesota; between 1925 and 1930, across Wisconsin; in 1929 it penetrated into northeastern Illinois; from 1932 to 1953 it spread across the Upper Peninsula of Michigan, and presumably along the northern shore of Lake Superior in Ontario, reaching Sault Ste. Marie by 1953. In the Lower Peninsula of Michigan it was first found nesting in 1947, at Kalamazoo, and reached northeastern Jackson County in 1955. Although there were but two Michigan records of the species by 1943, a decade later it had become fairly common nearly throughout the Upper Peninsula and was locally common in southwestern Michigan. A specimen collected in eastern Lapeer County, Michigan, in June, 1959, suggests that it now breeds within 40 miles of the southern end of Lake Huron. The first Indiana record, from Noble County, was in 1950; the first nests were found there in 1952.

Nonbreeding individuals were first reported from Ohio in 1936, from Ontario in 1939, from New York in 1953 (no specimens), from Maryland and Delaware in 1951 and 1953, respectively (no specimens). The first specimen from Kentucky was taken in 1948. It was first reliably reported in Tennessee in 1935 and in North Carolina in 1930. Except for a single record in 1886, the first specimen from South Carolina was taken in 1926; the first for Georgia in 1931; for Mississippi in 1935, Alabama in 1936, and Florida in 1939.

That the wintering population in the southeast is composed in part of birds from the eastern sections of the breeding range is suggested by the recovery of a Wisconsin-banded bird in Mississippi.

In northern Michigan, Brewer Blackbirds nest in bogs, wet meadows, and short grass marshes. In the Lower Peninsula of Michigan, most colonies utilize reclaimed muck lands devoted to production of truck crops but near open water. Nests, with few exceptions, are built on the ground. Nesting success in Michigan compared favorably with that in Nevada.

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