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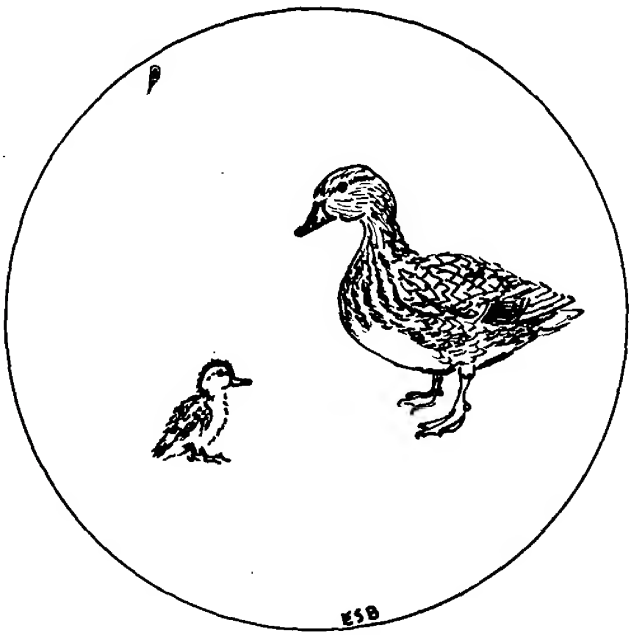
# MARYLAND BIRDLIFE

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NUMBER 1

MARYLAND ORNITHOLOGICAL SOCIETY, INC.

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Cover: Sketch of female Mallard with young: symbol of M.O.S. Atlas project. Edward S. Buckler.

MARYLAND BIRDLIFE

Volume 34 March 1978 Number 1

# THE BREEDING BIRD ATLAS OF MONTGOMERY AND HOWARD COUNTIES, MARYLAND

*M. Kathleen Klimkiewicz and Joanne K. Solem*

Many types of breeding bird censuses or surveys have been successfully undertaken in North America, but none has been used to map local breeding distribution on a county-wide basis. The concept of a breeding bird atlas originated in Britain as a result of the research for and publication of the *Atlas of the British Flora* in 1962. The atlas technique allows one to survey and map distribution of species throughout an area (county, state, country) based on a grid system. The Research Committee of the West Midland Bird Club of Britain was the first organization to publish a bird atlas: *Atlas of Breeding Birds of the West Midlands* (Lord and Munns, 1970). In 1968 the British Trust for Ornithology (BTO) initiated a 5-year breeding bird atlas of the British Isles, which resulted in publication of *The Atlas of Breeding Birds in Britain and Ireland* (Sharrock, 1976). Many other European countries have begun or have completed breeding bird atlas projects (Belgium, Czechoslovakia, Denmark, Finland, France, Italy, Netherlands, Poland, Sweden, Switzerland).

Stimulated by the atlas work so successfully undertaken in Britain, the Montgomery County Chapter (MCC) of the Maryland Ornithological Society (MOS) ran a three-year pilot study in 1971 (Klimkiewicz and Buckler, 1971), 1972 (Klimkiewicz, 1972), and 1973 (Klimkiewicz and Robbins, 1974). The Howard County Chapter (HCC) initiated a second pilot study in 1973 (Klimkiewicz and Solem, 1974). The MCC project was designed to test the feasibility of an atlas project in the United States and to ascertain the problems that needed to be solved for a successful atlas. The HCC project had four additional objectives that resulted from the experiences of the Montgomery project: (1) to test the use of a smaller grid, (2) to ascertain the potential of Breeding Bird Survey Mini-routes as an useful atlas tool, (3) to see if workshops would increase observer efficiency, and (4) to ascertain if the above techniques would allow completion of a county atlas project in two years.

More recently, atlas studies have been started in other states, including Illinois, Maine, Massachusetts and Vermont, and in individual counties of California and Michigan.

Montgomery County (Fig. 1A), occupying an area of 1282 sq. km, lies on the Piedmont Plateau at latitude 39°, immediately northwest of Washington, D.C.. The elevation ranges from 10 m along the Potomac River at the southern tip of the county to 260 m in the north. The mean July temperature is 24°C and the mean annual temperature is 12°C. The mean annual precipitation is 102 cm (Rockville station). Montgomery is one of the fastest growing counties in the United States. The population has nearly doubled in every decade from 1940 to 1970, and was 522,809 in 1970 (408 people per sq. km). A population of over 740,000 is predicted by 1983. The southern 10 to 20 percent of the county is primarily residential, whereas the rest is used mainly for dairying and raising of hay and grains.

Howard County (Fig. 1A), occupying an area of 650 sq. km, lies on the Piedmont Plateau at latitude 39°, northeast of Montgomery County between Baltimore and Washington, D.C. Howard lies almost exactly in the center of Maryland and is the second smallest county in the state. The county is bounded by the Patapsco River on the northeast and the Patuxent River on the southwest. There are two reservoirs--Triadelphia and Rocky Gorge. The elevation ranges from 0 along the Patapsco River to 266 m in the northwest. The mean July temperature is 24°C and the mean annual temperature is 12°C. The mean annual precipitation is 110 cm (Clarksville station). Howard is a rapidly growing county; the 1970 population was 2394 (96 people per sq. km - ranking 10th out of 23 counties). There was a 69 percent population increase from 1960 to 1970, and a population of about 200,000 is predicted by 1985. Columbia is responsible for a large percentage of this growth. Ellicott City has also shown rapid growth. About 70 percent of the county is agricultural or undeveloped land.

*The Grid.* The national topographic maps in North America are based on degrees of latitude and longitude rather than a metric grid as in Europe. A 10-km grid used in the British Isles by Lord and Munns (1970) was established as an international standard. When our standard 7½-minute topographic map is subdivided into sixths (each block having 2½ degrees of latitude and 3 3/4 degrees of longitude) the area of each such block at the latitude of Maryland is almost exactly the same (within 3/10 of 1%) as that of a 5-km square. Thus, for all practical purposes these subdivisions can be considered the same as 5-km blocks. In order to maintain the integrity of the grid, all 5-km blocks (6 blocks per 7½-minute U. S. Geological Survey quadrangle) were covered completely during the MCC Atlas even if only part was within the county. Four of these blocks are approximately equal in area (within 1%) to the international standard 10-km grid; therefore, our maps can be directly compared with European atlas maps.

The six blocks in each quadrangle were designated as northwest (NW), northeast (NE), central west (CW), central east (CE), southwest (SW) and southeast (SE). A list of the quadrangle maps that covered Montgomery County follows with the number of blocks on each map shown in

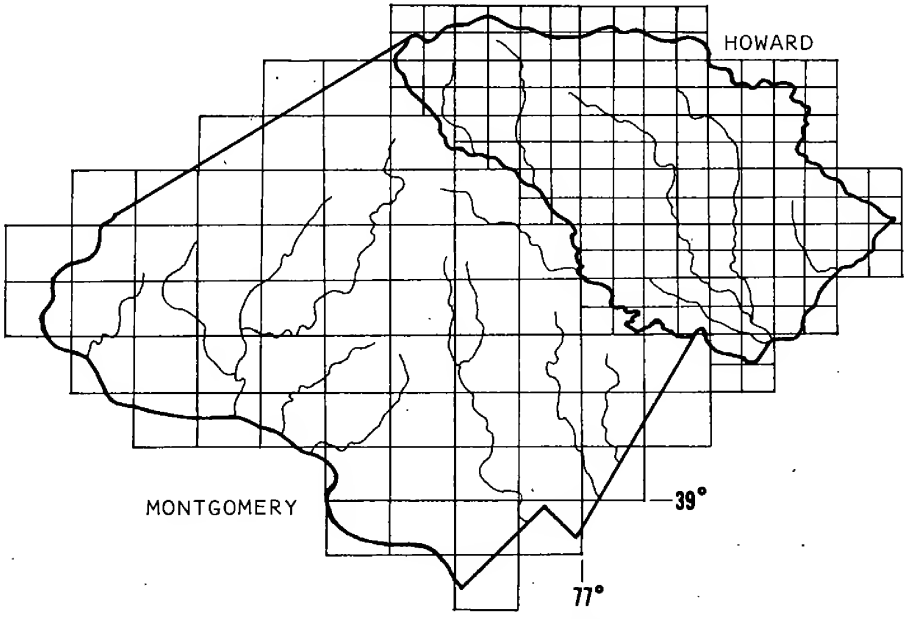



Figure 1A. Atlas grids superimposed on the Montgomery and Howard County boundaries. Latitude and longitude and the major streams are shown.

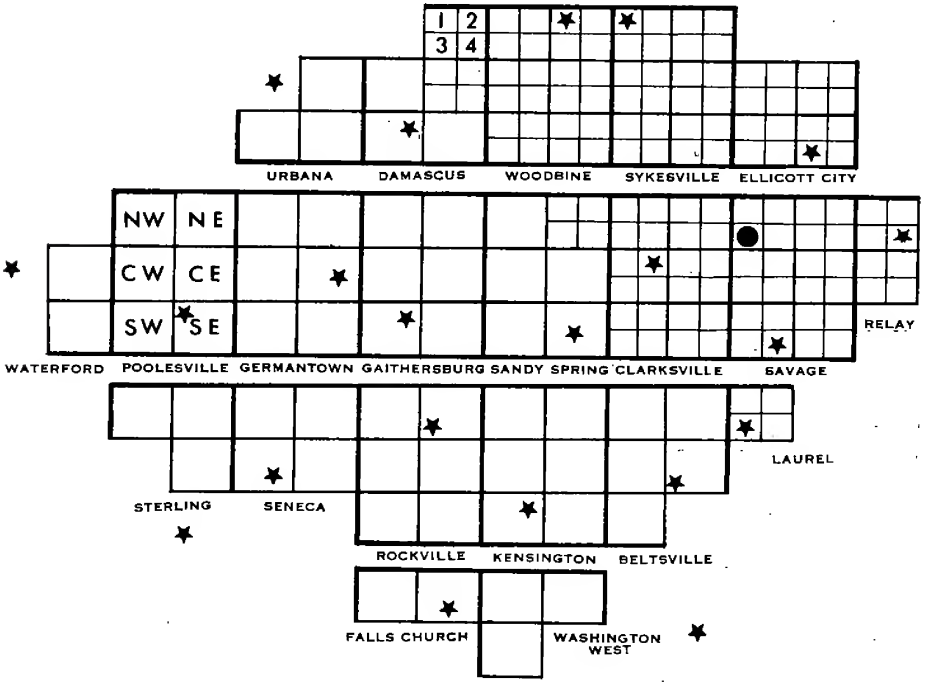



Figure 1B. Atlas grid showing the quadrangle names and block and quarter block designations. Stars show locations of towns for which quadrangles are named.

parentheses (Fig. 1B): Urbana and Damascus (total of 6); Poolesville and Waterford (total of 8); Germantown (6), Gaithersburg (6); Sandy Spring (5); Sterling (3); Seneca (4); Rockville (6); Kensington (6); Beltsville (5); and Falls Church and Washington West (total of 5). Because many of the quadrangle maps contain portions of neighboring counties, the number of blocks often is fewer than six and several incomplete boundary blocks were combined with adjacent ones for assignment purposes. Field records were kept separately for each block or fraction thereof.

The 5-km grid used for Montgomery County was subdivided into a 2½-km grid for Howard County. Again all 5-km blocks (four 2½-km quarter blocks) were covered, even if only part of the block was within the county. Each 5-km block was named in the same manner as those in Montgomery County and was subdivided into quarter blocks numbered 1, 2, 3, and 4 (Fig. 1B). The following quadrangle maps were covered in Howard County (the number of blocks and quarter blocks shown in parentheses): Damascus (2, 8); Woodbine (6, 24); Sykesville (6, 24); Ellicott City (4, 16); Sandy Spring (1, 4); Clarksville (6, 24); Savage (6, 24); Relay (2, 8) and Laurel (1, 4).

*Assignments.* Each standard 7½-minute quandrangle was assigned to a coordinator and each individual block or quarter block was assigned to one or more observers (Fig. 2). Each participant was provided with written instructions, maps, a list of coordinators and block observers (with addresses and telephone numbers), a list of species showing the acceptable range of dates for probable nesting and for egg laying, check lists for reporting results, and nest cards.

*Breeding Categories.* The following codes, adapted from those of the BTO were used (Fig. 2). Modifications to the BTO codes are marked with asterisks (*).

POSSIBLE BREEDING (to be indicated by a check mark)
Individual(s) recorded in possible nesting habitat during the breeding season (after the end of the spring migration period), but no other indication of breeding established.

PROBABLE BREEDING (single letter codes)

S Singing male present (or breeding calls heard) on more than one date in the same place.

T Individual or pair holding territory as evidenced by behavior.

D Courtship and display; agitated behavior or anxiety calls from adults, suggesting probable presence of nest or young nearby; broodpatch on trapped female; cloacal protuberence on trapped male.

N Visiting probable nest-site.

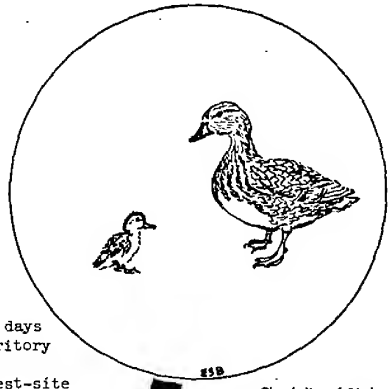
B Nest building by wrens and woodpeckers (only *).

CONFIRMED BREEDING (2 letter codes)

DD Distraction display, injury feigning, or copulation*.

NB* Nest building by any species except wrens and woodpeckers.

UN Used nest found (must be a nest built and used during the inclusive years of the project).



CODES

POSSIBLE BREEDING
- ✓ Bird seen in area

PROBABLE BREEDING
- S Singing male on two days
- T Bird(s) holding territory
- D Courtship, display
- N Visiting probable nest-site
- B Nest-building for wrens and woodpeckers

CONFIRMED BREEDING
- DD Distraction display
- NB Nest building
- UN Used nest
- FE Female with egg in oviduct
- FL Recently fledged young
- FS Adult carrying faecal-sac
- FY Adult(s) with food for young
- ON Adult(s) entering or leaving nest site
- NE Nest and eggs or adult on nest
- NY Nest with young, downy young of ducks or game-birds

Check-list of Birds of the District of Columbia Region

Very rare or irregular species omitted

Observers: Bob Hahn
Date: 1971-72 Seasons
Quad: Rockville
Sector: Northwest
Place: Possible / Probable / Confirmed

| | Possible | Probable | Confirmed | | Possible | Probable | Confirmed |
|---|---|---|---|---|---|---|---|
| HERON, Great Blue | ✓ | | | VULTURE, Turkey | ✓ | | |
| Green | ✓ | | | Black | | | |
| Little Blue | | | | GOSHAWK | | | |
| EGRET, Cattle | | | | HAWK, Sharp-shinned | | | |
| Common | | | | Cooper's | | | |
| Snowy | | | | Red-tailed | | | |
| HERON, Louisiana | | | | Red-shouldered | | | D |
| Black-crowned Night | | | | Broad-winged | | | |
| Yellow-crowned Night | | | | Rough-legged | | | |
| BITTERN, Least | | | | EAGLE, Golden | | | |
| American | | | | Bald | | | |
| IBIS, Glossy | | | | HAWK, Marsh | | | |
| SWAN, Mute | | | | OSPREY | | | |
| Whistling | | | | FALCON, Peregrine | | | |
| GOOSE, Canada | | | NY | HAWK, Pigeon | | | |
| BRANT | | | | Sparrow | | | |
| GOOSE, Snow | | | | GROUSE, Ruffed | | | |
| Blue | | | | BOBWHITE | | | NY |
| DUCK, Fulvous Tree | | | | PHEASANT, Ring-necked | | | |
| MALLARD | | | NY | TURKEY, Wild | | | |
| DUCK, Black | | | | RAIL, King | | | |
| GADWALL | | | | Clapper | | | |
| PINTAIL | | | | Virginia | | | |
| TEAL, Green-winged | | | | SORA | | | |
| Blue-winged | | | | RAIL, Yellow | | | |
| WIDGEON, European | | | | Black | | | |
| American | | | | GALLINULE, Common | | | |
| SHOVELER | | | | COOT, American | | | |
| DUCK, Wood | | | | OYSTERCATCHER, American | | | |
| REDHEAD | | | | PLOVER, Semipalmated | | | |
| DUCK, Ring-necked | | | | Piping | | | |
| CANVASBACK | | | | Wilson's | | | |
| SCAUP, Greater | | | | KILLDEER | | | DD |
| Lesser | | | | PLOVER, American Golden | | | |



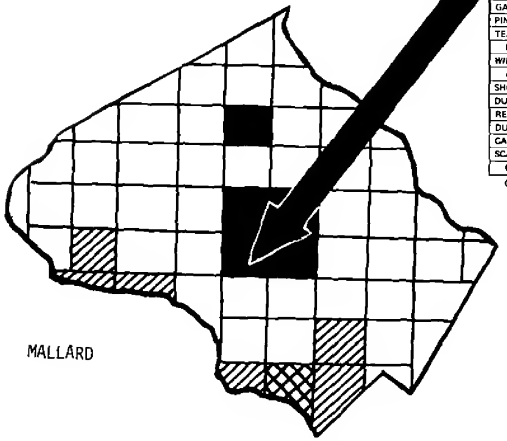



Figure 2. Flow chart showing binocular view of nesting confirmation for Mallard, the code used on the report form, and the confirmation symbol on the Montgomery County map.

FE* Female with egg in oviduct.
FL Recently fledged young.
FS Adult(s) carrying faecal sac.
FY Adult(s) with food for young.
ON Adult(s) entering or leaving nest site in circumstances indicating occupied nest.
NE Nest with eggs; individual incubating or brooding and not disturbed, or egg shells found away from nest.
NY Nest with young, or downy young of waterfowl, quail, waders, rails, etc.

*Coverage.* Equipped with maps, checklists, and breeding status codes, observers first familiarized themselves with the habitats in their assigned blocks and then concentrated on the most productive areas. Some observers made a tentative list of expected breeding species and then searched for these species in the field. The atlas is not concerned with numbers of birds, but rather with which species are breeding within each block. Therefore, once an observer had confirmed a species in a block, he was no longer concerned with that species and could concentrate on confirming others (Fig. 2).

In the HCC Atlas, the highest category of breeding evidence for the 5-km block was assigned to each quarter block in which the species was observed. Thus a single confirmation sufficed for the entire block; however, the species was mapped only for those quarter blocks in which it had actually been detected during the breeding season.

Both MCC and HCC projects were conducted for three years (Montgomery from 1971 through 1973 and Howard from 1973 through 1975). Observer effort was dependent on the areas and number of blocks being covered. No attempt was made to standardize the amount of field work in any given block, but two full field days per 5-km block was considered to be a minimum.

*Mini-routes.* The HCC Atlas tested the feasibility and usefulness of this additional survey technique. The distribution of all but the rarer and very local species can be recorded in much greater detail by a concentrated application of the Breeding Bird Survey method. This provides quantitative results in addition to breeding status for many species. Unlike the standard BBS routes, the Mini-routes were non-randomly distributed to attain maximum coverage. These routes are one-half as long as regular BBS routes and consist of 25 stops at one-half mile intervals. The observer recorded every bird seen or heard during a three-minute interval at each stop and then immediately moved to the next stop. Any species seen between stops (if not recorded at the stop) was recorded separately as was any breeding evidence observed.

Each route was run twice--forward and backward. Thus many common species recorded singing at the same stop on two days were immediately upgraded from possible to probable nesters. The results of the 23 Howard County mini-routes were sent to the observers and much of the atlas effort was then concentrated on the rarer and local species.

*Workshops and Handouts.* Four atlas workshops were provided for Howard County--general techniques (1) and identifying, locating, and confirming the more difficult species such as hawks, owls, flycatchers, and warblers (3). Additional sheets provided workshop summaries, safe dates for expected species (to eliminate reporting of migrants), and a list of habitat preferences of difficult species.

*Reports.* Two reports were requested--a preliminary one the end of June and a final one by mid-September (Fig. 2). Nest cards were encouraged. Close coordination and communication was maintained all summer.

*Mapping.* A distribution map was prepared for each species (Fig. 2). Maps reflect the highest level of evidence obtained for a species within a block. A rough measure of relative abundance can be computed from the percentage of blocks in which a species was found.

## RESULTS

Sixty 5-km blocks were covered in Montgomery County and 34 (136 quarter blocks) in Howard County. Each species recorded during the atlas projects is discussed below. The total number of 5-km blocks for Montgomery County and 5-km and 2½-km blocks for Howard County, in which each species was recorded, is followed by the number of possible, probable, and confirmed breeding records (with percent in parentheses).

PIED-BILLED GREBE was discovered on territory in Seneca-CW an adult was later found with chicks on its back (P. DuMont). This species is a rare summer resident in the Maryland Piedmont. This is the first nesting record for the Piedmont. Montgomery: 1 (2%); 1 confirmed (100%).

GREAT BLUE HERON (Fig. 3) was a new breeding species for the Maryland Piedmont. Adults were seen carrying food in Sterling-CE (P. Woodward) and a nest with young was found in Savage-CE 2 (L. Murphy).

GREEN HERON (Fig. 3) typically nests in shrubs and trees near streams, but individuals have nested in trees far from water (Harrison, 1975).

| | Montgomery | Howard |
|---|---|---|
| No. of blocks | 13 (22%) | 9(26%), 16(12%) |
| Confirmed | 1 ( 8%) | 3 (18%) |
| Probable | 1 ( 8%) | 2 (13%) |
| Possible | 11 (84%) | 11 (69%) |
| No. of blocks | 45 (75%) | 30(88%), 66(49%) |
| Confirmed | 9 (20%) | 18 (27%) |
| Probable | 6 (13%) | 21 (32%) |
| Possible | 30 (67%) | 27 (41%) |

BLACK-CROWNED NIGHT HERON (Fig. 3), a new nesting species in Howard County, had been previously reported from the Maryland Piedmont in adjacent Baltimore County (Stewart and Robbins, 1958). Adults and fledglings were observed in Relay-NW (I. Hampe) along the Patapsco River. Howard: 1 (3%), 4 (2%); 4 confirmed (100%).

YELLOW-CROWNED NIGHT HERON (Fig. 3) was considered rare and local in the Maryland Piedmont by Stewart and Robbins (1958). A small colony has existed in Montgomery County since 1939 near the junction of Seneca Creek and the Potomac River (Sterling quadrangle). However, two nests found in 1969 were unsuccessful (DuMont, 1969) and none were found in 1970. In June 1971, five adults fed regularly in a flooded field at Sycamore Landing (P. Woodward). The species was confirmed in 1972 in Sterling-CE.

| | Montgomery | Howard |
|---|---|---|
| No. of blocks | 4 ( 7%) | 1 (3%), 1 (1%) |
| Confirmed | 1 (25%) | |
| Probable | 1 (25%) | |
| Possible | 2 (50%) | 1 (100%) |

LEAST BITTERN (Fig. 3) is considered rare or local in the Maryland Piedmont. The first nests in Mongtomery County were found at McKee-Beshers Wildlife Management Area by E. M. Martin in 1967 and 1968. Atlas confirmations were reported in the same area for Sterling-NE and CE. A single observation was made in Howard's Relay-NW.

| | | |
|---|---|---|
| No. of blocks | 2 ( 3%) | 1 (3%), 1 (1%) |
| Confirmed | 2 (100%) | |
| Possible | | 1 (100%) |

AMERICAN BITTERN (*Botaurus lentiginosus*) has not been reported as breeding in the Maryland Piedmont. Probable nesting was recorded in Sterling-CE and possible in Gaithersburg-SW.

| | | |
|---|---|---|
| No. of blocks | 2 ( 3%) | |
| Probable | 1 (50%) | |
| Possible | 1 (50%) | |

MUTE SWAN (Fig. 3) is an introduced European bird that has recently started to breed on Maryland's Eastern Shore. New for both counties, it was confirmed in Gaithersburg-SE (Needwood Lake) by T. Valega and Savage-NW and CW (Columbia) by E. Klass.

| | | |
|---|---|---|
| No. of blocks | 2 ( 3%) | 2 (6%), 2 (1%) |
| Confirmed | 1 (50%) | 2 (100%) |
| Possible | 1 (50%) | |

CANADA GOOSE (Fig. 3) was found nesting in both counties. Pairs have been nesting at National Geographic (Rockville) and Rossmoor Leisure World (Kensington) since 1970. Many of these geese are offshoots of the well established colony at Patuxent Wildlife Research Center, Prince Georges County.

| | | |
|---|---|---|
| No. of blocks | 15 (25%) | 7 (21%), 8 (6%) |
| Confirmed | 8 (53%) | 2 (25%) |
| Probable | 1 ( 7%) | 6 (75%) |
| Possible | 6 (40%) | 6 (75%) |

MALLARD (Fig. 3) is a fairly common breeding species in both counties. Many, if not all, of these birds are believed to be feral.

| | | |
|---|---|---|
| No. of blocks | 33 (55%) | 22(65%), 49(36%) |
| Confirmed | 15 (46%) | 19 (39%) |
| Probable | 6 (18%) | 9 (18%) |
| Possible | 12 (36%) | 21 (43%) |

AMERICAN BLACK DUCK (Fig. 3) is a species of the tidewater sections and rare in the interior (Stewart and Robbins, 1958).

| | | |
|---|---|---|
| No. of blocks | 13 (22%) | 7 (21%), 10 (7%) |
| Confirmed | | 4 (40%) |
| Probable | 1 ( 8%) | 5 (50%) |
| Possible | 12 (92%) | 1 (10%) |

GADWALL (*Anas strepera*) was previously reported as nesting in Maryland only on the Eastern Shore (Dorchester and Somerset Counties). A pair produced young in Savage-CW 3. This is a new Howard County record (E. Klaas).

| | | |
|---|---|---|
| No. of blocks | | 1 (3%), 1 (1%) |
| Confirmed | | 1 (100%) |

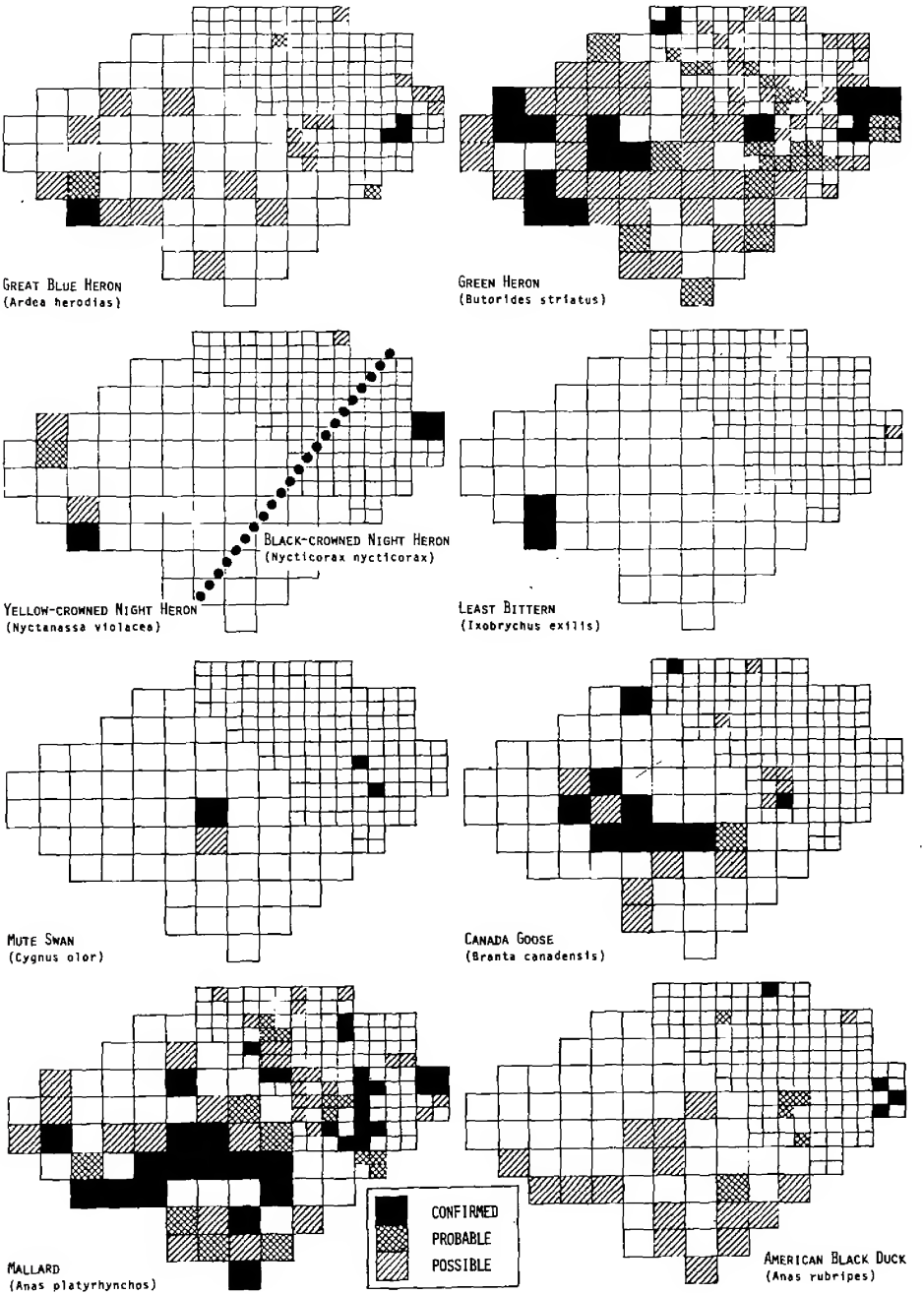



Figure 3. Breeding distribution of herons through American Black Duck

| | | Montgomery | Howard |
|---|---|---|---|
| BLUE-WINGED TEAL (Fig. 4) is primarily a tidewater nesting species in Maryland. Non-flying young were observed in Seneca-CW (Montgomery County) by W. Sieck. The Clarksville birds have been stocked on a game farm but there is suitable natural habitat for nesting in the county. | No. of blocks | 3 ( 5%) | 1 (3%), 2 (1%) |
| | Confirmed | 1 (33%) | |
| | Possible | 2 (67%) | 2 (100%) |
| WOOD DUCK (Fig. 4), a fairly common breeding species in the Maryland Piedmont, was concentrated along the major streams and rivers. | No. of blocks | 30 (50%) | 18(53%), 34(25%) |
| | Confirmed | 15 (50%) | 26 (76%) |
| | Probable | 3 (10%) | 2 ( 6%) |
| | Possible | 12 (40%) | 6 (18%) |
| TURKEY VULTURE (Fig. 4), a common nesting species, was found in almost all habitats. | No. of blocks | 54 (90%) | 33(97%),107(79%) |
| | Confirmed | 7 (13%) | 8 ( 8%) |
| | Probable | 5 ( 9%) | 43 (40%) |
| | Possible | 42 (78%) | 56 (52%) |
| BLACK VULTURE (Fig. 4), formerly common in the Potomac River Valley and fairly common in Howard County (Stewart and Robbins, 1958), was uncommon in both counties. | No. of blocks | 12 (20%) | 11(32%), 18(13%) |
| | Confirmed | | 5 (28%) |
| | Probable | | 4 (22%) |
| | Possible | 12 (100%) | 9 (50%) |
| SHARP-SHINNED HAWK (*Accipiter striatus*) is very rare in the Maryland Piedmont (formerly more numerous) owing to the destruction of extensive wooded tracts (Stewart and Robbins, 1958). One used nest was found in Poolesville-SE. | No. of blocks | 2 ( 3%) | |
| | Confirmed | 1 (50%) | |
| | Possible | 1 (50%) | |
| COOPER'S HAWK (Fig. 4) also has suffered from habitat destruction, but it is still the most numerous breeding accipiter. It was confirmed in both counties. | No. of blocks | 11 (18%) | 6 (18%), 6 (4%) |
| | Confirmed | 5 (45%) | 1 (17%) |
| | Probable | 1 (10%) | 1 (17%) |
| | Possible | 5 (45%) | 4 (66%) |
| RED-TAILED HAWK (Fig. 4) was widespread in Montgomery County and western Howard County. Stewart and Robbins (1958) considered this species uncommon in the Maryland Piedmont. However, recent land development and agricultural uses have produced more edge habitat preferred by this species. | No. of blocks | 50 (83%) | 25(74%), 48(35%) |
| | Confirmed | 25 (50%) | 23 (48%) |
| | Probable | 5 (10%) | 12 (25%) |
| | Possible | 20 (40%) | 13 (27%) |
| RED-SHOULDERED HAWK (Fig. 4) is a fairly common species along the Potomac, Patuxent, and Patapsco Rivers as well as other forested floodplain areas. | No. of blocks | 46 (77%) | 26(76%), 68(50%) |
| | Confirmed | 21 (45%) | 46 (67%) |
| | Probable | 9 (20%) | 12 (18%) |
| | Possible | 16 (35%) | 10 (15%) |
| BROAD-WINGED HAWK (Fig. 4) has also suffered from destruction of woodlands. It was formerly fairly common (Stewart and Robbins, 1958) but was uncommon during the atlas period. | No. of blocks | 25 (42%) | 23(68%), 38(28%) |
| | Confirmed | 7 (28%) | 14 (37%) |
| | Probable | 8 (32%) | 10 (26%) |
| | Possible | 10 (40%) | 14 (37%) |

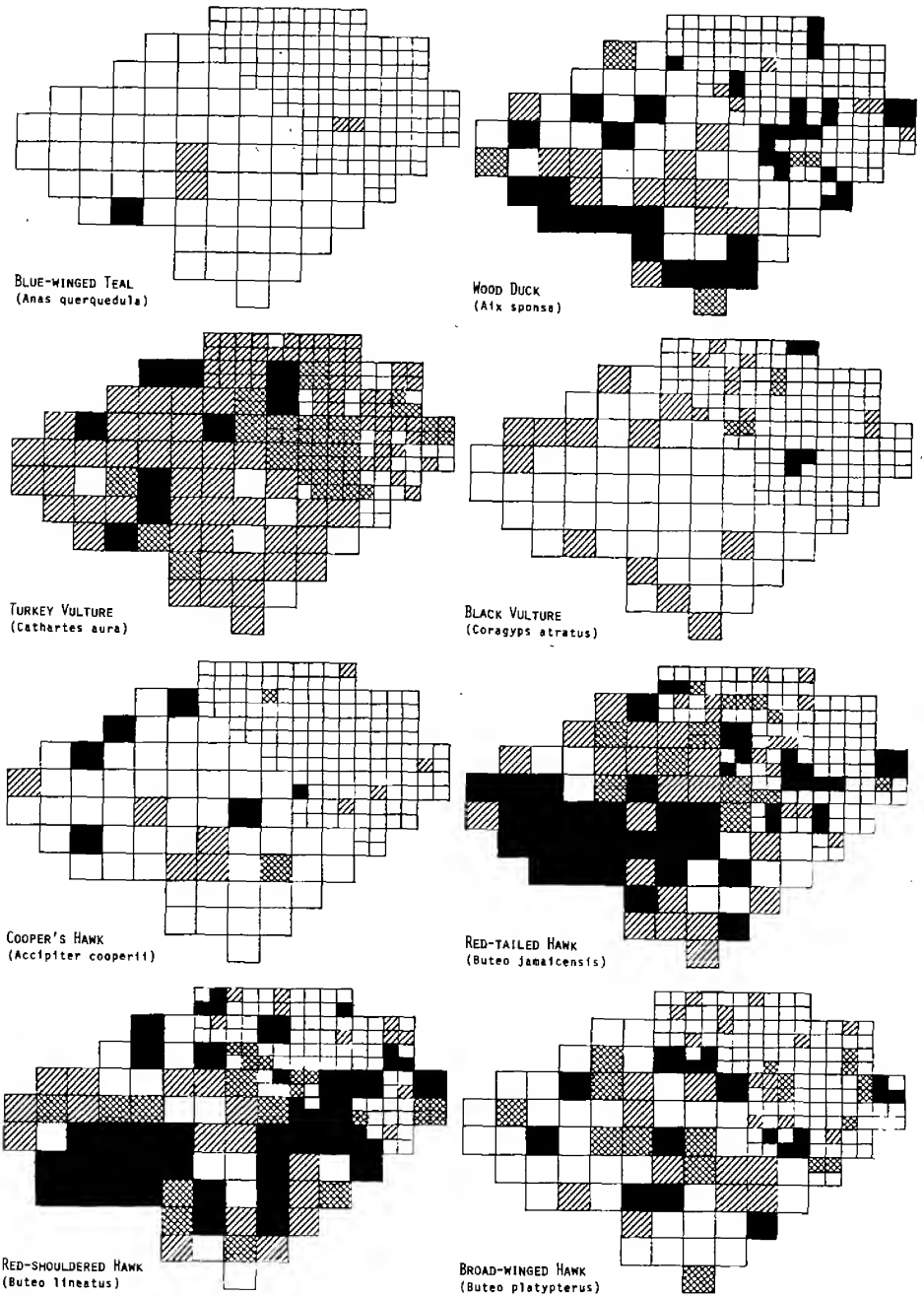



Figure 4. Breeding distribution of teal through Broad-winged Hawk

| | | Montgomery | Howard |
|---|---|---|---|
| NORTHERN HARRIER (Fig. 5) is unrecorded as a breeding species in either county; the one probable record was in a sedge meadow in Poolesville-SE. | No. of blocks | 5 ( 8%) | 1 (3%), 1 (1%) |
| | Probable | 1 (20%) | |
| | Possible | 4 (80%) | 1 (100%) |
| AMERICAN KESTREL (Fig. 5) was fairly common in the agricultural areas of both counties. | No. of blocks | 46 (77%) | 31(91%), 66(49%) |
| | Confirmed | 12 (26%) | 15 (23%) |
| | Probable | 7 (15%) | 30 (45%) |
| | Possible | 27 (59%) | 21 (32%) |
| RUFFED GROUSE (*Bonosa umbellus*) disappeared from the Maryland Piedmont, 1900-1920 (Stewart and Robbins, 1958). A hen was seen with chicks along Northwest Branch in Kensington-CE (N. MacClintock), evidently a relict population; none have been stocked there. Grouse have been introduced on a game farm in Clarksville-CE. | No. of blocks | 1 ( 2%) | 1 (3%), 1 (1%) |
| | Confirmed | 1 (100%) | |
| | Possible | | 1 (100%) |
| COMMON BOBWHITE (Fig. 5) were abundant throughout both counties. | No. of blocks | 60 (100%) | 34(100%),135(99%) |
| | Confirmed | 37 (62%) | 68 (50%) |
| | Probable | 20 (33%) | 67 (50%) |
| | Possible | 3 ( 5%) | |
| RING-NECKED PHEASANT (Fig. 5), introduced by the state, has been unable to establish breeding pairs except locally, but were common in western Howard County and adjacent northeastern Montgomery. | No. of blocks | 30 (50%) | 29(85%), 94(69%) |
| | Confirmed | 7 (23%) | 37 (39%) |
| | Probable | 11 (37%) | 49 (52%) |
| | Possible | 12 (40%) | 8 ( 9%) |
| WILD TURKEY (Fig. 5) formerly nested in the Maryland Piedmont, but now only introduced birds are found. The game farm in Clarksville-CE stocks turkeys. In Montgomery County, they are fairly common in and near McKee-Beshers WMA. | No. of blocks | 9 (15%) | 2 (6%), 2 (1%) |
| | Confirmed | 2 (22%) | |
| | Probable | 6 (67%) | 1 (50%) |
| | Possible | 1 (11%) | 1 (50%) |
| VIRGINIA RAIL (Fig. 5), confirmed in both counties, is a new breeding species for Howard Co. (I. Hampe). | No. of blocks | 1 ( 2%) | 1 (2%), 1 (1%) |
| | Confirmed | 1 (100%) | 1 (100%) |
| COMMON GALLINULE (*Gallinula chloropus*) a rare transient in the Maryland Piedmont, is a possible nesting species at McKee-Beshers WMA (Sterling-CE). It has nested farther south along the Potomac River at Mason Neck NWR, Virginia. | No. of blocks | 1 ( 2%) | |
| | Possible | 1 (100%) | |
| AMERICAN COOT (Fig. 5) was observed with downy young along the Potomac River (Seneca-CW) by P. DuMont. This is the first Maryland nesting record west of Chesapeake Bay. | No. of blocks | 3 ( 5%) | |
| | Confirmed | 1 (33%) | |
| | Possible | 2 (67%) | |
| KILLDEER (Fig. 5) was common in both counties. In built-up areas several were found on the gravel-topped roofs of schools or other buildings. | No. of blocks | 55 (92%) | 33(97%),118(87%) |
| | Confirmed | 37 (67%) | 100 (85%) |
| | Probable | 11 (20%) | 3 ( 2%) |
| | Possible | 7 (13%) | 15 (13%) |

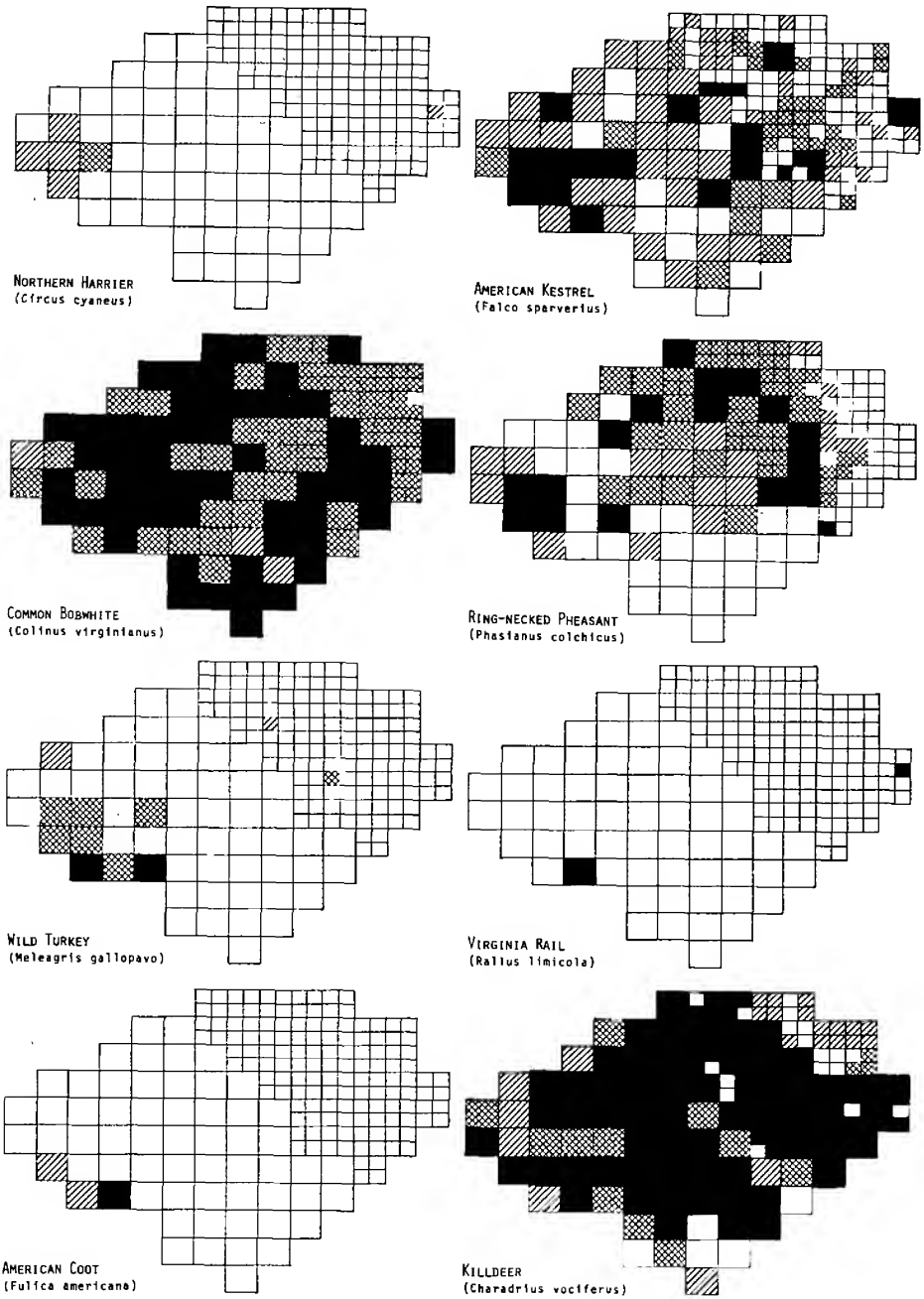



Figure 5. Breeding distribution of Northern Harrier through Killdeer

| | | Montgomery | Howard |
|---|---|---|---|
| AMERICAN WOODCOCK (Fig. 6), an uncommon local nester in the Maryland Piedmont, was concentrated near the Potomac and Patuxent Rivers and other large streams. | No. of blocks | 27 (45%) | 14(41%), 23(17%) |
| | Confirmed | 7 (26%) | 8 (35%) |
| | Probable | 14 (52%) | 12 (52%) |
| | Possible | 6 (22%) | 3 (13%) |
| UPLAND SANDPIPER *(Bartramia longicauda)* was recorded from only one block (Waterford-CE on the Virginia side of the Potomac). This species was formerly more abundant in the western edge of Montgomery County and adjacent Frederick County. | No. of blocks | 1 ( 2%) | |
| | Probable | 1 (100%) | |
| SPOTTED SANDPIPER (Fig. 6) is an uncommon breeding species in all sections of Maryland. It was confirmed in both counties. | No. of blocks | 17 (28%) | 6(18%), 10 (7%) |
| | Confirmed | 1 ( 6%) | 5 (50%) |
| | Probable | 3 (18%) | |
| | Possible | 13 (76%) | 5 (50%) |
| ROCK DOVE (Fig. 6) is an abundant introduced species in both counties. It was found in all 5-km blocks. | No. of blocks | 60 (100%) | 34(100%),123(90%) |
| | Confirmed | 33 (55%) | 65 (53%) |
| | Probable | 7 (12%) | 7 ( 6%) |
| | Possible | 20 (33%) | 51 (41%) |
| MOURNING DOVE *(Zenaida macroura)* was recorded in all blocks of both counties. | No. of blocks | 60 (100%) | 34(100%),136(100%) |
| | Confirmed | 48 (80%) | 120 (88%) |
| | Probable | 12 (20%) | 16 (12%) |
| MONK PARAKEET (Fig. 6), an escaped exotic, was observed in both counties. This species has not become established. | No. of blocks | 6 (10%) | 1 (3%), 1 (1%) |
| | Probable | 1 (17%) | |
| | Possible | 5 (83%) | 1 (100%) |
| YELLOW-BILLED CUCKOO (Fig. 6), fairly common in the Maryland Piedmont, was well distributed throughout both counties. | No. of blocks | 53 (88%) | 33(97%),109(80%) |
| | Confirmed | 13 (25%) | 13 (12%) |
| | Probable | 25 (47%) | 67 (61%) |
| | Possible | 15 (28%) | 29 (27%) |
| BLACK-BILLED CUCKOO (Fig. 6) is an uncommon to rare nester in both counties. | No. of blocks | 11 (18%) | 10(29%), 19(14%) |
| | Confirmed | 1 ( 9%) | |
| | Probable | 3 (27%) | 8 (42%) |
| | Possible | 7 (64%) | 11 (58%) |
| BARN OWL (Fig. 6), an uncommon local nester in both counties, was a difficult species to locate and often required contact with local residents. We believe it nests in many more blocks than are shown on the map. | No. of blocks | 12 (20%) | 12(35%), 19(14%) |
| | Confirmed | 3 (25%) | 16 (84%) |
| | Probable | 2 (17%) | 1 ( 5%) |
| | Possible | 7 (58%) | 2 (11%) |
| COMMON SCREECH OWL (Fig. 6), an uncommon permanent resident in all sections of Maryland, was scattered throughout both counties. | No. of blocks | 27 (45%) | 17(50%), 26(19%) |
| | Confirmed | 7 (26%) | 5 (19%) |
| | Probable | 9 (33%) | 11 (42%) |
| | Possible | 11 (41%) | 10 (39%) |

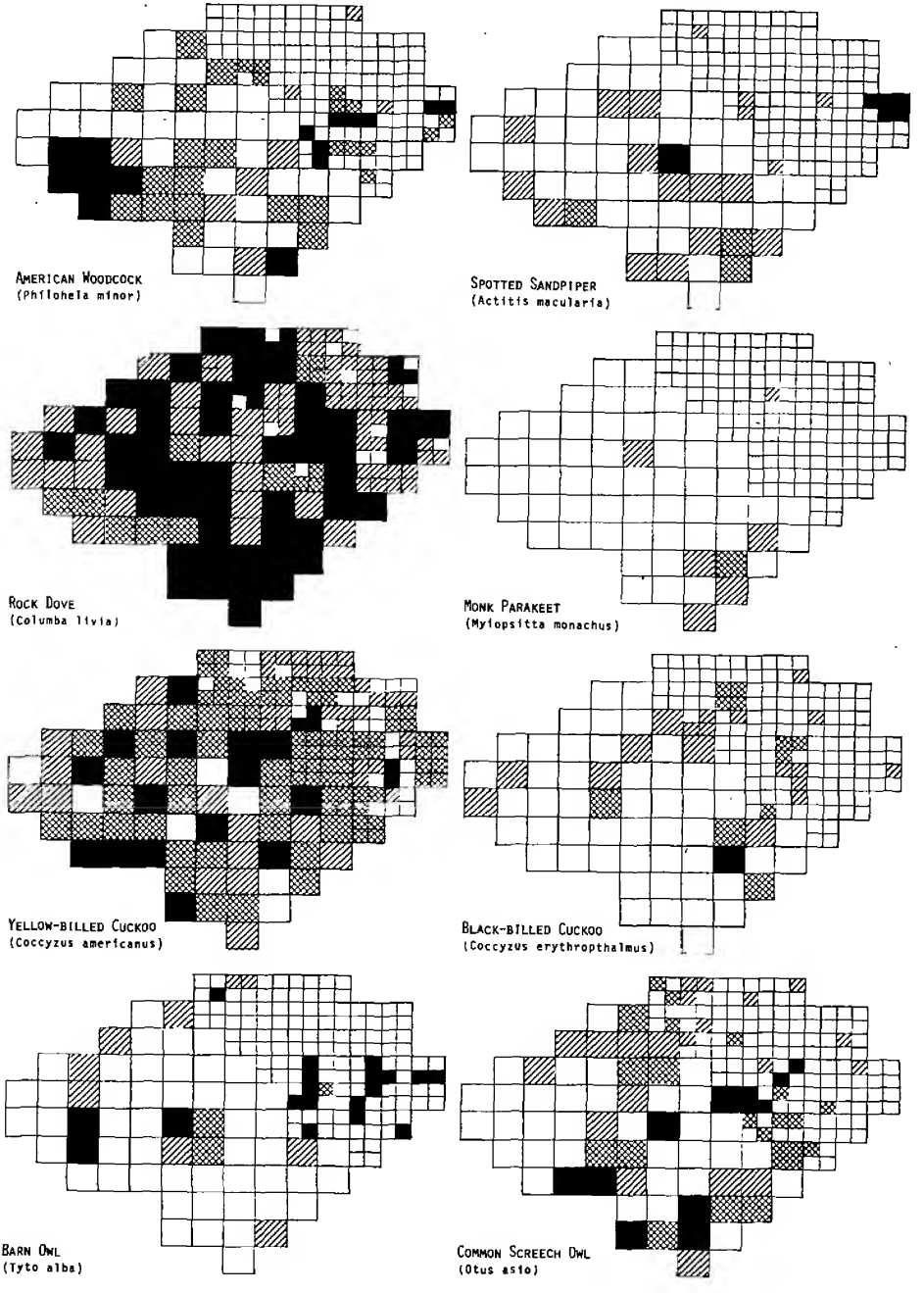



Figure 6. Breeding distribution of Am. Woodcock through Com. Screech Owl

| | | Montgomery | Howard |
|---|---|---|---|
| GREAT HORNED OWL (Fig. 7), also an uncommon permanent resident in the Maryland Piedmont, was locally common in both counties. | No. of blocks | 23 (38%) | 18(53%), 29(21%) |
| | Confirmed | 6 (26%) | 12 (42%) |
| | Probable | 7 (30%) | 8 (27%) |
| | Possible | 10 (44%) | 9 (31%) |
| BARRED OWL (Fig. 7) was fairly common along the rivers and streams of both counties. | No. of blocks | 37 (62%) | 27(79%), 53(39%) |
| | Confirmed | 11 (30%) | 29 (55%) |
| | Probable | 11 (30%) | 14 (26%) |
| | Possible | 15 (40%) | 10 (19%) |
| SHORT-EARED OWL (Fig. 7) was confirmed in Montgomery County for the first Maryland Piedmont breeding record. An adult was observed dropping food and performing distraction display in an extensive open agricultural area in Poolesville-SW (R. Gelhard, H. Wierenga). Another was seen near Poolesville High School later in the summer (P. Woodward); this is also the most reliable wintering area in the county for this species. | No. of blocks | 2 ( 3%) | |
| | Confirmed | 1 (50%) | |
| | Possible | 1 (50%) | |
| CHUCK-WILL'S-WIDOW (Fig. 7) has not been recorded as breeding in the Maryland Piedmont, but one bird was heard regularly through one summer in a pine woods in Rockville-CW. An adult male was banded in the same block at the Adventure Sanctuary near Potomac Village on September 11, 1978. | No. of blocks | 1 ( 2%) | |
| | Probable | 1 (100%) | |
| WHIP-POOR-WILL (Fig. 7) was a difficult species to locate because of its crepuscular habits. It was recorded locally in both counties. | No. of blocks | 21 (35%) | 17(50%), 30(22%) |
| | Confirmed | | 1 ( 3%) |
| | Probable | 14 (67%) | 23 (77%) |
| | Possible | 7 (33%) | 6 (20%) |
| COMMON NIGHTHAWK (Fig. 7) was uncommon and local in and near city areas in both counties. A few nighthawks were recorded in the agricultural areas. | No. of blocks | 17 (28%) | 11(32%), 16(12%) |
| | Confirmed | 1 ( 6%) | 1 ( 6%) |
| | Probable | 3 (18%) | 1 ( 6%) |
| | Possible | 13 (76%) | 14 (88%) |
| CHIMNEY SWIFT (Fig. 7), common in both counties, was found nesting in both natural and man-made cavities. | No. of blocks | 57 (95%) | 34(100%),123(90%) |
| | Confirmed | 20 (35%) | 50 (41%) |
| | Probable | 8 (14%) | 35 (28%) |
| | Possible | 29 (51%) | 38 (31%) |
| RUBY-THROATED HUMMINGBIRD (Fig. 7), a fairly common species in both counties, was difficult to locate owing to its small size and preference for high nesting sites. | No. of blocks | 49 (82%) | 27(79%), 59(43%) |
| | Confirmed | 11 (23%) | 26 (44%) |
| | Probable | 7 (14%) | 16 (27%) |
| | Possible | 31 (63%) | 17 (29%) |
| BELTED KINGFISHER (Fig. 7) is listed as uncommon in Stewart and Robbins (1958), but it was a fairly common species in both counties. | No. of blocks | 50 (83%) | 31(91%), 79(58%) |
| | Confirmed | 5 (10%) | 33 (42%) |
| | Probable | 16 (32%) | 32 (40%) |
| | Possible | 29 (58%) | 14 (18%) |

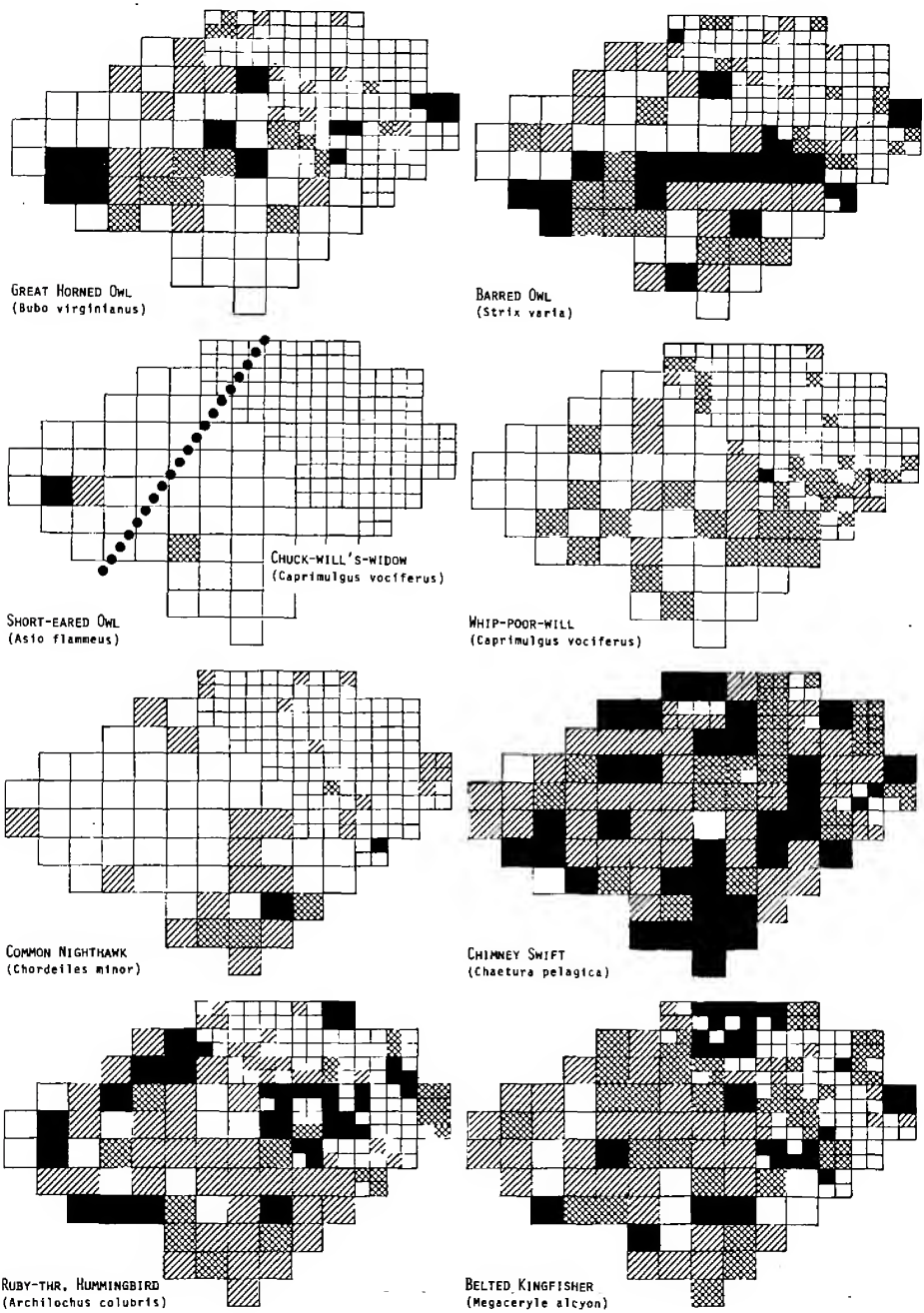



Figure 7. Breeding distribution of Great Horned Owl through kingfisher

| | | Montgomery | Howard |
|---|---|---|---|
| COMMON (YELLOW-SHAFTED) FLICKER (Fig. 8) was abundant in both counties. | No. of blocks | 60 (100%) | 34(100%),125(92%) |
| | Confirmed | 25 (41%) | 65 (52%) |
| | Probable | 23 (39%) | 35 (28%) |
| | Possible | 12 (20%) | 25 (20%) |
| PILEATED WOODPECKER (Fig. 8), according to Stewart and Robbins (1958), was confined to the area along the Potomac in Montgomery County and was absent from Howard County. This shy, wary woodpecker has successfully spread throughout the floodplain and moist upland forests in Montgomery County, and now occurs locally, but in more than half of the 5-km blocks, in Howard County. | No. of blocks | 49 (82%) | 18(53%), 29(21%) |
| | Confirmed | 11 (22%) | 10 (35%) |
| | Probable | 14 (29%) | 11 (38%) |
| | Possible | 24 (49%) | 8 (27%) |
| RED-BELLIED WOODPECKER (Fig. 8) was recorded in all 5-km blocks and was absent from only four Howard quarter blocks (Woodbine-CW 2; Sykesville-NE 4, CE 1; Savage-NW 4). This is our most conspicuous woodpecker. | No. of blocks | 60 (100%) | 32(100%),132(97%) |
| | Confirmed | 24 (40%) | 56 (43%) |
| | Probable | 24 (40%) | 43 (32%) |
| | Possible | 12 (20%) | 33 (25%) |
| RED-HEADED WOODPECKER (Fig. 8), a rare nesting bird in both counties, prefers open floodplain or swamp forests with many dead trees. This type of habitat is scarce. | No. of blocks | 14 (23%) | 5 (15%), 7 (5%) |
| | Confirmed | 4 (29%) | 3 (43%) |
| | Probable | 3 (21%) | |
| | Possible | 7 (50%) | 4 (57%) |
| HAIRY WOODPECKER (Fig. 8) was locally fairly common and prefers extensive tracts of mature deciduous or mixed forest. | No. of blocks | 46 (77%) | 29(85%), 61(45%) |
| | Confirmed | 9 (20%) | 17 (28%) |
| | Probable | 9 (20%) | 19 (31%) |
| | Possible | 28 (60%) | 25 (41%) |
| DOWNY WOODPECKER *(Picoides pubescens)*, the second most conspicuous woodpecker in both counties, is an edge species and very adaptable to a variety of habitats. | No. of blocks | 60 (100%) | 34(100%),130(96%) |
| | Confirmed | 35 (58%) | 87 (67%) |
| | Probable | 12 (20%) | 24 (18%) |
| | Possible | 13 (22%) | 19 (15%) |
| EASTERN KINGBIRD (Fig. 8) was a common species in open habitats in both counties. | No. of blocks | 60 (100%) | 34(100%),127(93%) |
| | Confirmed | 32 (54%) | 79 (62%) |
| | Probable | 20 (33%) | 39 (31%) |
| | Possible | 8 (13%) | 9 ( 7%) |
| GREAT CRESTED FLYCATCHER (Fig. 8) was fairly common in both counties, especially along streams. | No. of blocks | 55 (93%) | 34(100%),101(74%) |
| | Confirmed | 19 (35%) | 40 (39%) |
| | Probable | 28 (51%) | 27 (27%) |
| | Possible | 8 (14%) | 34 (34%) |
| EASTERN PHOEBE (Fig. 8) was found nesting under almost all bridges as well as in many buildings near streams. Although the floods during June 1972 (Hurricane Agnes) did affect the phoebe, it was a short-lived effect because the phoebe is a multi-brooded species. | No. of blocks | 57 (95%) | 34(100%),114(84%) |
| | Confirmed | 46 (81%) | 98 (86%) |
| | Probable | 5 ( 9%) | 13 (11%) |
| | Possible | 6 (10%) | 3 ( 3%) |

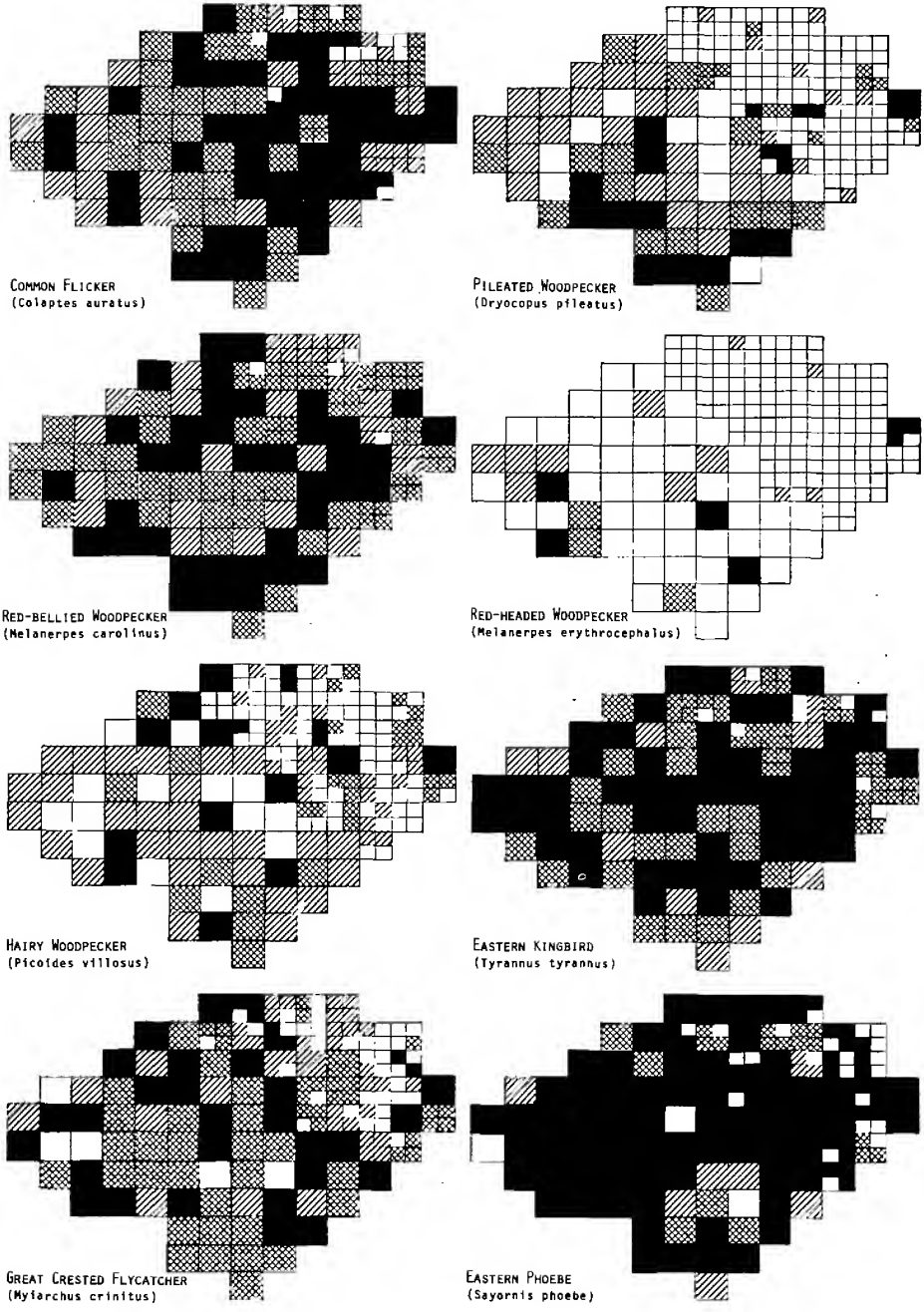



Figure 8. Breeding distribution of Common Flicker through Eastern Phoebe

| | | Montgomery | Howard |
|---|---|---|---|
| ACADIAN FLYCATCHER (Fig. 9), fairly common in both counties, is a species of floodplain swamps or rich, moist, upland forests. | No. of blocks | 53 (88%) | 34(100%),110(81%) |
| | Confirmed | 17 (32%) | 40 (37%) |
| | Probable | 25 (47%) | 53 (48%) |
| | Possible | 11 (21%) | 17 (15%) |
| WILLOW FLYCATCHER (Fig. 9), restricted to alder or willow thickets near water, is uncommon and local in the Maryland Piedmont. Maryland is at the southeastern edge of the breeding range. This species has been increasing in both counties. | No. of blocks | 18 (30%) | 25(74%), 42 (31%) |
| | Confirmed | 1 ( 5%) | 8 (19%) |
| | Probable | 10 (56%) | 24 (57%) |
| | Possible | 7 (39%) | 10 (24%) |
| ALDER FLYCATCHER (Fig. 9), a northern species, was rare in both counties. One pair was on territory during 1971 in Sterling-CE. Three other pairs were recorded --one in Montgomery and two in Howard County. | No. of blocks | 2 ( 3%) | 2 (6%), 2 (1%) |
| | Probable | 1 (50%) | 2 (100%) |
| | Possible | 1 (50%) | |
| LEAST FLYCATCHER (Fig. 9), rare and local in the Maryland Piedmont, is a new breeding species for Howard County. The species was confirmed on the last stop of a Mini-route (Klimkiewicz, Solem, and D. Holmes). | No. of blocks | 4 ( 7%) | 4 (3%), 3 (2%) |
| | Confirmed | | 1 (25%) |
| | Probable | 1 (25%) | 1 (25%) |
| | Possible | 3 (75%) | 2 (50%) |
| EASTERN PEWEE (Fig. 9) was common in both counties. | No. of blocks | 60 (100%) | 34(100%),126(93%) |
| | Confirmed | 20 (33%) | 39 (31%) |
| | Probable | 33 (55%) | 79 (63%) |
| | Possible | 7 (12%) | 8 ( 6%) |
| HORNED LARK (Fig. 9), a very early nester in the Maryland Piedmont (mid-March to mid-May), is most easily found early in the season in large fields with sparse or short vegetation. | No. of blocks | 32 (53%) | 28(82%), 47(35%) |
| | Confirmed | 9 (28%) | 18 (39%) |
| | Probable | 9 (28%) | 17 (36%) |
| | Possible | 14 (44%) | 12 (25%) |
| TREE SWALLOW (Fig. 9), a rare nesting species in both counties, was recorded breeding for the first time in the Maryland Piedmont. The first nests were found in Montgomery County (1970) in Sterling-CE (P. Woodward, pers. comm.). A Tree Swallow nest was subsequently found by M. Wallace (pers. comm.) in Howard County during the summer of 1977 (Woodbine-SE 3). | No. of blocks | 11 (18%) | 3 (9%), 5 (4%) |
| | Confirmed | 3 (27%) | |
| | Probable | 1 ( 9%) | |
| | Possible | 7 (64%) | 5 (100%) |
| BANK SWALLOW (Fig. 9), an uncommon local species in the Maryland Piedmont, was rare in both counties. | No. of blocks | 3 ( 5%) | 4 (12%), 9 (7%) |
| | Confirmed | | 5 (56%) |
| | Possible | 3 (100%) | 4 (44%) |

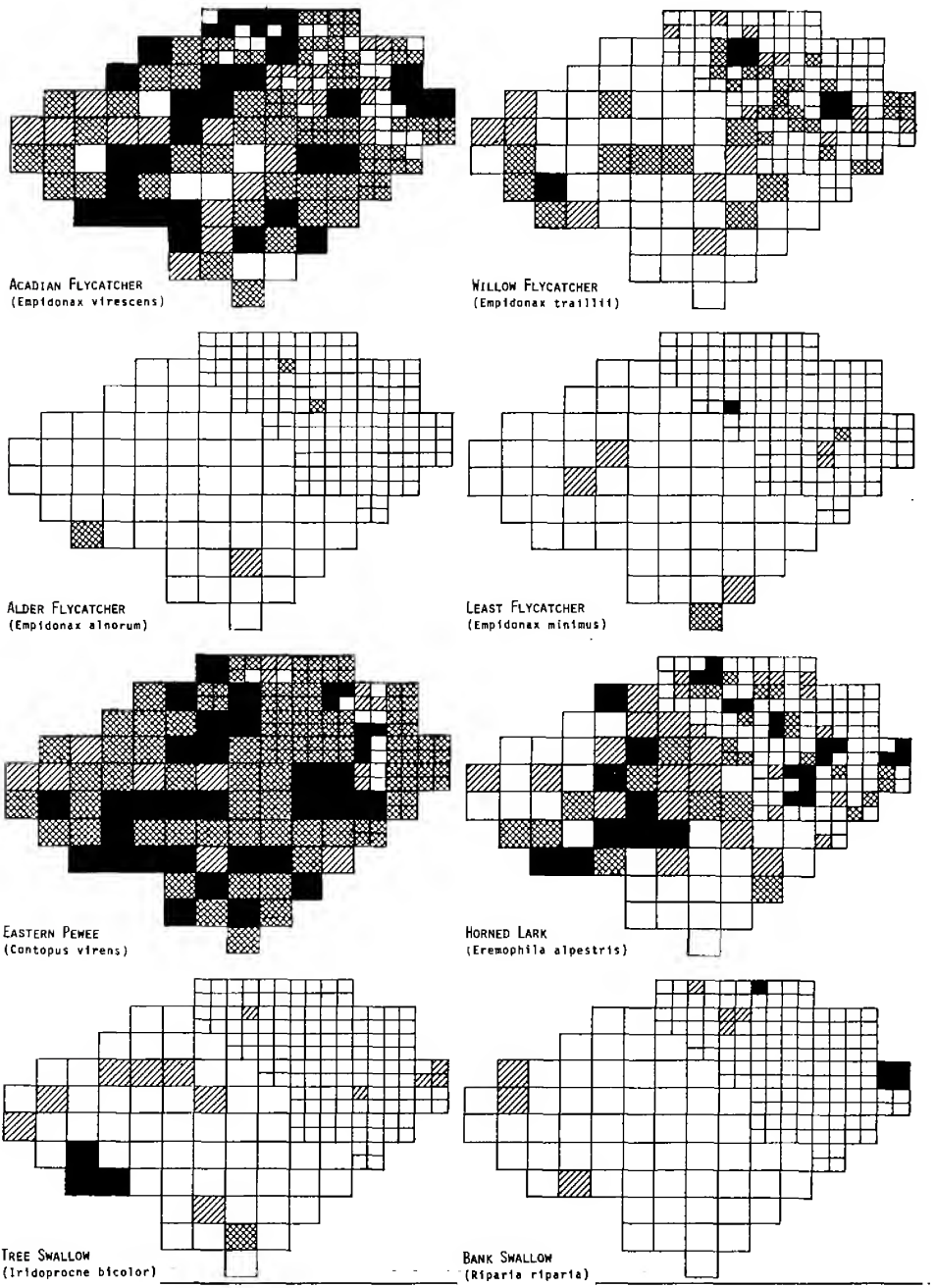



Figure 9. Breeding distribution of Acadian Flycatcher thru Bank Swallow

| | | Montgomery | Howard |
|---|---|---|---|
| ROUGH-WINGED SWALLOW (Fig. 10) was found primarily along the rivers and streams in both counties. | No. of blocks | 22 (37%) | 24(71%), 29(21%) |
| | Confirmed | 12 (55%) | 6 (21%) |
| | Probable | 2 ( 9%) | |
| | Possible | 8 (36%) | 23 (79%) |
| BARN SWALLOW *(Hirundo rustica)*, an abundant species in both counties, was absent from only one Howard quarter block (Ellicott City-CW 2). | No. of blocks | 60(100%) | 34(100%),135(99%) |
| | Confirmed | 58 (96%) | 123 (91%) |
| | Probable | 1 ( 2%) | 8 ( 6%). |
| | Possible | 1 ( 2%) | 4 ( 3%) |
| CLIFF SWALLOW (Fig. 10), rare and local in the Maryland Piedmont, was found primarily along the Patuxent River. | No. of blocks | 3 ( 5%) | 5(51%), 6 (4%) |
| | Confirmed | 2 (67%) | 6 (100%) |
| | Possible | 1 (33%) | |
| PURPLE MARTIN (Fig. 10) is fairly common in the Maryland Piedmont. Heavy rains during Hurricane Agnes (1972), lasting four days, virtually destroyed the local populations. During 1973-75 the population partially recovered, many former nesting areas remained unoccupied. | No. of blocks | 50 (83%) | 28(82%), 60(44%) |
| | Confirmed | 32 (64%) | 36 (60%) |
| | Probable | | 2 ( 3%) |
| | Possible | 18 (36%) | 22 (37%) |
| BLUE JAY *(Cyanocitta cristata)*, abundant in both counties, was absent from only three Howard quarter blocks (Woodbine-NE 2, Ellicott City-CW 2, 3). | No. of blocks | 60(100%) | 34(100%),133(97%) |
| | Confirmed | 41 (68%) | 84 (63%) |
| | Probable | 10 (17%) | 28 (21%) |
| | Possible | 9 (15%) | 21 (16%) |
| AMERICAN CROW *(Corvus brachyrhynchos)* was common in both counties. | No. of blocks | 60(100%) | 34(100%),136(100%) |
| | Confirmed | 45 (75%) | 124 (91%) |
| | Probable | 8 (13%) | 4 ( 3%) |
| | Possible | 7 (12%) | 8 ( 6%) |
| FISH CROW (Fig. 10) was listed by Stewart and Robbins (1958) as uncommon and local in the Maryland Piedmont. | No. of blocks | 37 (62%) | 25(74%), 50(37%) |
| | Confirmed | 1 ( 3%) | 10 (20%) |
| | Probable | 4 (11%) | 5 (10%) |
| | Possible | 32 (86%) | 35 (70%) |
| CAROLINA CHICKADEE *(Parus carolinensis)* was missed in only five quarter blocks (Woodbine-NW 3, 4, CW-2, NE 1; Sykesville-CE 2). | No. of blocks | 60(100%) | 34(100%),131(96%) |
| | Confirmed | 54 (90%) | 105 (80%) |
| | Probable | 3 ( 5%) | 19 (15%) |
| | Possible | 3 ( 5%) | 7 ( 5%) |
| TUFTED TITMOUSE *(Parus bicolor)*, common in both counties, was missed in only two Howard quarter blocks (Woodbine-NW 3, Savage-NW 2). | No. of blocks | 60(100%) | 34(100%),134(98%) |
| | Confirmed | 49 (82%) | 94 (70%) |
| | Probable | 8 (13%) | 24 (18%) |
| | Possible | 3 ( 5%) | 16 (12%) |
| WHITE-BREASTED NUTHATCH (Fig. 10), fairly common in both counties, preferred the floodplain, swamps and moist deciduous forests. | No. of blocks | 55 (92%) | 25(74%), 55(40%) |
| | Confirmed | 20 (36%) | 24 (44%) |
| | Probable | 16 (29%) | 12 (22%) |
| | Possible | 19 (35%) | 19 (34%) |
| BROWN CREEPER (Fig. 10) was not a confirmed breeding species in Maryland (Stewart and Robbins, 1958). Creepers nested along the C and O Canal (Seneca-CE) in 1970-71 (C. W. Carlson, pers. comm.). | No. of blocks | 10 (17%) | 3 (9%), 4 (3%) |
| | Confirmed | 1 (10%) | |
| | Probable | 2 (20%) | 1 (25%) |
| | Possible | 7 (70%) | 3 (75%) |
| HOUSE WREN *(Troglodytes aedon)*, common in edge habitats, was absent from only two Howard quarter blocks (Ellicott City-CW 2 and CE 2). | No. of blocks | 60(100%) | 34(100%),134(98%) |
| | Confirmed | 51 (85%) | 96 (72%) |
| | Probable | 7 (12%) | 38 (28%) |
| | Possible | 2 ( 3%) | |
| CAROLINA WREN (Fig. 10) was abundant (absent from only Sandy Spring-NE 1). Mild winters, 1971-1975, allowed this bird to spread throughout all suitable breeding habitat. | No. of blocks | 60(100%) | 34(100%),135(99%) |
| | Confirmed | 37 (61%) | 111 (82%) |
| | Probable | 19 (32%) | 20 (15%) |
| | Possible | 4 ( 7%) | 4 ( 3%) |
| MARSH WREN (Fig. 10) was concentrated in the Seneca-Poolesville area; 12 pairs nested in Sterling-CE, the 2nd county nesting record. | No. of blocks | 3 ( 5%) | |
| | Confirmed | 1 (34%) | |
| | Probable | 1 (33%) | |
| | Possible | 1 (33%) | |

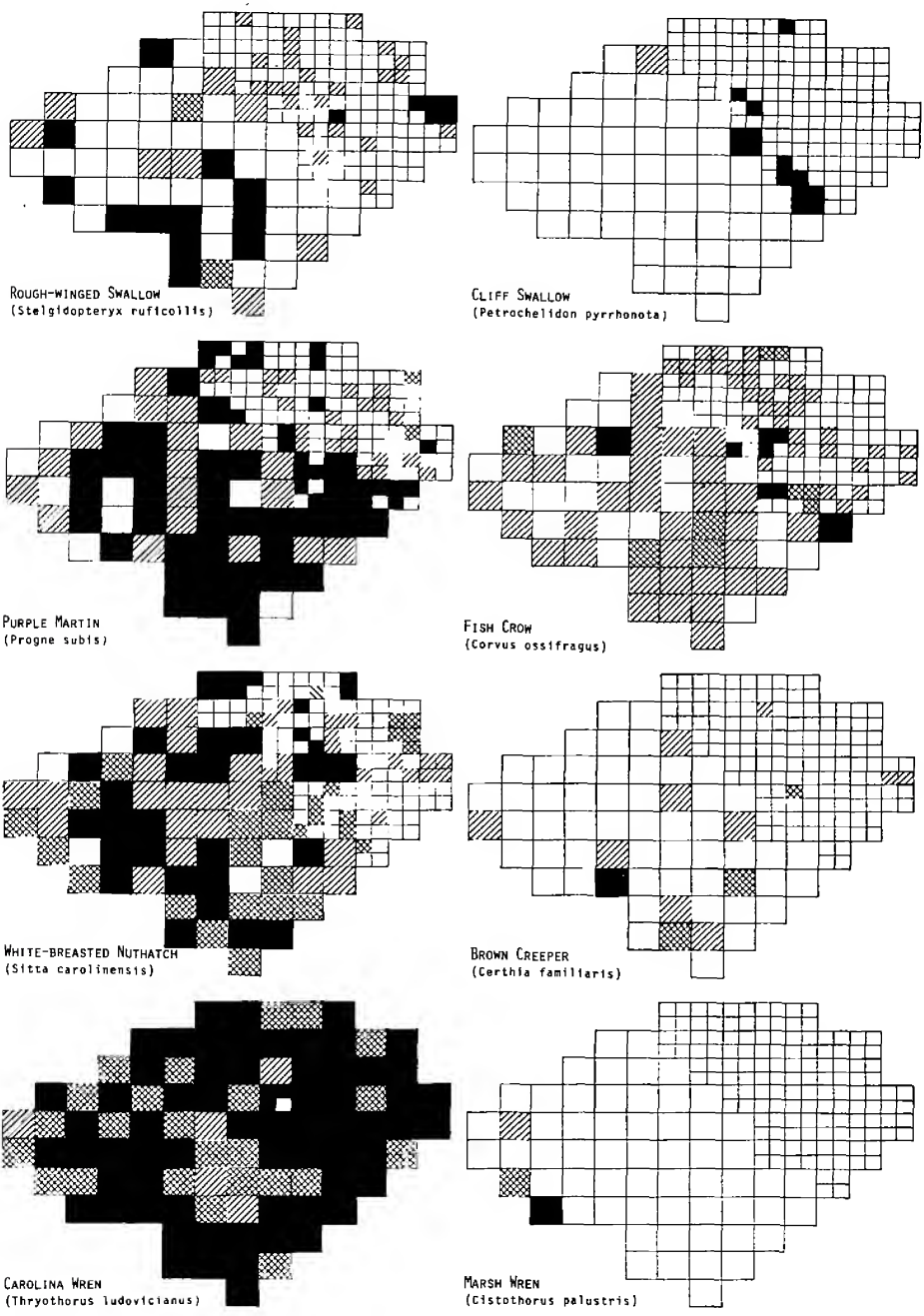



Figure 10. Breeding distribution of Rough-winged Swallow thru Marsh Wren

| | | Montgomery | Howard |
|---|---|---|---|
| NORTHERN MOCKINGBIRD *(Mimus polyglottos)*, was abundant in both counties. | No. of blocks | 60(100%) | 34(100%),136(100%) |
| | Confirmed | 54 (90%) | 108 (79%) |
| | Probable | 6 (10%) | 28 (21%) |
| GRAY CATBIRD *(Dumetella carolinensis)*, also abundant in both counties, was absent from only Ellicott City-CW 2. | No. of blocks | 60(100%) | 34(100%),135(99%) |
| | Confirmed | 53 (88%) | 120 (89%) |
| | Probable | 3 ( 5%) | |
| | Possible | 4 ( 7%) | 15 (11%) |
| BROWN THRASHER *(Toxostoma rufum)*, common in both counties, was absent from eight Howard quarter blocks (Woodbine-SW 3, NE 2; Sandy Spring-NE 1; Sykesville-NE 3; Ellicott City-CW 1, 2, SE 3; Savage-NE 3). | No. of blocks | 60(100%) | 34(100%),128(94%) |
| | Confirmed | 49 (81%) | 111 (87%) |
| | Probable | 10 (17%) | 8 ( 6%) |
| | Possible | 1 ( 2%) | 9 ( 7%) |
| AMERICAN ROBIN *(Turdus migratorius)*, was confirmed in all blocks. | No. of blocks | 60(100%) | 34(100%),136(100%) |
| | Confirmed | 60(100%) | 136 (100%) |
| WOOD THRUSH *(Hylocichla mustelina)* was common in both counties (absent from only Ellicott City-CE 2). | No. of blocks | 60(100%) | 34(100%),135(99%) |
| | Confirmed | 30 (50%) | 84 (62%) |
| | Probable | 25 (42%) | 51 (38%) |
| | Possible | 5 ( 8%) | |
| VEERY (Fig. 11), was known to breed at only two sites in Montgomery County and none in Howard in 1955 (Stewart and Robbins, 1958). They are spreading through floodplain forests in both counties. | No. of blocks | 23 (38%) | 18(53%), 29(21%) |
| | Confirmed | 6 (26%) | 4 (14%) |
| | Probable | 9 (39%) | 13 (45%) |
| | Possible | 8 (35%) | 12 (41%) |
| EASTERN BLUEBIRD (Fig. 11) was found throughout both counties owing to a steady increase in bluebird trails. | No. of blocks | 48 (80%) | 29(85%), 71(52%) |
| | Confirmed | 39 (82%) | 61 (86%) |
| | Probable | 5 (10%) | 3 ( 4%) |
| | Possible | 4 ( 8%) | 7 (10%) |
| BLUE-GRAY GNATCATCHER (Fig. 11), although not restricted to wet areas, is distributed along streams in both counties. | No. of blocks | 44 (73%) | 33(97%),104(76%) |
| | Confirmed | 16 (36%) | 60 (58%) |
| | Probable | 17 (39%) | 30 (29%) |
| | Possible | 11 (25%) | 14 (13%) |
| CEDAR WAXWING (Fig. 11), an uncommon breeding species in both counties, prefers edge habitats. | No. of blocks | 12 (20%) | 14 (41%), 17(13%) |
| | Confirmed | 2 (17%) | 6 (35%) |
| | Probable | | 1 ( 6%) |
| | Possible | 10 (83%) | 10 (59%) |
| LOGGERHEAD SHRIKE (Fig. 11) had not been found breeding in Montgomery County since 1931. Three nests were found in 1972 (one in Sterling-NW and two in Poolesville-SW). | No. of blocks | 7 (12%) | |
| | Confirmed | 3 (42%) | |
| | Probable | 2 (29%) | |
| | Possible | 2 (29%) | |
| EUROPEAN STARLING *(Sturnus vulgaris)* was confirmed in all blocks. | No. of blocks | 60(100%) | 34(100%),136(100%) |
| | Confirmed | 60(100%) | 136 (100%) |
| WHITE-EYED VIREO (Fig. 11) frequents shrub swamps, hedgerows, and wood margins. This was a common species in both counties. | No. of blocks | 45 (75%) | 33(97%),107(79%) |
| | Confirmed | 10 (22%) | 36 (33%) |
| | Probable | 23 (51%) | 50 (47%) |
| | Possible | 12 (27%) | 21 (20%) |
| YELLOW-THROATED VIREO (Fig. 11) was fairly common in suitable habitat along the major streams in both counties. | No. of blocks | 33 (55%) | 25(74%), 44(32%) |
| | Confirmed | 6 (18%) | 9 (20%) |
| | Probable | 14 (42%) | 13 (30%) |
| | Possible | 13 (40%) | 22 (50%) |
| RED-EYED VIREO *(Vireo olivaceus)*, abundant breeder, was missed in two Howard quarter blocks (Woodbine-CW 2 and Ellicott City-CW 3). | No. of blocks | 60(100%) | 34(100%),134(98%) |
| | Confirmed | 17 (28%) | 68 (51%) |
| | Probable | 37 (62%) | 55 (41%) |
| | Possible | 6 (10%) | 11 ( 8%) |
| WARBLING VIREO (Fig. 11), uncommon and local, prefers open stands of shade trees in residential areas of towns and farms. | No. of blocks | 30 (50%) | 14(41%), 18(13%) |
| | Confirmed | 7 (24%) | 4 (22%) |
| | Probable | 10 (33%) | 9 (50%) |
| | Possible | 13 (43%) | 5 (28%) |

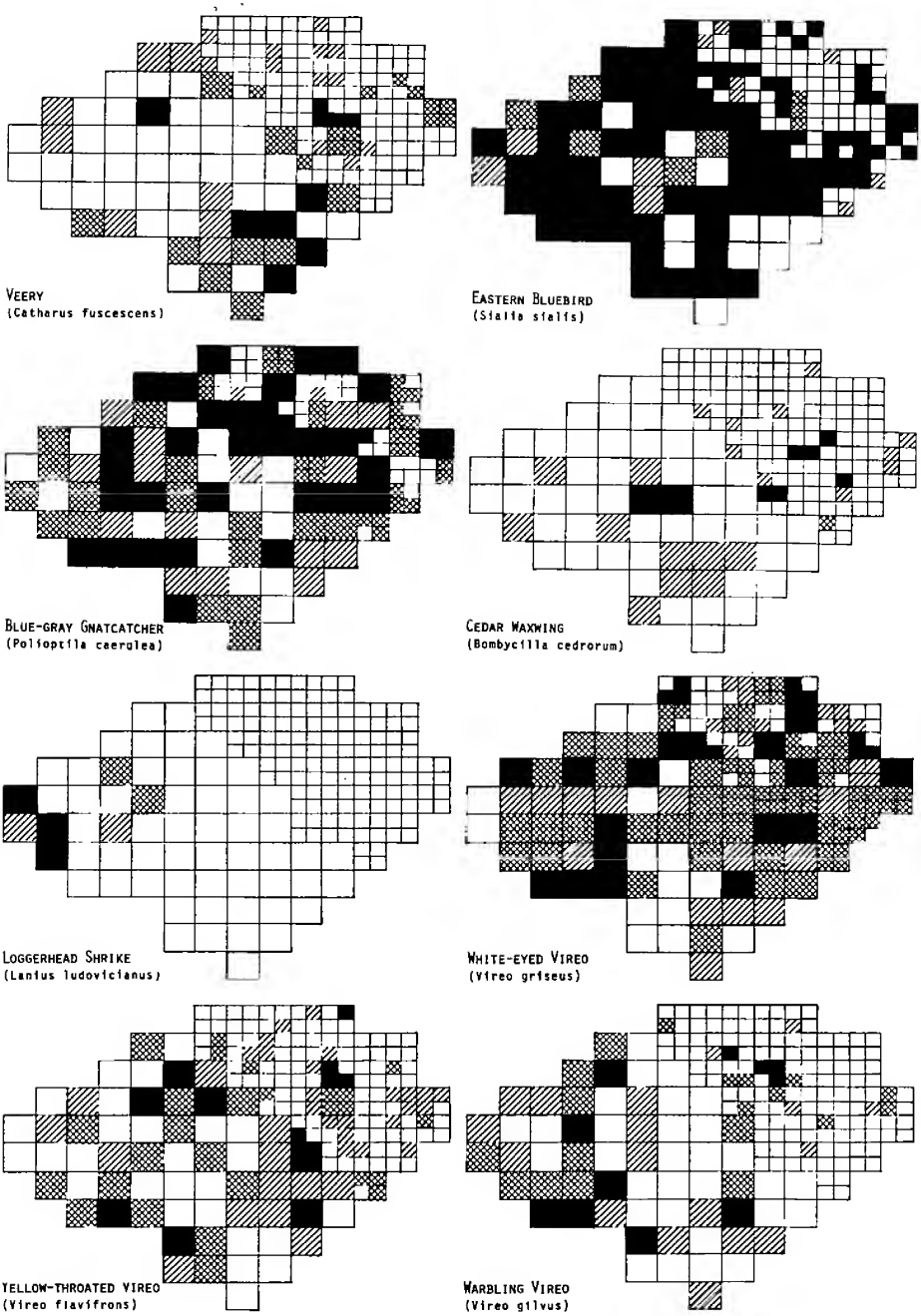



Figure 11. Breeding distribution of Veery through Warbling Vireo

| | | Montgomery | Howard |
|---|---|---|---|
| BLACK-AND-WHITE WARBLER (Fig. 12) requires large tracts of forest for breeding habitat; therefore, it was uncommon in both counties. | No. of blocks | 18 (30%) | 22(65%), 38(28%) |
| | Confirmed | 4 (22%) | 6 (16%) |
| | Probable | 4 (22%) | 11 (29%) |
| | Possible | 10 (56%) | 21 (55%) |
| PROTHONOTARY WARBLER (Fig. 12) essentially reaches the northern limit of its range in Maryland and was restricted primarily to the floodplain forests along the rivers. | No. of blocks | 13 (22%) | 6(18%), 9 (7%) |
| | Confirmed | 3 (23% | 3 (34%) |
| | Probable | 8 (62%) | 4 (44%) |
| | Possible | 2 (15%) | 2 (22%) |
| WORM-EATING WARBLER (Fig. 12) appears to be restricted to extensive forests along the steep slopes of the major streams (particularly the Patuxent). | No. of blocks | 9 (15%) | 16(45%), 29(21%) |
| | Confirmed | 3 (33%) | 9 (30%) |
| | Probable | | 6 (20%) |
| | Possible | 6 (67%) | 14 (48%) |
| BLUE-WINGED WARBLER (Fig. 12) is a fairly common local nesting species in the northeastern Maryland Piedmont. A nest with eggs was found in ₽ 51 in Montgomery County (Stewart and Robbins, 1958). This warbler was uncommon and local in both counties. | No. of blocks | 7 (12%) | 10(29%), 13(10%) |
| | Confirmed | 2 (29%) | 6 (46%) |
| | Probable | 2 (29%) | 2 (15%) |
| | Possible | 3 (42%) | 5 (39%) |
| NORTHERN PARULA WARBLER (Fig. 12) was fairly common in floodplain forests along streams in both counties. | No. of blocks | 37 (62%) | 22(65%), 44(32%) |
| | Confirmed | 3 ( 8%) | 15 (34%) |
| | Probable | 16 (43%) | 20 (46%) |
| | Possible | 18 (49%) | 9 (20%) |
| YELLOW WARBLER (Fig. 12), uncommon in both counties, prefers willow and brushy areas along streams. | No. of blocks | 33 (55%) | 30(88%), 66(49%) |
| | Confirmed | 8 (25%) | 15 (23%) |
| | Probable | 13 (39%) | 32 (48%) |
| | Possible | 12 (36%) | 19 (29%) |
| CERULEAN WARBLER (Fig. 12), which reaches the limit of its regular breeding range at the Fall Line, was locally common along the rivers in both counties. | No. of blocks | 12 (20%) | 7(21%), 15(11%) |
| | Confirmed | 3 (25%) | 6 (40%) |
| | Probable | 2 (17%) | 6 (40%) |
| | Possible | 7 (58%) | 3 (20%) |
| YELLOW-THROATED WARBLER (Fig. 12) had previously been reported as far north as the Potomac River drainage in Montgomery County, it is expanding its range northward along the Patuxent and Patapsco Rivers in Howard County. | No. of blocks | 6 (10%) | 6 (18%), 7 (5%) |
| | Confirmed | 3 (50%) | 5 (71%) |
| | Possible | 3 (50%) | 2 (29%) |
| CHESTNUT-SIDED WARBLER *(Dendroica pensylvanica)* breeds locally in the northern Maryland Piedmont. Klimkiewicz and C. Wilds found a male holding territory in Woodbine-SW 4 during the summer of 1975. | No. of blocks | | 1 (3%), 1 (1%) |
| | Probable | | 1 (100%) |

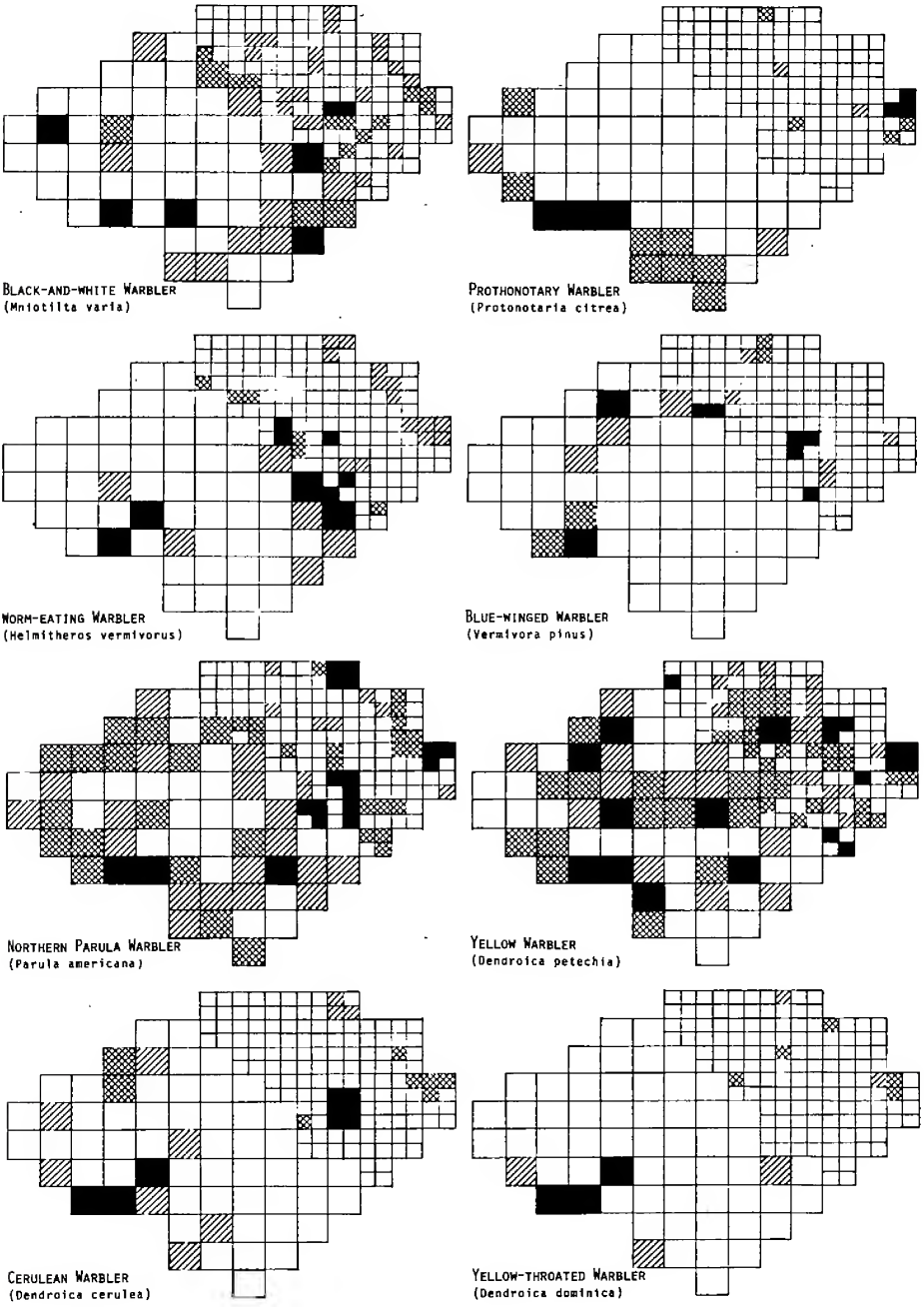



Figure 12. Breeding distribution of warblers through Yellow-throated

| | | Montgomery | Howard |
|---|---|---|---|
| PINE WARBLER (Fig. 13), which requires mature pine habitat, is a rare nesting species in the Maryland Piedmont. It was confirmed in both counties. | No. of blocks | 4 ( 7%) | 6 (18%), 9 (7%) |
| | Confirmed | 1 (25%) | 1 (11%) |
| | Probable | 2 (50%) | |
| | Possible | 1 (25%) | 8 (89%) |
| PRAIRIE WARBLER (Fig. 13) habitat is not abundant in either county, but this species was fairly common in both counties. | No. of blocks | 35 (58%) | 28(82%), 45(33%) |
| | Confirmed | 2 ( 6%) | 10 (22%) |
| | Probable | 18 (51%) | 25 (56%) |
| | Possible | 15 (43%) | 10 (22%) |
| OVENBIRD (Fig. 13) was fairly common in both counties. Its preferred habitat -- upland deciduous or mixed forest -- is decreasing owing to land development and farming. | No. of blocks | 34 (57%) | 27(79%), 71(52%) |
| | Confirmed | 2 ( 6%) | 26 (37%) |
| | Probable | 19 (56%) | 28 (39%) |
| | Possible | 13 (38%) | 17 (24%) |
| LOUISIANA WATERTHRUSH (Fig. 13) was concentrated along the rocky portions of the non-polluted and free-flowing streams. | No. of blocks | 31 (52%) | 21(62%), 45(33%) |
| | Confirmed | 3 (10%) | 22 (49%) |
| | Probable | 7 (22%) | 15 (33%) |
| | Possible | 2 (68%) | 8 (18%) |
| KENTUCKY WARBLER (Fig. 13), fairly common in both counties, requires large stands of floodplain forest with dense understory. | No. of blocks | 39 (65%) | 32(94%), 82(60%) |
| | Confirmed | 14 (36%) | 40 (49%) |
| | Probable | 16 (41%) | 36 (44%) |
| | Possible | 9 (23%) | 6 ( 7%) |
| COMMON YELLOWTHROAT *(Geothlypis trichas)*, an adaptable species, is found in varied damp brushy areas. It was common in all blocks, but absent from two Howard quarter blocks (Ellicott City-SW 2 and SE 2). | No. of blocks | 60(100%) | 34(100%),134(98%) |
| | Confirmed | 23 (39%) | 102 (76%) |
| | Probable | 35 (58%) | 28 (21%) |
| | Possible | 2 ( 3%) | 4 ( 3%) |
| YELLOW-BREASTED CHAT (Fig. 13), found in various types of brushy habitat, was fairly common in both counties. | No. of blocks | 48 (80%) | 34(100%),103(76%) |
| | Confirmed | 11 (23%) | 27 (27%) |
| | Probable | 31 (64%) | 57 (55%) |
| | Possible | 6 (13%) | 19 (18%) |
| HOODED WARBLER (Fig. 13), another warbler that requires large tracts of moist forest with dense understory, was uncommon in both counties. | No. of blocks | 9 (15%) | 19(56%), 43(32%) |
| | Confirmed | 1 (12%) | 10 (23%) |
| | Probable | 4 (44%) | 20 (47%) |
| | Possible | 4 (44%) | 13 (30%) |
| AMERICAN REDSTART (Fig. 13), a warbler of second-growth river swamps and floodplain forests, was fairly common in both counties. | No. of blocks | 38 (63%) | 26(76%), 50(37%) |
| | Confirmed | 12 (31%) | 23 (46%) |
| | Probable | 17 (45%) | 13 (26%) |
| | Possible | 9 (24%) | 14 (28%) |
| HOUSE SPARROW *(Passer domesticus)*, abundant in both counties, was absent from only two Howard quarter blocks (Woodbine-SW 4 and Sykesville-NE 3). | No. of blocks | 60(100%) | 34(100%),133(97%) |
| | Confirmed | 57 (95%) | 126 (95%) |
| | Probable | 2 ( 3%) | 4 ( 3%) |
| | Possible | 1 ( 2%) | 3 ( 2%) |

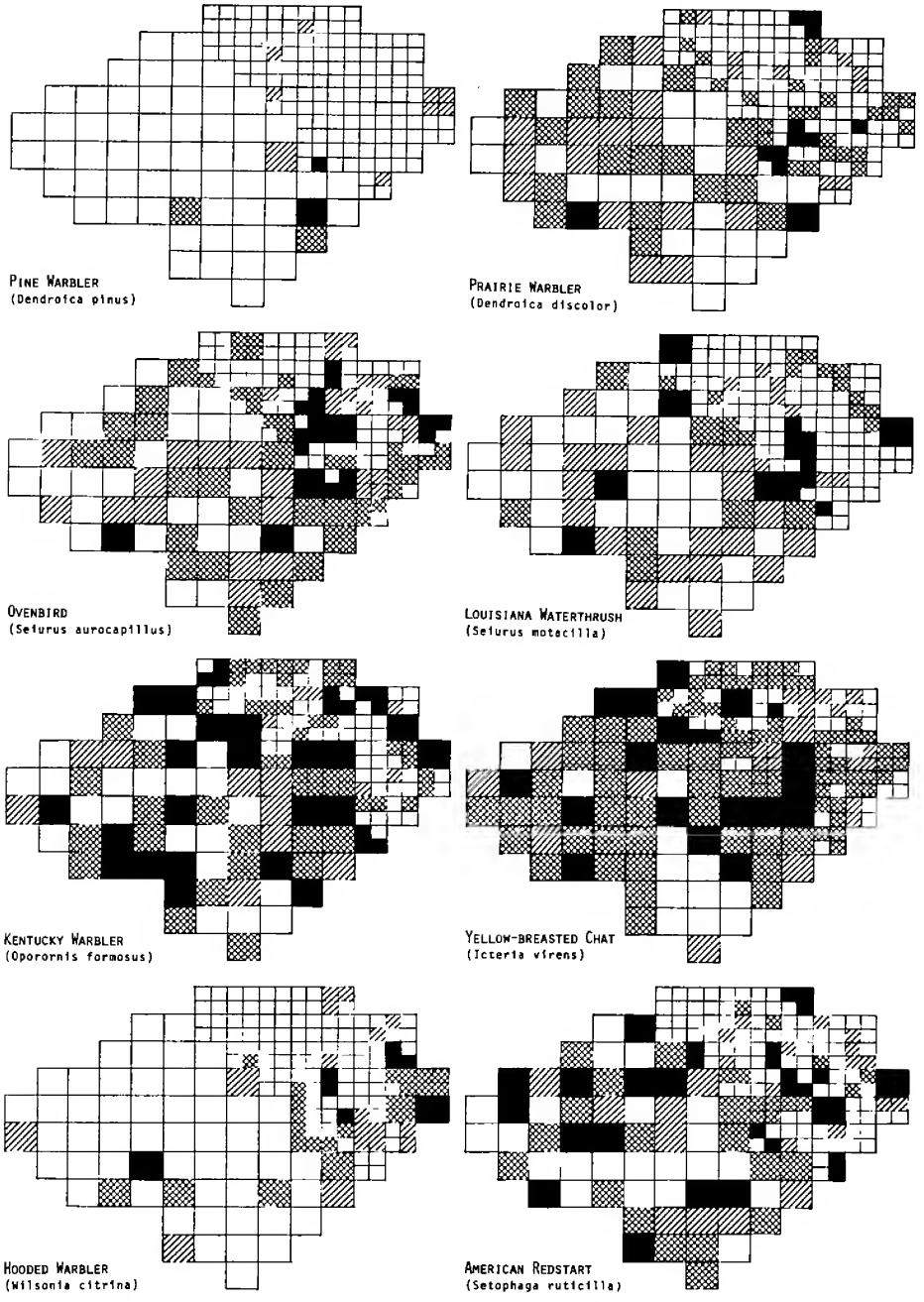



Figure 13. Breeding distribution of Pine Warbler through Am. Redstart

| | | Montgomery | Howard |
|---|---|---|---|
| EASTERN MEADOWLARK (Fig. 14), abundant in the agricultural areas, was absent from only the more residential blocks (four) and quarter blocks (ten). | No. of blocks | 56 (93%) | 34(100%),126(93%) |
| | Confirmed | 27 (48%) | 67 (53%) |
| | Probable | 24 (43%) | 55 (44%) |
| | Possible | 5 ( 9%) | 4 ( 3%) |
| RED-WINGED BLACKBIRD (*Agelaius phoeniceus*), abundant in both counties, was absent from only Ellicott City-CW 2 and SE 2. | No. of blocks | 60(100%) | 34(100%),134(98%) |
| | Confirmed | 52 (87%) | 115 (86%) |
| | Probable | 6 (10%) | 16 (12%) |
| | Possible | 2 ( 3%) | 3 ( 2%) |
| ORCHARD ORIOLE (Fig. 14) was fairly common in residential areas and edge habitats along streams in both counties. | No. of blocks | 39 (65%) | 25(74%), 59(44%) |
| | Confirmed | 13 (33%) | 26 (44%) |
| | Probable | 12 (31%) | 13 (22%) |
| | Possible | 14 (36%) | 20 (34%) |
| NORTHERN (BALTIMORE) ORIOLE (Fig. 14), common in both counties, was absent from only three Montgomery blocks and 16 Howard quarter blocks. | No. of blocks | 57 (95%) | 34(100%),120(88%) |
| | Confirmed | 40 (70%) | 100 (84%) |
| | Probable | 13 (23%) | 16 (13%) |
| | Possible | 4 (77%) | 4 ( 3%) |
| COMMON GRACKLE (*Quiscalus quiscula*) was abundant in both counties. | No. of blocks | 60(100%) | 34(100%),136(100%) |
| | Confirmed | 55 (92%) | 132 (97%) |
| | Probable | 3 ( 5%) | |
| | Possible | 2 ( 3%) | 4 ( 3%) |
| BROWN-HEADED COWBIRD (Fig. 14), fairly common in both counties, was missed in ten Howard quarter blocks (Woodbine-NE 3; Sykesville-NW 4, CE 1 and SE 4; Ellicott City-CW 1, 2, 4 and SW 1, 2; Savage-SE 4). | No. of blocks | 60(100%) | 24(71%),126(93%) |
| | Confirmed | 35 (59%) | 78 (62%) |
| | Probable | 11 (18%) | 23 (18%) |
| | Possible | 14 (23%) | 25 (20%) |
| SCARLET TANAGER (Fig. 14) was fairly common in both counties, particularly along the streams. | No. of blocks | 48 (80%) | 33(97%), 105(77%) |
| | Confirmed | 4 ( 9%) | 32 (31%) |
| | Probable | 29 (60%) | 60 (57%) |
| | Possible | 15 (31%) | 13 (12%) |
| SUMMER TANAGER (Fig. 14), rare in the Maryland Piedmont, was associated with the river forests. | No. of blocks | 5 ( 8%) | 2 (6%), 2 (1%) |
| | Confirmed | 1 (20%) | |
| | Probable | 1 (20%) | |
| | Possible | 3 (60%) | 2 (100%) |
| NORTHERN CARDINAL (*Cardinalis cardinalis*) was abundant in both counties. | No. of blocks | 60(100%) | 34(100%),136(100%) |
| | Confirmed | 51 (85%) | 116 (85%) |
| | Probable | 7 (12%) | 16 (12%) |
| | Possible | 2 ( 3%) | 4 ( 3%) |
| BLUE GROSBEAK (Fig. 14) reaches its northern limit in central Maryland; it is uncommon in the southern and rare in the northern Piedmont. | No. of blocks | 28 (47%) | 26(76%), 61(45%) |
| | Confirmed | 7 (25%) | 14 (23%) |
| | Probable | 11 (39%) | 21 (34%) |
| | Possible | 11 (39%) | 26 (43%) |
| INDIGO BUNTING (*Passerina cyanea*) was common in both counties especially in edge habitat. | No. of blocks | 60(100%) | 34(100%),135(100%) |
| | Confirmed | 30 (50%) | 96 (71%) |
| | Probable | 28 (47%) | 36 (26%) |
| | Possible | 2 ( 3%) | 4 ( 3%) |
| DICKCISSEL (Fig. 14) is rare and local in the Maryland Piedmont, but was confirmed in both counties. Fledglings were seen in Germantown-CW (G. Sims) and Sykesville-SW 4 (T. Franklin). This is a new nesting species for Howard County. | No. of blocks | 4 ( 7%) | 1 (3%), 1 (1%) |
| | Confirmed | 1 (25%) | 1 (100%) |
| | Probable | 1 (25%) | |
| | Possible | 2 (50%) | |

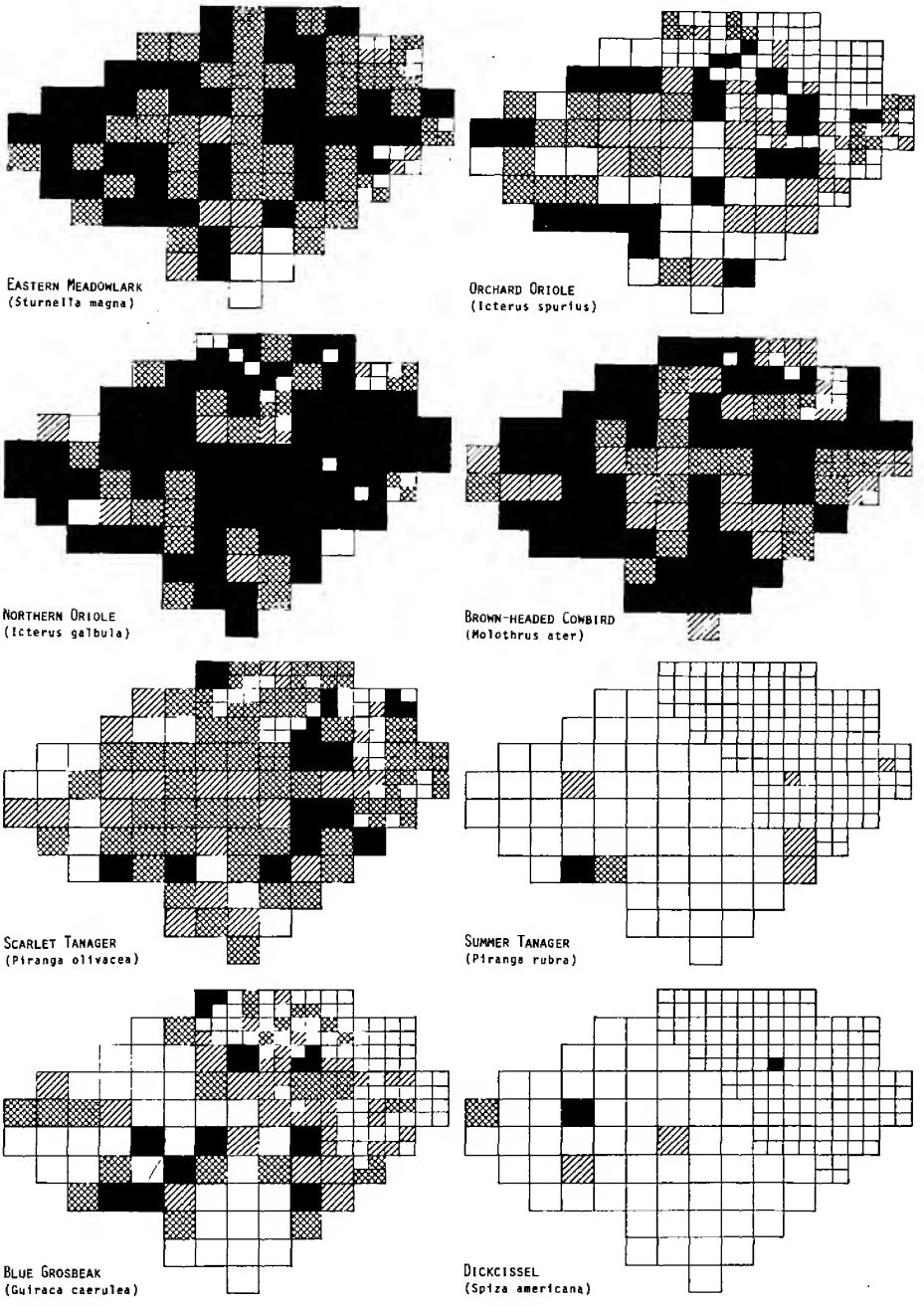



Figure 14. Breeding distribution of Eastern Meadowlark through Dickcissel

| | | Montgomery | Howard |
|---|---|---|---|
| HOUSE FINCH (Fig. 15) nests in residential areas and is rapidly extending its breeding range southward from Long Island, N.Y. where it was introduced from the west coast. Adults brought fledglings to a feeder in Washington East-CW in 1973 (A. Wetmore), the first breeding record for Montgomery County. A Howard County nest was later found by M. Wallace (pers. comm.) in 1977 (Savage-NW 3). | No. of blocks | 4 ( 7%) | |
| | Confirmed | 1 (25%) | |
| | Probable | 1 (25%) | |
| | Possible | 2 (50%) | |
| AMERICAN GOLDFINCH (*Carduelis tristis*), common in both counties, was absent from two Howard quarter blocks (Ellicott City-SW 1 and Savage-CE 2). | No. of blocks | 60(100%) | 34(100%),134(98%) |
| | Confirmed | 23 (38%) | 71 (53%) |
| | Probable | 25 (42%) | 32 (24%) |
| | Possible | 12 (20%) | 31 (23%) |
| RUFOUS-SIDED TOWHEE (Fig. 15), common in both counties, was absent from one Montgomery block (Waterford-CE) and one Howard quarter block (Ellicott City-CW 1). | No. of blocks | 59 (99%) | 34(100%),135(99%) |
| | Confirmed | 30 (51%) | 76 (56%) |
| | Probable | 25 (42%) | 48 (36%) |
| | Possible | 4 ( 7%) | 11 ( 8%) |
| SAVANNAH SPARROW (Fig. 15), according to Stewart and Robbins (1958), is uncommon and local in the Maryland Piedmont. Fledglings were observed in Damascus-CW (C. Wilds), Montgomery County nesting record. | No. of blocks | 19 (32%) | 6 (18%), 7 (5%) |
| | Confirmed | 3 (16%) | |
| | Probable | 3 (16%) | 2 (29%) |
| | Possible | 13 (68%) | 5 (71%) |
| GRASSHOPPER SPARROW (Fig. 15) prefers hayfields, and weedy fallow fields. The distribution skirts the heavily populated areas. | No. of blocks | 47 (78%) | 31(91%),103(76%) |
| | Confirmed | 16 (34%) | 46 (44%) |
| | Probable | 29 (62%) | 44 (43%) |
| | Possible | 2 ( 4%) | 13 (13%) |
| HENSLOW'S SPARROW (Fig. 15) is rare in the Maryland Piedmont. | No. of blocks | 1 ( 2%) | 1 (3%), 1 (1%) |
| | Possible | 1(100%) | 1 (100%) |
| VESPER SPARROW (Fig. 15) was regular in short-grass pastures and fallow fields in the northwestern areas of both counties. | No. of blocks | 23 (38%) | 19(56%), 51(38%) |
| | Confirmed | 6 (26%) | 21 (41%) |
| | Probable | 8 (35%) | 17 (33%) |
| | Possible | 9 (39%) | 13 (26%) |
| CHIPPING SPARROW (*Spizella passerina*), abundant nester, was absent from five Howard quarter blocks (Damascus-CE 3, Woodbine-CW 2, Sykesville-CE 4, Ellicott-CW 2 and 4). | No. of blocks | 60(100%) | 34(100%),131(96%) |
| | Confirmed | 46 (77%) | 105 (80%) |
| | Probable | 9 (15%) | 26 (20%) |
| | Possible | 5 ( 8%) | |
| FIELD SPARROW (Fig. 15), common in both counties, was missed in one Montgomery block (Kensington-SE) and three Howard quarter blocks (Ellicott-CW 2, CE 4 and SE 2). | No. of blocks | 59 (98%) | 34(100%),133(97%) |
| | Confirmed | 38 (65%) | 68 (51%) |
| | Probable | 19 (32%) | 54 (41%) |
| | Possible | 2 ( 3%) | 11 ( 8%) |
| SWAMP SPARROW (Fig. 15) nests commonly in the Allegheny Mountain section and locally on the Eastern Shore. Swamp Sparrow was confirmed in Seneca-CW (P. G. DuMont) for the first Montgomery County record. | No. of blocks | 6 (10%) | 3 (9%), 3 (2%) |
| | Confirmed | 1 (17%) | |
| | Probable | 2 (33%) | |
| | Possible | 3 (50%) | 3 (100%) |
| SONG SPARROW (*Melospiza melodia*), abundant in both counties, was absent from only one Howard quarter block (Woodbine-SW 3). | No. of blocks | 60(100%) | 34(100%),135(99%) |
| | Confirmed | 45 (75%) | 119 (88%) |
| | Probable | 14 (23%) | 16 (12%) |
| | Possible | 1 ( 2%) | |

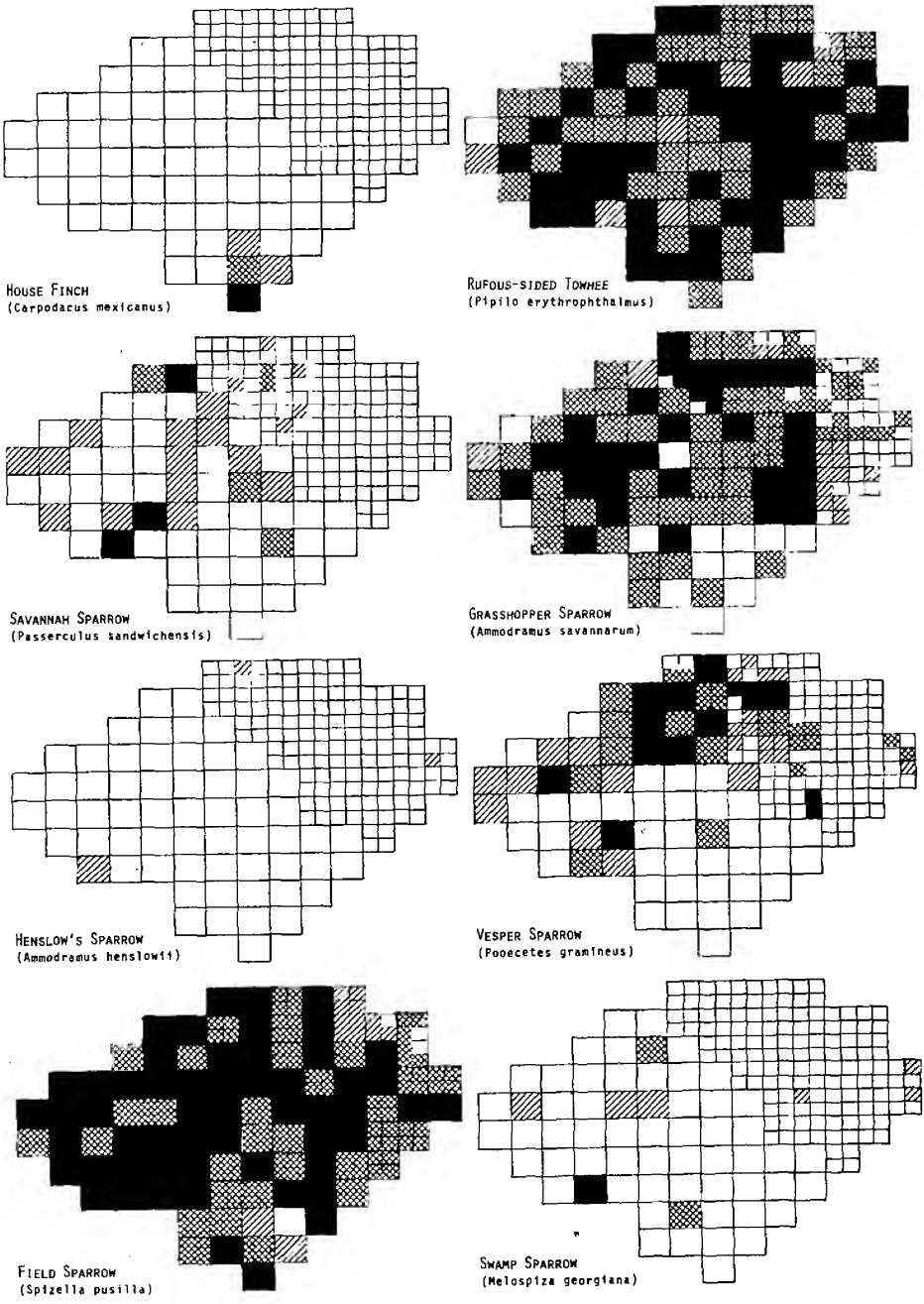



Figure 15. Breeding distribution of House Finch through Swamp Sparrow

The three-year Montgomery County Atlas recorded 135 species of which 122 were confirmed (90%), 9 were probable (7%), and 4 were possible (3%). Ninety-eight species (73%) were confirmed on active nests. Eight species were recorded in only Montgomery County (Pied-billed Grebe, Sharp-shinned Hawk, Common Gallinule, American Coot, Short-eared Owl, Marsh Wren, Loggerhead Shrike, House Finch) and 11 species were new confirmed breeding records (Pied-billed Grebe, Great Blue Heron, Mute Swan, Blue-winged Teal, American Coot, Short-eared Owl, Tree Swallow, Brown Creeper, House Finch, Savannah Sparrow, Swamp Sparrow). Twelve species that were confirmed in Montgomery County were recorded as only possible or probable in Howard County (Yellow-crowned Night Heron, Least Bittern, Blue-winged Teal, Ruffed Grouse, Wild Turkey, Black-billed Cuckoo, Tree Swallow, Brown Creeper, Yellow-throated Warbler, Summer Tanager, Savannah Sparrow, Swamp Sparrow). One species was recorded from only the Virginia portion of a block (Upland Sandpiper).

The three-year Howard County Atlas recorded 127 species of which 110 were confirmed (87%), 7 were probable (5%) and 10 (8%) were possible. Eighty-five species (67%) were confirmed on active nests. Two species were recorded in Howard County only (Black-crowned Night Heron and Gadwall) and eight species were new confirmed breeding records (Great Blue Heron, Black-crowned Night Heron, Mute Swan, Gadwall, Virginia Rail, Least Flycatcher, Yellow-throated Warbler, Dickcissel). Five species that were confirmed in Howard County were recorded as only possible or probable in Montgomery County (American Black Duck, Black Vulture, Whip-poor-will, Least Flycatcher, Bank Swallow).

Nine species were not confirmed in either county; two were possible nesters (Common Gallinule, Henslow's Sparrow) and seven were probable (American Bittern, Northern Harrier, Upland Sandpiper, Monk Parakeet, Chuck-will's-widow, Alder Flycatcher, Chestnut-sided Warbler).

Thirty-two species were found in all 5-km blocks in both counties: Common Bobwhite, Rock Dove, Mourning Dove, Common Flicker, Red-bellied Woodpecker, Downy Woodpecker, Eastern Kingbird, Eastern Pewee, Barn Swallow, Blue Jay, American Crow, Carolina Chickadee, Tufted Titmouse, House Wren, Carolina Wren, Northern Mockingbird, Gray Catbird, Brown Thrasher, American Robin, Wood Thrush, European Starling, Red-eyed Vireo, Common Yellowthroat, House Sparrow, Red-winged Blackbird, Common Grackle, Brown-headed Cowbird, Northern Cardinal, Indigo Bunting, American Goldfinch, Chipping Sparrow, Song Sparrow.

Eight of the species were found in all 5-km and 2!-km blocks: Mourning Dove, American Crow, Northern Mockingbird, American Robin, European Starling, Common Grackle, Northern Cardinal, Indigo Bunting. Only two species were confirmed in all blocks -- American Robin and European Starling.

For comparison with the British Atlas, 59 species were found in all 10-km blocks (excluding marginal blocks with fewer than three of the four quarters represented). These species, in addition to the 32 found in all 5-km blocks, are: Green Heron, Turkey Vulture, Red-shouldered

Hawk, American Kestrel, Killdeer, Yellow-billed Cuckoo, Barred Owl, Chimney Swift, Ruby-throated Hummingbird, Belted Kingfisher, Pileated Woodpecker, Hairy Woodpecker, Great Crested Flycatcher, Eastern Phoebe, Acadian Flycatcher, Purple Martin, White-breasted Nuthatch, Blue-gray Gnatcatcher, White-eyed Vireo, Ovenbird, Kentucky Warbler, Yellow-breasted Chat, American Redstart, Northern Oriole, Scarlet Tanager, Rufous-sided Towhee, Field Sparrow.

## CONCLUSIONS

1. There is a distinct advantage in using a grid of less than 5 km. The 2½-km grid results in more efficient mapping and understanding of the distribution of the less common species, with a minimum of additional effort.

2. A minimum project length of two years is recommended when there is assurance that every block will be well covered during both years. A three-year project allows some flexibility in coverage. However, coordinators must be warned that observer effort tends to decrease with each successive year of the project.

3. Close coordination is required between the project coordinator and the observers. A preliminary report (no later than the end of June) allows the coordinator to assign additional coverage to underworked blocks.

4. A minimum of two field days (four half-days) per 5-km block is seldom sufficient coverage without the Mini-routes.

5. Breeding Bird Survey Mini-routes are especially helpful and supplied information on the more common breeding species with a minimum of observer time. To reap the maximum benefits of this technique, results must be sent to the observers as quickly as possible upon completion of the two runs.

6. Workshops were exceptionally successful and should be an integral part of any atlas project.

7. Handouts on breeding times, egg dates, nest finding, etc. were very helpful.

8. Preliminary reports or newsletters help to maintain observer interest throughout the project.

9. Maps should be supplied to the observers. USGS topographic maps with green overprint for forest areas are best. It is desirable to have at least six copies of each quadrangle map so each observer can have an original. If two or more observers are working the same block, xerox copies may suffice for the additional people.

## SUMMARY

A pilot Breeding Bird Atlas was initiated during 1971 in Montgomery County. A second atlas was begun during 1973 in Howard County. The Montgomery project was completed in 1973 and the Howard project in 1975.

A total of 138 species were recorded for the two counties (129 confirmed, 7 probable, 2 possible). Montgomery County had 135 species recorded (122 confirmed, 9 probable, 4 possible) and Howard County had 127 species (110 confirmed, 7 probable, 10 possible).

Thirty-two species were found in all 5-km blocks and eight were found in all 5-km and 2½-km blocks. Two species were confirmed in all blocks.

There were 11 new Montgomery County breeding records and eight new Howard County records. Nine species were found only in Montgomery County and two only in Howard County. Twelve species were confirmed in Montgomery County but not in Howard; five were confirmed in Howard County but not in Montgomery. Ninety-eight species were confirmed on active nests in Montgomery County and 85 in Howard County.

## ACKNOWLEDGMENTS

The authors wish to acknowledge the following individuals for their help in conducting the Atlas and preparing the results. We thank Chan Robbins for his invaluable advice, guidance, and encouragement. Bill Oberman initiated the MCC project. Larry Hood and Jay Sheppard assisted with the HCC workshops. Danny Bystrak drew Mini-routes, compiled the results, and prepared two of the figures. Claudia Wilds, Frank Schaff and Ed Buckler assisted in coordinating the MCC Atlas. Roxie Laybourne, U. S. Fish and Wildlife Service Bird and Mammal Laboratory, provided study skins for the workshops. The Montgomery, Howard and Patuxent Chapters of MOS funded the two projects. Ernie Meyers prepared the distribution maps. Sandie Mills typed the manuscript. Finally, we want to thank the observers who made the two projects possible: MCC Atlas -- Ted Allen, Earl Atwood, Carter Atkinson, Ted Banvard, William Bartz, Henry Bell, Jim Berry, Starr Bidlack, Elaine and Peter Bono, Mike and Joy Bowen, Ed and El Buckler, Dick Carlson, Bob Caswell, Mr. and Mrs. John Chapin, Sheila Cochran, Alice and Paris Coleman, Bill Colligan, Clifford Cook, Barry Cooper, Chuck Cremeans, Morrill and Margaret Donnald, Paul DuMont, Dan Eberly, Ted Eliot, Phil Etter, Gene Evens, Fred Evenden, Lynn Fowler, Bob Gelhard, B. C. Getchell, Harriet Gilbert, Delores and Ronald Grant, Wally Green, Bob Hahn, Ives and Evan Hannay, Lois and Donald Hawken, Lynn Hiller, Glendora Horne, Sylvia and Enoch Johnson, Vince Jones, Marge Koester, Marcia Lakeman, Jacob Levine, Martin Levy, George Lowe, Shirley and Bob Mallalieu, Alan Marks, Chuck Mason, Eric Maybach, Helen Meleney, Don Messersmith, Dave Meyer, Ernie Meyers, Ed Miller, Elizabeth Monroe, Harvey Mudd, Kevin Mullen, Floyd Murdock, Henry Myers, Marcia Nelson, Bruce Newman, Bill Oberman, Lola and Ted Oberman, Cynthia Penland, Ella Pfeiffer, Mr. and Mrs. David Prestemon, Billie and Bob Pyle, Peter Pyle, Ann Richards, Betty Reidel, Sue Robbins, W. R. and E. R. Rogers, Frances Ross, Mr. and Mrs. Richard

Rule, Isaac Sanchez, Frank Schaff, August Selckmann, Lutie Semmes, Eloise and Larry Shaw, Judy Shaw, Jim Shifflet, Margaret Sickels, Wayne Sieck, Grace Sims, Hilda Smith, Bruce Steger, Mr. and Mrs. Alexander Stevenson, Tom Stock, Ted and Phil Stoddard, Jeff Swineboard, Tom and Vinson Valega, Tom Valega, Jr., Betty Vekeman, Judy Wanless, Robert Warfield, Sam Weeks, Joanne and Bill Wendell, John Weske, Alex Wetmore, George Whaley, Vee Willet, Frank Witebsky, Joan and Paul Woodward, Larry Zeleny, Arnold Zemple, Jim Zook; HCC Atlas -- Tommy Andres, Glenn Austin, Earl Baysinger, Peggy Bohanan, Christine and Bob Bowen, George Chase, Martha Chestem, Morris Collins, Bill Cramer, Lettie and John Cullom, Ben and Frances Dawson, Bob Doyle, Chuck DuPree, Tom Franklin, Janet Ganter, Al Geis, Marion Glass, Irving Hampe, Lynn Hanson, Austin Hartel, Tom and Sue Hayward, John and Ruth Healy, Chuck Henny, Donna Herbst, Bob Herndon, Shirley Hobbs, Mark Hoffman, Larry Hood, Pat Jackson, Craig and Clark Jeschke, Jean and George Jonkel, Douglas Judge, Hank Kaestner, Erv Klaas, Mel Kleen, John Krueger, Dave Linehan, Jerry Longcore, Chris Ludwig, Duncan MacDonald, Woody Martin, Paul McKenzie, Jon Miller, Tom Moyer, Marie and Aubrey Mullins, Larry Murphey, Janet Phipps, Nan Rhinelander, Stuart Robbins, Jim Ruos, Jay Sheppard, Eddie and Chris Slaughter, Gregg Squire, Paul Wagner, Donald Weber; MCC-HCC Atlas -- Ellen and Chip Bonde, Danny Bystrak, Brian Federmeyer, Tony Futcher, Dave Holmes, *Kathy Klimkiewicz, Nancy and Lucy MacClintock, Pat Moore, Rosamond Munro, Dorothy Rauth, Chan Robbins, Stuart and George Robbins, Rich Rowlett, *Jo Solem, Leonard Teuber, Ted Van Velzen, Claudia Wilds.

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Office of Migratory Bird Management, Bird Banding Laboratory, Patuxent Wildlife Research Center, Laurel, Maryland 20811
10617 Graeloch Road, Laurel, Maryland 20810

*coordinators

# SOMERSET COUNTY BREEDING BIRD ATLAS

*Charles Vaughn*

The Somerset County Breeding Bird Atlas project began Memorial Day weekend of 1976. Unlike other county atlases, this one was not organized around a local club or local people. Rather, it was one of the advertized field events of the M.O.S. Education Committee. The original plan was to spend the long weekend of May 29-31, 1976, in Somerset County, then try a different county the next year. In this way the Committee hoped to initiate an Atlas project in one new county each year, with local people continuing each Atlas to completion.

In practice both 1976 and 1977 Memorial Day weekends were spent in Somerset County as the Education Committee field event. We skipped 1978, but will return again in 1979. Why return to the same county? It is instructive for atlas planners in other counties to know. The basic problem lies in the lack of qualified observers living in Somerset and adjacent Wicomico County.

Klimkiewicz and Robbins (1974) state that four one-half days per year in a two-year study is insufficient as a minimum effort per atlas block for confirming breeding species. Since Somerset County has forty-one 5-km blocks (excluding the offshore islands of Smith, South Marsh, and Cedar) we can estimate approximately 330 one-half days required for minimum block coverage. These half days are presumably mornings, the afternoons being far less efficient for obtaining records. The 1976 foray attracted only 11 people, 6 of whom could act on their own. The next year we had 23 people, who worked in 10 parties. In two long weekends we thus logged 48 half days. Another 15 half days were worked by three parties at other times. Somerset County has thus been worked for about 20% of the time needed for species confirmation at the block level. However, our basic field unit is the quarter block.

There are several limitations when one long weekend is the principal method of collecting data. First, birds such as owls, woodcock, nighthawks, goldfinches and waxwings reach their breeding peaks a month or more before or after Memorial Day. Secondly, in a single weekend of activity there is a bias against nocturnal species.

Because manpower and time were so limited I tended to assign each party far too much work. The result was that observers spent too little time in each quarter block in order to get some coverage in all assigned blocks. The field sheets used did not have a space for party-hours, so we have no estimate of effort in each sampling unit. Thus our present distribution maps reflect observer effort as much as they do bird distribution.

Figures 1 and 2 summarize our effort to date. Only three quarter blocks out of 155 have 11 or more species confirmed (Fig. 1c), while only 20 have 11 or more probables (Fig. 1b). Worse still, there are

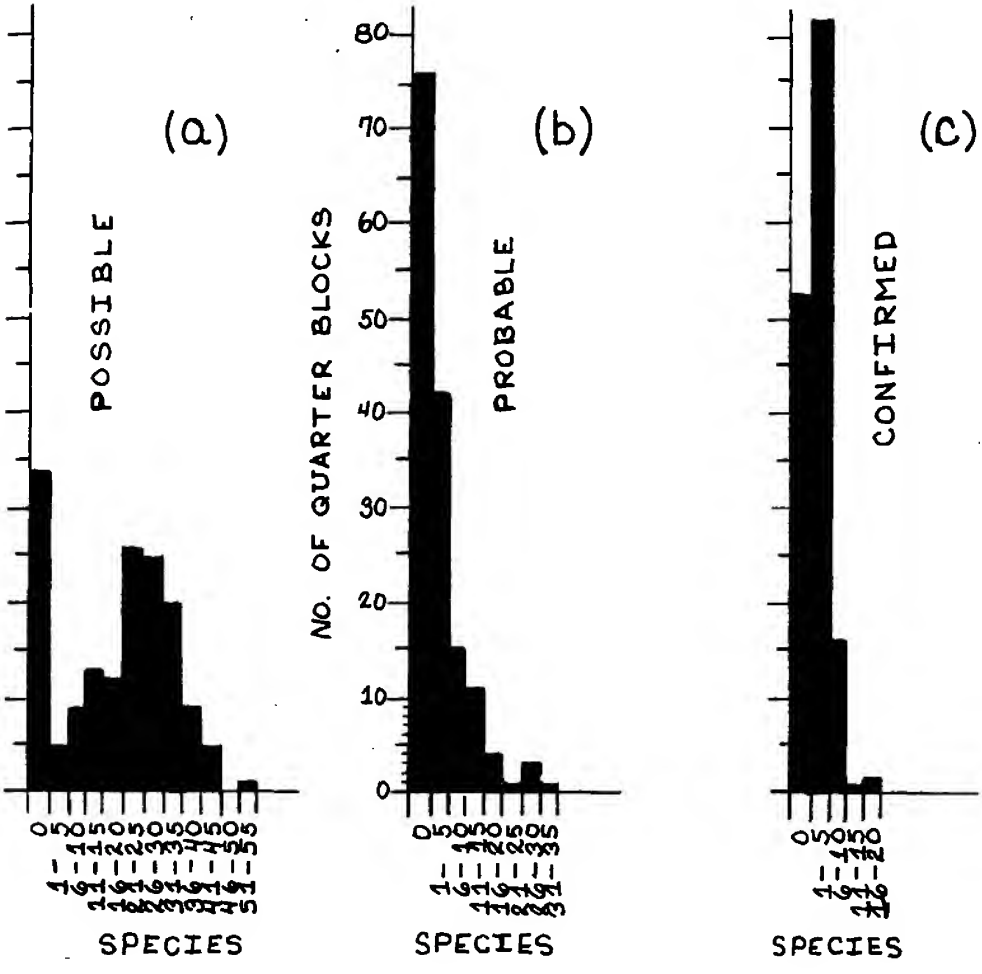



Figure 1. Histogram of species seen at highest level of confirmation within each quarter block.

respectively 53 and 76 quarter blocks with no species of either confirmed or probable nesting status. When all levels of sighting are combined at the quarter block level (Fig. 2a) there are still 32 quarters with no species recorded. Figure 2b gives an overall indication of how well we have progressed. Four blocks have seen no effort, while in one block only minimal effort has been spent. Even the most depauperate block, with only marsh habitat evident on the U.S.G.S. quadrangle maps, should have more than ten breeding species. When the county is "completed" Figure 1c should look very similar to 2a; with, perhaps, the peak falling in the 41-50 interval, and no more than one or two quarter blocks with

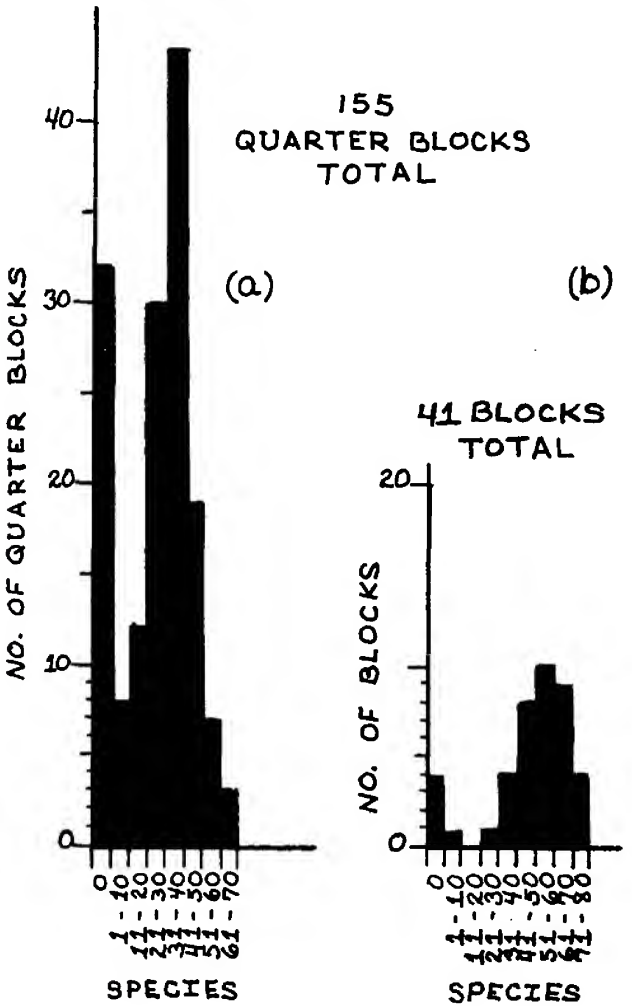



Figure 2. Histogram of all species seen within each quarter and whole block.

no species (several quarter blocks are 90-95% water). At project completion Figure 2b will be little changed; the four blocks with zero species moving to the right; and a few others moving one or two units right.

When an atlas project is being planned for a new county in the future, I think the effort will be best spent if blocks are chosen by a stratified random sample, with the strata being defined by the variety of gross habitats present. Somerset County, for instance, has three primary habitats: the cypress swamps and other floodplain habitats

along Dividing Creek and Pocomoke River; the large salt marshes exemplified by the Deal Island Wildlife Management Area and Irish Grove Sanctuary; and the farmlands interspersed with the pine-oak woods. From each stratum a random sample should be taken, with the successive samples listed in order until all blocks are chosen. Field work would then start with one block from each stratum. Coverage of a block would continue until a certain predetermined level of effort (4 one-half days per year?) is achieved. In this manner the effort up to a particular date will be relatively free of problems associated with superficial coverage, block selection bias based on favorite birding areas, or ease of access. If the local project ceases before completion the data collected will thus be of maximum use.

There are several interesting results to date for Somerset County. As of this writing 75 species have been confirmed, 23 are probable breeders and 32 possible for a total of 130 species. In the confirmed category are Northern Harrier and Common Gallinule, and the Black Vulture at Irish Grove. Possible nesters include Broad-winged Hawk, Black Rail, White-breasted Nuthatch, Savannah Sparrow and Henslow's Sparrow. Expected but not yet recorded are Yellow-crowned Night Heron, Wild Turkey (they're still reported to be surviving from stock introduced some years ago), American Oystercatcher, Common Nighthawk, Swainson's Warbler, House Finch and Vesper Sparrow.

Reference: Klimkiewicz, M. K. and C. S. Robbins, 1974, "The Breeding Bird Atlas of Montgomery County, Maryland U.S.A." Acta Orn. 14:446-456.

1306 Frederick Ave., Salisbury 21801

## THE PRINCE GEORGE'S COUNTY BREEDING BIRD ATLAS, 1975-1977

*Robert M. Patterson*

The Breeding Bird Atlas project in Prince George's County was conducted principally by members of the Prince George's Audubon Society, Patuxent Chapter of MOS, and other birders from the Washington, D.C. area. Work was conducted during the breeding seasons of 1975-1977, and continues on a limited basis.

Prince George's County was divided into 2½-km blocks using the same system previously utilized in Howard County. Prince George's County contains almost 500 square miles of land and water area, resulting in the establishment of 284 2½-km "quarter-blocks." Some of these quarter-blocks were actually in neighboring counties, and parts of some contained small areas in Virginia owing to the fact that none of the larger 5-km blocks were "broken" to accommodate the county's boundaries.

In addition to assigning territories to volunteers who actually did the field work, 29 "mini-routes" were established following the same principles used in Howard County. Of the 29 mini-routes mapped, 28 were actually run. Data from the mini-routes were added to that supplied by field workers during the charting process for each species.

One new factor not previously included in prior Atlases was introduced into the Prince George's project. The county was subdivided into 92-acre "cells" corresponding to a mapping process used by the State of Maryland's MAGI (Maryland Automated Geographical Inventory) system. One 92-acre cell was randomly selected in each quarter-block, and field workers were requested to intensively work the target cell. The State of Maryland Department of Natural Resources provided printed forms to serve as reporting sheets. The forms listed all of the species having a good chance of being found in the county, with space provided for write-ins.

Compared to the previous effort in Montgomery County where coverage was conducted only by 5-km blocks (land area is nearly the same in the two counties) the workload in Prince Georges's was approximately eight times as great. This was the result of subdividing coverage by a factor of four, and including the request for additional coverage of target cells. Partly as a result of this increased workload, completion of the project by the target date (end of the third nesting season) was not accomplished. Regrettably, another factor was the unwillingness of the compiler to act as a taskmaster and remind the volunteer participants of their commitment to the project. As a result, the northern portion of the county and most of the area along the Anne Arundel County border was extensively covered, while most of the area bordering on Washington, D.C. and in the southwestern portion of the county received only light coverage. Persons living in these areas or who tend to spend time birding there are invited to assist in completing the unfinished work.

The results of the Atlas project to date indicate 132 species present during the breeding season with 107 species actually confirmed as breeding. Of the 25 species not yet confirmed as breeding, 9 species are waders or waterfowl that might rarely breed in the county, or that might more properly be considered wanderers. One of these, Common Gallinule, was seen with young in the Potomac River just beyond the area covered by our project. Also, Gadwall attempting to nest at the Patuxent Wildlife Research Center and Whooper Swans also attempting to nest along the Patuxent River were not included in the compilation because these are obviously released or escaped birds. Despite repeated nesting attempts they apparently are not able to defend their nests against predation by raccoons.

Several range extensions have been discovered during the course of the project. Purple Gallinules were found breeding near Upper Marlboro, the downy young actually having been seen by many observers. This constituted the first nesting record for the state. Cliff Swallows, expected at the dam at Rocky Gorge Reservoir, were also unexpectedly found nesting under a bridge over a tributary of the Patuxent River, near Upper Marlboro. This was the first confirmation of nesting in Maryland's coastal plain. House Finches were recorded at several locations, mostly in the Anacostia River watershed, where at least two breeding confirmations were made. While this species was suspected of breeding in the county a year or two before the project began, a noticeable upturn in breeding season reports coincided with the Atlas project; it has now been confirmed in localities to the South of us.

Similarly, Willow Flycatcher was confirmed only in the Anacostia watershed, with one pair feeding young within sight of a pair of House Finches also feeding their young!

Other confirmations of locally rare species included Least Bittern, Black Vulture, Cooper's Hawk, Ring-necked Pheasant, Spotted Sandpiper, Common Nighthawk, Tree Swallow, Brown Creeper, Worm-eating Warbler, and Yellow-throated Warbler. Other species strongly suspected of breeding but as yet unconfirmed during the project include Virginia Rail, Chuck-will's-widow, Veery, Cedar Waxwing, and Vesper Sparrow.

Two species known to be nesting just across the County's border, and once regular breeding birds in the County, are Red-headed Woodpecker and Bald Eagle. Unfortunately, suitable breeding sites no longer exist with sufficient isolation for the eagles, and Starling competition has driven the woodpeckers to remote swamps along the County's southern border and into Charles County.

Interesting juxtapositions were noted among several species, with House Wren and Northern (Baltimore) Oriole showing a preference for the more northern and western areas of the county, while Orchard Oriole, Summer Tanager, Chuck-will's-widow, vultures and owls were more common in the southern and eastern portions. As might be expected, species diversity declined relative to the closeness of the urban area near Washington, D.C., with a few species totally missing within the Capital Beltway. However, part of the reason for this may be attributed to decreased coverage of more heavily built-up areas.

Encouraging signs were observed in some areas, particularly along the Patuxent River where the marshes continue to offer good habitat for waterfowl and waders. Ospreys continue to produce well at the few nesting sites available, and responded to the installation of a new nesting platform at Jug Bay during the project. Bald Eagles continue to produce young on the Calvert County side of the Patuxent River, and can be observed almost every day from riverside locations.

Particularly encouraging is the strong showing of the Eastern Bluebird, found in most areas outside the Beltway. In spite of poor winter conditions of late, and the continued decline in available natural nesting cavities, this species is obviously responding to the strong program of nesting box trails throughout the area. During the project the Eastern Bluebird was proclaimed the official County Bird, and numerous nesting boxes have been erected by county residents as a result of publicity generated by this public action. Many members of MOS have much to be proud of for their work in this activity.

While all of the objectives of the Atlas project were not achieved during the planned three-year period, much good in other areas was accomplished. Many persons were introduced to the joys of birding, experienced a reawakened appreciation of nature, and developed a concern for and a heightened awareness of their environment. Only good can come from all of this.

12601 Buckingham Drive, Bowie 20715

# BREEDING BIRD ATLAS OF WASHINGTON COUNTY

*Daniel Boone*

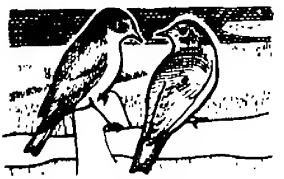
The Washington County Atlas project was started in 1976. As of 1978, we have been unable to effectively cover the 237 2½-km blocks. Nevertheless, the atlas has already turned up 122 species as possible breeders.

A major goal of the Maryland Atlases is to update the breeding distribution as published in *Birds of Maryland* (1958). New to the Ridge and Valley breeding bird list are Hooded Merganser, Chuck-will's-widow, Willow Flycatcher, Tree Swallow, Brown Creeper, Solitary Vireo, Yellow-throated Warbler, and House Finch. An Osprey, found along the Potomac River west of Hancock, was considerably outside of its normal breeding area and probably represents a summer vagrant. The study has failed to turn up either Black-throated Green or Chestnut-sided Warblers, species previously considered to nest in Washington County. No maps are included here because of the irregular and insufficient coverage. However, some interesting data reflecting population changes in the past twenty years have been disclosed. Cedar Waxwing and Blue Grosbeak populations have increased, the latter possibly associated with a northward range expansion. Conversely, Ovenbird and Hooded Warbler, in 1958 considered abundant and common respectively, have decreased in status to uncommon.

Unfortunately, the atlas format does not measure population levels, but emphasizes recording only the presence or absence of each species. This limits the ability to detect future trends. In order to compensate for this deficiency I suggest more emphasis on extensive Miniroute coverage as in the Howard County atlas. These 12-mile transects could cover most of the roads in the study area. Run in June, the 25 three-minute stops of each transect provide a standardized index of the birds present. If repeated in later years the data could be directly compared and statistical inferences drawn. In Washington County 43 transects were drawn, but to date only ten of these routes have been run because of the difficulty finding skilled observers.

I especially thank Chuck Dupree for undertaking the arduous task of mapping the data. Also, he provided excellent coverage in the southern part of the County despite living over an hour's drive away. Participant enthusiasm always makes the coordinator's task easier. For their enthusiasm and for their willingness to do a thorough job I would like to thank John Taylor, Robert and Mary Keedy, and, especially, the team of Bob Stockslager and Laura Arant. Bob's untimely death was a great loss to Washington County's birding community. Thanks also to Chandler S. Robbins, Danny Bystrak, David W. Holmes, and Peter Pyle for contributing their expertise toward atlasing my favorite County.

442 Ridge Rd., Apt. 10, Greenbelt 20770



# THE SEASON

## FALL MIGRATION, AUGUST 1 - NOVEMBER 30, 1977

*Robert F. Ringler*

The summer's hot humid weather continued into the early fall. Temperatures averaged 2° to 3° above normal in August and September, and rainfall was 1 to 2 inches below normal. Only the Eastern Shore received more rain, that on Sept. 9. The trend was reversed in October, when temperatures averaged 2° to 3° below normal and precipitation 1 to 2 inches above normal, with most occurring on Oct. 9, 14-17, and 26-27. In November both temperature and precipitation were above normal, by 2° to 3° and 2 to 3 inches respectively. Rain fell on most days during the month; the one major storm system, Nov. 6-8, probably influenced the appearance of a strange collection of birds at Sandy Point, Anne Arundel Co., on the succeeding days.

The prolonged drought conditions of the summer left water levels low in reservoirs and ponds and may have been responsible for the large numbers and variety of shorebirds found across the state. Passerine migration proceeded steadily until the night of Sept. 28-29 when vast numbers of birds moved south. Rich Rowlett's experience at Pt. Lookout, St. Marys Co., was most interesting. At dawn of the 29th he found a cornucopia of birds on the ground and in a thicket only 150 X 30 feet. Rich estimated there were 350 Common Flickers, 24 Red-breasted Nuthatches, 40 House Wrens, 400 Gray Catbirds, 100 Brown Thrashers, 200 Swainson's Thrushes, and 14 species of warblers including 30 Black-and-whites, 2 Yellows, 30 Magnolias, 55 Yellow-rumps, 25 Palms, 3 Connecticuts, 40 Common Yellowthroats, and 25 American Redstarts. Conspicuous by their small numbers were one Red-eyed Vireo, 10 sparrows of 2 species, and no blackbirds. All of these birds were probably migrants as Rich reports that "by 11:30 there was not a clue that a massive flight had ever taken place." Apparently the birds had moved off in search of food, having quickly exhausted the supply at their first landfall after coming down from over the Bay.

Contributors:

Garrett County - Fran Pope, Dorothea Malec.
Allegany/Washington - John Willetts, Alice Mallonee, Jim Paulus.
Frederick - Paul Nistico.
Carroll - Rick Blom, Robert F. Ringler.

Baltimore City and County - Rick Blom, Michael Resch, James L. Stasz, Peter Knight, Steve Hardiman, Jim Orgain, Hank Kaestner, Gladys Cole, Robert F. Ringler.

Harford - Joe Schreiber, Chuck Graham.

Howard - Jo Solem, Martha Chestem, Mark D. Wallace.

Montgomery - Margaret Donnald, Paul Nistico, Robert W. Warfield, John S. Weske, Nancy E. MacClintock.

Prince Georges - Chandler S. Robbins, Danny Bystrak, Paul Nistico, Richard A. Rowlett, George Robbins, Andrea Bobeck.

Anne Arundel - Harold L. Wierenga, Danny Bystrak.

Charles - George B. Wilmot, Andrew R. Wilmot, Olive Sorzano.

Calvert/St. Marys - John H. Fales, Richard A. Rowlett.

Kent/Queen Annes - Floyd L. Parks, Dorothy Mendinhall, Margery Plymire, Jan Reese.

Caroline - Mr. & Mrs. A. J. Fletcher, Ethel Engle, A. Knotts, M. W. Hewitt, M. Nuttle, S. Westre.

Talbot - Jan Reese, Henry T. Armistead.

Dorchester - Henry T. Armistead.

Lower Eastern Shore (Wicomico, Somerset and Worcester Counties) - Robert W. Warfield, Charles Vaughn, Eddie Slaughter, Richard A. Rowlett.

Reports: Any field notes for the period Dec. 1, 1977 through July 31, 1978 should be submitted immediately. Notes for the fall 1978 season (Aug. 1 through Nov. 30) are due Jan. 1, 1979. This publication can be only as timely as the reports it receives.

Loons, Pelagics, Cormorants. High counts of migrant **Common Loons** were 41 at Bellevue, Talbot Co., Oct. 18 (Armistead), and 110 at Sandy Point, Nov. 12 (Wierenga). A summer report of a **Manx Shearwater** off Assateague Is., Worcester Co., July 21, came from Peter Knight and R. W. Bullock of England. The well-described bird was seen flying north about 150 yards offshore. This is only the second summer record in Maryland and the first in July. There were few pelagic trips this season, but Rowlett reports one **Audubon's Shearwater** was 20 mi. SE of Ocean City on Aug. 23, and on Sept. 18 there were 8 **Cory's Shearwaters** and 225 **Wilson's Storm Petrels** off Ocean City. Stasz reports seeing an immature **Northern Gannet** flying south far offshore over Chesapeake Bay from North Point, Baltimore Co. on Oct. 19. Rowlett established a new state arrival record by four days for **Great Cormorant** with a single bird at St. George Is., St. Marys Co., Sept. 29. The first Carroll County record of **Double-crested Cormorant** was one at Piney Run Reservoir on Sept. 18 (Blom). The first fall record in Garrett County was of 2 birds on Broadford Reservoir, Oct. 17 to 24 (Pope). A high count late in the season was 130 at Hooper Is., Dorchester Co., Oct. 21 (Armistead).

Herons, Ibis. High counts of herons were 6 **Little Blues** at Eastern Neck, Kent Co., Aug. 11, and 10 in Talbot County, Sept. 3, and 50+ **Cattle Egrets** in Talbot County on Sept. 18 (all by Reese), 14 **Great Egrets** at Sandy Point, Aug. 24, and again on Sept. 4, 37 **Snowy Egrets** there on Oct. 1 and 2 (Wierenga), and 10 **Louisiana Herons** on the mainland of southern Dorchester County on Aug. 27 (Armistead). Another Louisiana was farther north at Eastern Neck on Aug. 11 (Reese). Late

Table 1. Fall Arrival Dates, 1977

| Species | Median 10-yr | 1977 | Garr | Al/W | Carr | Balt | Harf | Howa | Mont | PrGe | AnAr | Char | C/SM | K/QA | Caro | Talb | Dorc | LES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common Loon | 10/ 6 | 9/30 | 10/17 | 0 | 9/30 | 9/10 | 10/15 | 0 | 0 | 0 | 9/ 8 | 0 | 9/29 | 10/17 | 12/ 6 | 10/ 1 | 9/16 | -- |
| Red-throated Loon | -- | -- | 0 | 0 | 0 | 10/19 | 0 | 0 | 0 | 0 | 10/ 1 | 0 | 9/29 | 0 | 0 | 0 | 0 | -- |
| Horned Grebe | 11/ 1 | 10/23 | 10/24 | 0 | 11/28 | 11/23 | -- | 10/29 | 10/15 | 0 | 10/22 | 0 | -- | 10/17 | 0 | 10/18 | -- | -- |
| Pied-billed Grebe | 9/21 | 9/20 | 10/18 | 0 | 10/25 | 8/ 7 | 0 | 10/ 4 | 0 | 9/17 | 9/20 | 10/16 | 0 | 9/ 2 | 0 | 0 | -- | 8/28 |
| Double-crested Corm. | 9/ 7 | 8/23 | 10/17 | 0 | 9/18 | 8/19 | 0 | 0 | 0 | 0 | 8/13 | 0 | 0 | 8/11 | 0 | 8/ 7 | 8/27 | 8/27 |
| Little Blue Heron | 8/ 5 | 8/ 8 | 0 | 0 | 0 | 7/30 | 0 | 0 | 0 | -- | 8/17 | 0 | 0 | 7/29 | 0 | 9/ 3 | -- | -- |
| Cattle Egret | -- | 8/ 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7/30 | 0 | 7/13 | 8/11 | 0 | 9/18 | -- | -- |
| Great Egret | 8/ 8 | 7/29 | 0 | 0 | 7/ 7 | 7/ 7 | 0 | 0 | 0 | 0 | 7/22 | 9/20 | 8/17 | 7/29 | 8/22 | 0 | -- | -- |
| Snowy Egret | 7/27 | -- | 0 | 0 | 0 | 7/17 | 0 | 0 | 0 | 0 | 8/ 3 | 0 | 0 | 7/29 | 0 | -- | -- | -- |
| Louisiana Heron | -- | -- | 0 | 0 | 0 | 7/30 | 0 | 0 | 0 | 0 | 7/20 | 0 | 0 | 8/11 | 0 | 0 | -- | -- |
| Whistling Swan | 11/ 9 | 11/12 | 11/ 7 | 0 | -- | 10/20 | -- | 11/12 | 11/12 | 11/13 | 11/12 | 11/14 | 11/24 | 10/31 | 11/10 | 11/12 | -- | -- |
| Canada Goose | 9/26 | 10/ 3 | 10/18 | 0 | 10/ 3 | 9/17 | -- | 9/11 | 10/ 3 | 11/ 5 | 9/24 | 10/ 5 | 10/ 6 | 9/ 2 | 9/23 | -- | -- | 10/ 3 |
| Snow Goose | 10/12 | 10/ 2 | 0 | 0 | -- | 10/ 1 | 10/ 2 | 0 | 0 | 0 | 10/21 | 0 | 0 | 9/30 | 10/21 | 0 | -- | -- |
| Gadwall | 9/28 | 10/ 6 | 10/18 | 0 | 10/13 | 9/29 | 0 | 11/ 5 | 0 | 0 | 9/30 | 0 | 0 | 9/ 2 | 0 | 0 | -- | -- |
| Common Pintail | 10/ 1 | 9/15 | 11/ 9 | 0 | 11/17 | 9/ 7 | 0 | 11/ 5 | 0 | 9/15 | 9/21 | 0 | 0 | 9/ 2 | -- | 8/31 | 8/27 | -- |
| Green-winged Teal | 9/28 | 10/ 8 | 11/ 7 | 0 | 10/20 | 9/ 6 | 0 | 10/15 | 0 | 0 | 10/ 1 | 0 | 10/16 | 8/14 | 10/29 | 9/29 | 8/27 | -- |
| Blue-winged Teal | 8/29 | 8/19 | 0 | 0 | -- | 8/ 3 | 0 | -- | 0 | 8/15 | 8/24 | 0 | 0 | 8/14 | 0 | 8/29 | -- | 10/ 8 |
| American Wigeon | 9/28 | 9/29 | 11/ 4 | 0 | 10/13 | 9/29 | 0 | 10/ 1 | 0 | 9/ 9 | 9/23 | 0 | 0 | 9/ 2 | 10/29 | 9/16 | -- | -- |
| Northern Shoveler | 10/ 5 | -- | 0 | 0 | 0 | 12/ 8 | 0 | 0 | 0 | 10/19 | 0 | 0 | 0 | 9/ 2 | 12/17 | 0 | -- | -- |
| Redhead | 11/ 3 | 10/24 | 10/24 | 0 | 0 | 11/26 | 0 | 0 | 0 | 0 | 10/14 | 0 | -- | 10/ 4 | 0 | 12/18 | -- | -- |
| Ring-necked Duck | 11/ 9 | 10/23 | 11/ 6 | 0 | 11/26 | 9/29 | 0 | 10/ 4 | 0 | 9/26 | 10/23 | 0 | 0 | 10/11 | 11/ 9 | 0 | 0 | 11/17 |
| Canvasback | 11/ 7 | 10/26 | 10/24 | 0 | 12/ 9 | 10/15 | 0 | 10/29 | 0 | 0 | 10/22 | 10/24 | -- | 10/31 | 12/ 3 | -- | -- | -- |
| Greater Scaup | -- | 11/ 6 | 11/ 6 | 0 | 0 | 12/21 | 0 | 0 | 0 | 0 | 10/10 | 0 | -- | 10/11 | 0 | 12/18 | -- | -- |
| Lesser Scaup | 10/21 | 10/18 | 10/18 | -- | 10/13 | 10/15 | 0 | 11/ 5 | 10/21 | 0 | 10/14 | 0 | -- | 10/11 | 10/29 | 10/18 | 10/21 | -- |
| Common Goldeneye | 11/ 5 | 11/ 2 | 11/ 6 | -- | 12/ 9 | 12/ 4 | 0 | 0 | 0 | 10/30 | 10/29 | 0 | -- | 10/31 | 11/ 2 | -- | -- | -- |
| Bufflehead | 11/ 4 | 10/23 | 11/ 6 | 0 | 10/18 | 10/ 1 | 0 | 11/ 5 | 0 | 11/11 | 10/23 | 10/23 | -- | 10/22 | 10/29 | -- | -- | -- |
| Oldsquaw | 11/ 1 | 11/ 6 | 11/ 6 | 0 | -- | 10/19 | 0 | 11/12 | 0 | 0 | 10/23 | 0 | -- | 11/12 | 0 | -- | -- | -- |
| White-winged Scoter | 10/16 | 11/ 6 | 11/ 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9/ 8 | 0 | 12/22 | 11/ 7 | 0 | 8/23 | 0 | -- |
| Surf Scoter | -- | 10/23 | 10/24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10/23 | 0 | -- | 0 | 0 | 0 | 10/21 | 10/23 |
| Black Scoter | -- | 11/ 6 | 11/ 6 | 0 | 0 | 11/22 | 0 | 0 | 0 | 11/10 | 10/30 | 0 | -- | 11/ 7 | 0 | 9/16 | 0 | 9/ 5 |
| Ruddy Duck | 10/20 | 10/14 | 10/14 | 0 | -- | 10/ 5 | 0 | 10/ 1 | 10/15 | 9/27 | 10/22 | 0 | -- | 9/ 2 | 10/29 | 10/17 | -- | -- |
| Hooded Merganser | -- | 11/12 | 10/18 | -- | 10/20 | 12/21 | 0 | 11/12 | 0 | 11/11 | 12/ 3 | 0 | -- | 12/18 | 0 | 0 | -- | -- |
| Common Merganser | -- | 12/18 | 0 | -- | 12/ 2 | 12/20 | 0 | 0 | 0 | 0 | -- | 0 | 12/22 | 12/18 | 12/17 | 0 | -- | -- |
| Red-br. Merganser | -- | 11/ 6 | 11/ 6 | 12/17 | 0 | 0 | 0 | 0 | 0 | 0 | -- | 0 | -- | 10/17 | 0 | 0 | 10/21 | -- |
| Sharp-shinned Hawk | 9/25 | 9/18 | -- | 9/22 | -- | 9/10 | 0 | 9/18 | 10/ 3 | 10/ 8 | 9/11 | 10/24 | 9/ 5 | 9/18 | 9/19 | 9/11 | 9/16 | 9/ 1 |
| Cooper's Hawk | -- | 9/21 | 0 | 0 | 0 | 9/10 | 0 | 0 | 0 | 0 | 9/11 | 0 | 9/14 | 9/28 | 0 | 10/ 1 | 0 | 10/ 8 |
| Rough-legged Hawk | 11/26 | 12/17 | 11/21 | 0 | 0 | 1/ 3 | 12/17 | -- | -- | 0 | -- | 0 | 0 | 12/ 2 | 12/17 | 0 | 12/30 | 12/27 |
| Northern Harrier | -- | 9/25 | 10/14 | 0 | 0 | 9/19 | 0 | 0 | 0 | 0 | 10/ 3 | 0 | -- | 9/ 3 | 10/ 2 | 9/ 7 | -- | -- |
| Merlin | -- | 9/26 | 0 | 0 | 0 | 8/ 7 | 0 | 0 | 0 | 0 | 9/24 | 0 | 0 | 9/17 | 10/ 9 | 10/18 | 0 | 9/28 |
| American Coot | 10/19 | 10/21 | 10/17 | 0 | 10/29 | 0 | 0 | 0 | 0 | 0 | 10/21 | 10/24 | 11/14 | 10/ 3 | 0 | 10/20 | -- | 0 |

| Species | Median 10-yr | Median 1977 | Garr | Al/W | Carr | Balt | Harf | Howa | Mont | PrGe | AnAr | Char | C/SM | K/QA | Caro | Talb | Dorc | LES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Semipalmated Plover | 8/ 4 | 7/26 | 0 | 0 | 0 | 7/18 | 0 | 0 | 0 | 0 | 7/25 | 0 | 0 | 7/27 | 0 | 8/29 | 8/27 | 7/16 |
| Lesser Golden Plover | -- | 9/13 | 0 | 0 | 0 | 9/13 | 0 | 0 | 0 | 0 | 7/30 | 0 | 0 | 10/14 | 0 | 10/ 2 | 0 | 9/ 9 |
| Black-bellied Plover | 9/10 | -- | -- | 0 | 0 | 8/13 | -- | 0 | 0 | 0 | 8/13 | -- | 0 | -- | 0 | 0 | -- | 8/15 |
| Whimbrel | -- | -- | 0 | 0 | 0 | 7/25 | 0 | 0 | 0 | 0 | 8/22 | 0 | 0 | 0 | 0 | 0 | 0 | 7/ 8 |
| Upland Sandpiper | -- | 8/22 | -- | 0 | 0 | 7/16 | 0 | 0 | 0 | 0 | 8/20 | 0 | 0 | 8/28 | 0 | 0 | 8/24 | 0 |
| Greater Yellowlegs | 8/10 | 7/25 | 0 | 0 | 8/14 | 7/ 9 | 0 | 0 | 0 | 0 | 7/25 | 0 | 0 | 7/ 4 | -- | 8/29 | 8/27 | 7/ 9 |
| Lesser Yellowlegs | 8/ 6 | 7/23 | 0 | 0 | 8/14 | 7/ 4 | 0 | 0 | 0 | 0 | 7/ 8 | 0 | 0 | 7/27 | 0 | -- | 8/27 | 7/19 |
| Solitary Sandpiper | 7/28 | 7/ 7 | 0 | 0 | 7/ 7 | 7/ 2 | 0 | 0 | 0 | 7/ 7 | 7/16 | 0 | 0 | 8/27 | 0 | 0 | 0 | 0 |
| Ruddy Turnstone | -- | 7/30 | 0 | 0 | 0 | 7/30 | 0 | 0 | 0 | 0 | 7/30 | 0 | 0 | 0 | 0 | 8/ 7 | 8/27 | 7/30 |
| Common Snipe | 9/17 | -- | 0 | 0 | 10/13 | 9/ 6 | 0 | 0 | 0 | 0 | 9/18 | 0 | 0 | 0 | -- | 0 | 0 | 0 |
| Short-billed Dowitcher | 7/31 | 8/ 5 | 0 | 0 | 0 | 7/14 | 0 | 10/ 1 | 0 | 0 | 7/ 6 | 0 | 0 | 9/22 | 0 | 0 | 8/27 | 7/ 2 |
| Red Knot | -- | 7/28 | 0 | 0 | 0 | 7/30 | 0 | 0 | 0 | 0 | 8/22 | 0 | 0 | 7/27 | 0 | 0 | 0 | 7/21 |
| Sanderling | 8/18 | -- | 0 | 0 | 0 | 7/31 | 0 | 0 | 0 | 0 | 7/16 | 0 | 0 | 0 | 0 | 0 | 0 | 7/19 |
| Semipalmated Sandpiper | 8/ 1 | 7/20 | 0 | 0 | 7/ 8 | 7/ 4 | 0 | 0 | 0 | 0 | 7/22 | 0 | 0 | 7/27 | 0 | 8/23 | -- | 7/18 |
| Western Sandpiper · | -- | 8/ 9 | 0 | 0 | 0 | 7/16 | 0 | 0 | 0 | 0 | 7/25 | 0 | 8/24 | 0 | 0 | 10/ 2 | -- | 0 |
| Least Sandpiper | 7/25 | 7/17 | 0 | 0 | 7/ 8 | 7/ 3 | 0 | 0 | 0 | 0 | 7/ 8 | 0 | 0 | 7/27 | 0 | 7/31 | 8/27 | 0 |
| Pectoral Sandpiper | 8/10 | 7/30 | 0 | 0 | 7/17 | 7/ 3 | 0 | 0 | 0 | 0 | 7/16 | 0 | 0 | 8/11 | 0 | -- | 8/27 | -- |
| Dunlin | 10/ 1 | 10/ 1 | 0 | 0 | 11/17 | 7/23 | -- | 0 | 0 | 0 | 10/ 8 | 0 | 0 | 7/27 | 0 | 10/ 1 | -- | -- |
| Stilt Sandpiper | -- | -- | 0 | 0 | 0 | 9/10 | 0 | 0 | 0 | 0 | 7/25 | 0 | 0 | 0 | 0 | 0 | 0 | 9/ 9 |
| Bonaparte's Gull | -- | 9/10 | 11/22 | 0 | 10/ 2 | 9/10 | -- | 0 | -- | 0 | 9/ 4 | 0 | 0 | 8/28 | 0 | 0 | -- | -- |
| Caspian Tern | -- | 8/ 4 | 0 | 0 | 0 | 7/12 | 0 | 0 | 0 | 7/24 | 7/ 6 | 0 | -- | 8/11 | 0 | 8/23 | 8/27 | 8/ 4 |
| Black Tern | -- | -- | 0 | 0 | 0 | 7/14 | 0 | 0 | 0 | 0 | 8/22 | 0 | 0 | 0 | 0 | 0 | 0 | 7/18 |
| Common Nighthawk | 8/23 | 8/21 | 8/27 | -- | -- | 8/11 | -- | 8/19 | 8/22 | 8/21 | 8/20 | 9/ 1 | -- | 8/22 | -- | -- | -- | 8/19 |
| Red-headed Woodpecker | 9/20 | 9/29 | 11/28 | 0 | 0 | 9/20 | 0 | 0 | 0 | 0 | 9/15 | 10/11 | 10/18 | 0 | 0 | 9/18 | 0 | 9/29 |
| Yellow-bellied Sapsuck. | 9/29 | 10/ 5 | -- | 0 | 0 | 9/14 | 0 | 10/ 7 | 10/ 5 | 10/ 9 | 9/29 | 10/ 5 | 11/ 8 | 9/30 | 11/12 | 10/21 | -- | 9/28 |
| Yellow-bellied Flycat. | 9/ 1 | 8/25 | 0 | 8/25 | 0 | 8/14 | 8/26 | 0 | 8/23 | 9/ 8 | 8/25 | 0 | 0 | 8/26 | -- | 0 | 0 | 0 |
| Least Flycatcher | 8/31 | 8/26 | -- | 9/ 5 | -- | 8/14 | 8/26 | 0 | 8/21 | 0 | 9/12 | 0 | 0 | 8/13 | 0 | 0 | 8/27 | 0 |
| Olive-sided Flycatcher | 8/26 | -- | 0 | 8/26 | 0 | 8/ 8 | 0 | 0 | -- | 0 | 0 | 0 | 0 | 9/ 5 | 0 | 0 | 0 | 0 |
| Tree Swallow | 8/12 | 8/ 6 | -- | -- | -- | 6/30 | -- | -- | 8/ 9 | -- | 7/10 | 0 | 9/ 5 | 7/29 | -- | 9/ 7 | 8/27 | 8/ 3 |
| Red-breasted Nuthatch | 9/15 | 9/18 | 9/22 | 9/25 | 10/20 | 8/27 | 11/12 | 9/18 | 9/28 | 9/ 5 | 9/ 4 | 10/23 | 9/29 | 8/19 | 8/31 | 9/ 3 | 9/16 | 9/18 |
| Brown Creeper | 10/ 2 | 10/ 6 | -- | 10/22 | 10/20 | 9/ 7 | -- | 10/ 7 | 10/ 7 | 9/20 | 9/28 | 10/ 6 | -- | 9/30 | 11/ 5 | 10/31 | -- | 9/29 |
| Winter Wren | 10/ 4 | 10/10 | -- | -- | -- | 9/13 | -- | -- | -- | -- | 9/30 | 10/16 | -- | 10/ 5 | -- | 10/21 | 10/21 | -- |
| Hermit Thrush | 10/11 | 10/ 5 | -- | 10/ 5 | -- | 10/ 5 | 10/29 | -- | 10/ 5 | 9/29 | 10/ 8 | 10/16 | -- | 9/26 | 10/26 | -- | -- | -- |
| Swainson's Thrush | 9/10 | 9/ 4 | 9/21 | 8/26 | -- | 8/20 | -- | 0 | 9/ 4 | 9/ 5 | 9/ 4 | 0 | -- | 9/ 8 | -- | 0 | 9/16 | -- |
| Gray-cheeked Thrush | 9/24 | 9/24 | 0 | 9/28 | 0 | 9/10 | 10/ 4 | 0 | 8/19 | 9/23 | 9/24 | 0 | 0 | 9/29 | 0 | 0 | 0 | 0 |
| Veery | 9/ 4 | 9/ 5 | -- | -- | -- | 8/23 | -- | -- | 8/18 | 9/ 7 | 9/ 7 | 9/ 5 | -- | 9/22 | 0 | 0 | 8/27 | 0 |
| Golden-crowned Kinglet | 10/ 5 | 10/10 | -- | 10/ 5 | 0 | 10/ 5 | 10/ 8 | -- | 10/23 | -- | 10/ 5 | 0 | 10/13 | 10/ 6 | 10/13 | 10/18 | 10/21 | -- |
| Ruby-crowned Kinglet | 9/24 | 10/ 4 | 0 | 10/14 | 10/20 | 9/12 | 10/ 8 | 10/23 | 10/ 1 | 10/ 3 | 9/28 | 10/ 6 | 10/25 | 10/ 1 | 9/11 | 9/11 | -- | 9/28 |
| Water Pipit | 10/20 | 10/21 | 0 | 0 | 0 | -- | 0 | 0 | 11/12 | 0 | 10/ 8 | 0 | 0 | 10/19 | -- | 10/21 | 10/21 | 10/ 8 |
| Solitary Vireo | 10/ 1 | 9/28 | -- | 9/18 | 0 | 9/22 | -- | 0 | 10/11 | 10/16 | 9/28 | 0 | 0 | 9/23 | 0 | 0 | 0 | 9/29 |
| Philadelphia Vireo | 9/17 | 9/18 | 0 | 9/18 | 0 | 9/17 | 0 | 9/18 | 9/24 | 9/12 | 0 | 0 | 0 | -- | 0 | 0 | 0 | 9/28 |

| Species | Median 10-yr | 1977 | Garr | Al/W | Carr | Balt | Harf | Howa | Mont | PrGe | AnAr | Char | C/SM | K/QA | Caro | Talb | Dorc | LES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Black-&-white Warbler | 8/25 | 8/29 | -- | 8/20 | -- | 8/14 | 8/20 | -- | 8/15 | 9/ 4 | 9/ 4 | 9/ 5 | 9/ 1 | 9/19 | 8/22 | 9/11 | 8/27 | -- |
| Golden-winged Warbler | 8/28 | -- | -- | -- | 0 | 8/22 | 0 | 0 | 8/26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Blue-winged Warbler | 8/31 | -- | -- | -- | -- | 8/12 | -- | -- | 8/22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tennessee Warbler | 9/ 7 | 8/26 | 7/24 | 8/21 | 0 | 8/21 | 0 | 0 | 8/26 | 8/20 | 8/21 | 9/11 | 0 | 9/20 | 0 | 9/11 | 8/27 | 9/29 |
| Oranged-crowned Warb. | 10/ 2 | -- | 0 | 0 | 0 | 9/17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9/29 |
| Nashville Warbler | 9/ 8 | 9/11 | -- | 8/20 | 0 | 8/21 | 0 | 0 | 8/28 | 0 | 10/ 5 | 10/ 2 | 0 | 9/20 | 0 | 9/11 | 0 | -- |
| Magnolia Warbler | 9/ 6 | 9/ 5 | -- | 8/26 | 0 | 8/20 | 8/26 | 9/18 | 8/28 | 9/ 6 | 9/ 4 | 9/11 | -- | -- | 9/13 | 0 | 8/27 | -- |
| Cape May Warbler | 9/ 8 | 9/ 4 | 9/ 9 | 8/20 | 0 | 9/ 1 | 0 | 0 | -- | 9/ 4 | 9/ 4 | 0 | 0 | 8/26 | 9/29 | 9/11 | 8/27 | -- |
| Black-throated Blue War | 9/ 9 | 9/ 4 | -- | 8/25 | 0 | 9/ 7 | 8/14 | -- | 9/ 4 | 9/11 | 9/ 5 | 9/ 5 | 0 | 8/11 | -- | 8/20 | 0 | -- |
| Yellow-rumped Warbler | 9/29 | 10/ 1 | 10/ 3 | 10/23 | 10/13 | 9/11 | 10/15 | 10/ 8 | 9/29 | 9/28 | 9/21 | 10/ 8 | 9/17 | 9/21 | 10/11 | 10/ 1 | -- | 9/28 |
| Black-throated Green W. | 9/11 | 9/11 | -- | 9/10 | 0 | 8/31 | 0 | 9/18 | 9/12 | 9/ 3 | 9/ 4 | 0 | 9/17 | 9/11 | 0 | 9/11 | 0 | -- |
| Blackburnian Warbler | 9/ 4 | 8/23 | -- | 0 | 0 | 8/21 | 0 | 9/18 | 8/26 | 8/20 | 8/25 | 0 | 0 | 8/13 | 0 | 0 | 0 | 0 |
| Chestnut-sided Warbler | 9/ 2 | 8/30 | -- | 8/20 | 0 | 8/12 | 0 | 0 | 8/26 | 0 | 9/ 4 | 0 | 0 | 9/23 | 0 | 9/11 | 0 | 0 |
| Bay-breasted Warbler | 9/ 7 | 9/ 4 | 9/ 4 | 8/27 | 0 | 8/12 | 0 | 0 | 9/ 1 | 0 | 9/15 | 0 | 0 | 9/28 | -- | 9/11 | 0 | -- |
| Blackpoll Warbler | 9/14 | 9/12 | 9/30 | 9/11 | 0 | 9/ 6 | 0 | -- | 9/11 | 9/ 8 | 9/ 7 | 9/18 | 9/14 | 9/28 | 10/ 5 | 0 | 0 | -- |
| Palm Warbler | 9/28 | 9/28 | 0 | 9/25 | 0 | 10/15 | 0 | 0 | 10/ 8 | 9/28 | 9/ 4 | 0 | 9/29 | 10/11 | 0 | 0 | 0 | 9/28 |
| Northern Waterthrush | 9/ 1 | 9/ 5 | -- | 0 | 0 | 8/30 | 0 | 0 | 8/15 | 9/ 5 | 9/ 7 | 0 | 0 | 9/28 | 0 | 0 | 0 | 0 |
| Connecticut Warbler | 9/17 | 9/23 | 9/ 8 | 9/25 | 0 | 9/28 | 0 | 0 | 9/12 | 0 | 9/21 | 0 | 9/29 | 0 | 0 | 0 | 0 | 0 |
| Mourning Warbler | 9/ 6 | 9/ 3 | 0 | 9/ 4 | 0 | 9/ 3 | 0 | 0 | 8/25 | 0 | 0 | 0 | 0 | 9/30 | 0 | 0 | 0 | 0 |
| Wilson's Warbler | 9/ 9 | 9/ 3 | 0 | 8/26 | 0 | 9/ 3 | 0 | 0 | 8/31 | 9/ 3 | 9/ 4 | 0 | 0 | 10/ 2 | 0 | 0 | 0 | 0 |
| Canada Warbler | 8/24 | 8/18 | -- | 8/26 | 0 | 8/15 | 8/12 | 0 | 8/15 | 8/21 | 9/ 4 | 0 | 0 | 8/13 | 0 | 0 | 8/27 | 0 |
| American Redstart | 8/28 | 8/29 | 9/ 4 | -- | -- | 8/ 7 | 8/26 | -- | 8/15 | 8/31 | 8/25 | 9/ 5 | 9/11 | 8/17 | 9/10 | 9/ 3 | 8/27 | -- |
| Bobolink | 8/30 | 8/25 | -- | 0 | 0 | 7/22 | 0 | 0 | 8/25 | 9/ 5 | 7/ 8 | 0 | 8/25 | 8/17 | 8/27 | 9/ 7 | 8/27 | 8/20 |
| Rusty Blackbird | 10/20 | 10/15 | 0 | 0 | 11/ 2 | 10/ 9 | 0 | 0 | 10/15 | -- | 10/ 4 | 0 | 9/11 | 9/24 | -- | 10/18 | 10/21 | -- |
| Rose-breasted Grosbeak | 9/13 | 9/12 | -- | 0 | 0 | 9/ 1 | 0 | 9/18 | 8/26 | 9/ 5 | 9/12 | 0 | 9/17 | 9/23 | 9/13 | 9/11 | -- | -- |
| Evening Grosbeak | 11/ 8 | 10/21 | 10/28 | 0 | 11/17 | 10/19 | 0 | 10/23 | 10/15 | 10/ 7 | 10/19 | 11/25 | -- | 11/12 | 10/25 | 10/19 | 10/21 | -- |
| Purple Finch | 10/ 6 | 10/ 2 | -- | 10/29 | 10/25 | 9/16 | 10/28 | 10/11 | 9/ 5 | 10/ 5 | 9/ 4 | 9/16 | 0 | 9/28 | 10/21 | 10/21 | -- | -- |
| Common Redpoll | 1/ 7 | 1/24 | 2/22 | 1/24 | 12/24 | 11/11 | 10/30 | 1/31 | 1/ 1 | 2/ 6 | 2/ 5 | 0 | 0 | 1/30 | 0 | 12/18 | 0 | 12/29 |
| Pine Siskin | 10/25 | 10/19 | 10/18 | 0 | -- | 10/ 3 | 10/16 | 10/15 | -- | 10/30 | 10/10 | 10/20 | 10/24 | 10/24 | 10/21 | 10/18 | 10/21 | 11/18 |
| Red Crossbill | 11/22 | 12/ 6 | 12/17 | 0 | 0 | 11/11 | 10/28 | 0 | 1/22 | 11/26 | 1/ 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| White-winged Crossbill | 12/18 | 12/12 | 2/20 | 0 | 0 | 2/ 1 | 10/30 | 0 | 0 | 11/25 | 0 | 0 | 0 | 0 | 0 | 0 | 12/30 | 11/11 |
| Savannah Sparrow | 9/25 | 9/16 | 10/14 | 0 | 0 | 9/12 | 0 | 0 | 0 | 0 | 9/11 | 0 | 0 | 9/ 2 | 0 | 10/ 1 | 9/16 | -- |
| Northern Junco | 10/ 5 | 10/ 7 | 10/10 | 9/25 | 10/13 | 9/21 | 11/ 9 | 10/15 | 9/29 | 10/ 7 | 10/ 5 | 10/ 7 | 10/15 | 9/30 | 10/15 | -- | -- | 9/29 |
| American Tree Sparrow | 11/21 | 11/13 | -- | -- | 10/26 | 11/27 | -- | -- | 11/27 | 11/13 | 11/20 | 0 | 10/16 | 10/20 | -- | -- | -- | -- |
| White-crowned Sparrow | 10/14 | 10/13 | 10/13 | 10/23 | 10/20 | 10/ 9 | -- | 10/ 8 | 10/12 | -- | 10/ 7 | -- | -- | 10/ 9 | 10/21 | 10/18 | 10/21 | -- |
| White-throated Sparrow | 9/30 | 10/ 4 | 10/ 3 | 9/28 | 10/13 | 9/21 | 10/ 8 | 10/ 4 | 9/28 | 9/28 | 9/28 | 10/ 8 | 10/12 | 10/ 6 | 10/14 | 10/ 5 | -- | -- |
| Fox Sparrow | 10/29 | 10/19 | 10/26 | 10/14 | 10/25 | 10/15 | -- | -- | 10/19 | 10/31 | 10/ 9 | 10/16 | -- | 10/20 | 11/14 | -- | -- | -- |
| Lincoln's Sparrow | 9/26 | 9/29 | 0 | 0 | 0 | 9/29 | 9/16 | 0 | 9/20 | 9/28 | 10/ 5 | 0 | 10/ 7 | -- | 0 | 0 | 0 | 9/29 |
| Swamp Sparrow | 10/ 4 | 10/ 4 | 10/14 | -- | 10/13 | 9/28 | -- | 9/17 | 9/29 | 9/29 | 10/ 9 | -- | -- | 10/ 7 | 10/22 | 10/ 1 | -- | -- |
| Snow Bunting | -- | 11/18 | 0 | 11/19 | 0 | 1/22 | 0 | 0 | 1/21 | 0 | 10/23 | 0 | 11/17 | 0 | 0 | 0 | 0 | 10/23 |

birds were a Little Blue at Sandy Point on Oct. 26 (Wierenga), a Cattle Egret in a pasture with horses near Chestertown, Kent Co. on Nov. 18 (Rowlett, Parks), a Great Egret at Rose Haven, Anne Arundel Co. on Nov. 24 (Wierenga), an immature **Yellow-crowned Night Heron** feeding in Gwynns Falls, Woodlawn, Baltimore Co. on Nov. 22 (Blom, Ringler) and a **Glossy Ibis** at Sandy Point, Sept. 10-16 (Wierenga). Three of the 5 White Ibis at Patuxent Wildlife Research Center remained until Sept. 18 (Brooke Meanley).

Swans, Geese. The highest count of **Mute Swans** ever recorded in Maryland was 200 at Eastern Neck, Nov. 18 (Rowlett, Parks). After a few early arrivals, observers across the State reported a massive flight of **Whistling Swans** on Nov. 12 with the most being 1,120 at Sandy Point (Wierenga). They built up to a total of over 4,000 at Eastern Neck, Nov. 22 (Reese). Seventeen **Brant** at Sandy Point on Nov. 6 (Wierenga) were exceptional for the Western Shore. There was an unverified report of White-fronted Geese at Blackwater Refuge on Nov. 2.

Ducks. There were several reports of **Fulvous Whistling Ducks.** Nine flew in and landed on the Potomac River at Violet's Lock, Montgomery Co., Sept. 21 (Rowlett). Fifteen were reported at Blackwater Refuge on Nov. 4 (Matt Kershbaum). Another was at Sandy Point, Nov. 9 and 10 (Wierenga), and one was reported by Sam Lyon to have been shot near Waysons Corner, Prince Georges Co., Nov. 10. On an Aug. 27 survey Armistead found a female **Mallard** with 3 small young at Hooper Is., 33 **Gadwalls** at Elliott Is. including a pair with 7 downy young, and 17 **Common Pintails** and 25 **Green-winged Teal** at Blackwater. Reese made high counts of **American Wigeon:** 200+ at Kent Narrows, Queen Annes Co., Oct. 3, and 1,100+ at Eastern Neck, Oct. 13. The highest number of **Wood Ducks** reported was at Sandy Point with 62 on Aug. 24 (Wierenga). Reese estimated 50+ **Ring-necked Ducks** at Eastern Neck, Oct. 31. A record-early **Bufflehead** was seen at North Point, Oct. 1 (Stasz). An amazing collection of diving ducks arrived at Broadford Reservoir on Nov. 6, including 10 Ring-necked Ducks, both scaup (3 **Greaters**), 12 **Common Goldeneyes**, 6 Buffleheads, 15 **Oldsquaws**, 6 **White-winged**, 2 **Surf**, and 2 **Black Scoters**, and one **Red-breasted Merganser.** It was the first Garrett County record of Black Scoter (Pope). An early group of Black Scoters was a flock of 37 at Ocean City, Sept. 5 (Warfield).

Diurnal Raptors. More people seem to have been bitten by the fall hawk-watching bug and are looking upward to see the ever-impressive flights of raptors. Currently the only consistent reporting is from Wierenga at Sandy Point. His fall scores are presented in Table 3. In Baltimore a banding station was established at North Point, a projection of land jutting into Chesapeake Bay on the north side of the mouth of the Patapsco River. Slow banding days permitted intermittent hawk-watching between Sept. 10 and Nov. 27. The totals are from Stasz and Kaestner. In other developments, there were 94 **Turkey Vultures** in 3 kettles along the Choptank River near Dover Bridge, Talbot Co., just prior to sunset on Sept. 29 (Reese). Ninety **Black Vultures**, together with 40 Turkey Vultures, flew over Piney Run, Carroll Co., heading east on Dec. 2 (Blom). **Northern Goshawks** were reported over the Patapsco

Table 2. Fall Departure Dates, 1977

| Species | Median 10-yr | 1977 | Garr | Al/W | Carr | Balt | Harf | Howa | Mont | PrGe | AnAr | Char | C/SM | K/QA | Caro | Talb | Dorc | LES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Double-crested Corm. | 10/18 | 10/18 | 10/24 | 0 | 9/18 | 10/15 | 0 | 0 | 0 | 0 | -- | 0 | 0 | 9/15 | 0 | 10/21 | 10/21 | W |
| Green Heron | 10/ 3 | 10/ 1 | -- | -- | -- | 9/28 | -- | 9/21 | -- | 10/ 3 | 9/26 | -- | -- | 11/ 2 | -- | -- | -- | 12/27 |
| Little Blue Heron | 10/ 1 | 9/29 | 0 | 0 | 0 | 10/ 9 | 0 | 0 | 0 | 9/29 | 10/26 | 0 | 0 | 9/ 2 | 0 | 9/ 3 | -- | -- |
| Cattle Egret | 10/ 3 | 9/10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8/17 | 0 | 9/ 1 | 11/18 | 0 | 9/18 | -- | -- |
| Great Egret | 10/ 9 | 10/12 | 0 | 0 | -- | -- | 0 | 0 | 0 | 0 | 11/24 | 10/ 2 | 8/24 | 10/14 | -- | 0 | 10/21 | W |
| Snowy Egret | 10/14 | 10/21 | 0 | 0 | 0 | 9/11 | 0 | 0 | 0 | 0 | 10/26 | 0 | 0 | 10/17 | 0 | 10/29 | 10/21 | W |
| Louisiana Heron | -- | 8/11 | 0 | 0 | 0 | 8/10 | 0 | 0 | 0 | 0 | 8/ 3 | 0 | 0 | 8/11 | 0 | 0 | 8/27 | W |
| American Bittern | 10/ 9 | -- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9/14 | 0 | 0 | 9/23 | 0 | 10/22 | -- | W |
| Glossy Ibis | 9/28 | -- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9/16 | 0 | 0 | 9/23 | 0 | 0 | 0 | 12/29 |
| Blue-winged Teal | 10/11 | 10/11 | 0 | 0 | -- | -- | 0 | -- | 0 | -- | 10/12 | 0 | 0 | 11/18 | 0 | 9/29 | -- | 10/ 9 |
| Broad-winged Hawk | 9/30 | 9/23 | -- | 9/17 | -- | 10/15 | -- | 9/30 | 9/18 | 9/17 | 10/ 2 | 0 | 0 | 9/28 | 0 | 0 | 9/16 | 0 |
| Osprey | 10/12 | 10/29 | 8/27 | 0 | 10/20 | 11/11 | -- | 9/21 | 0 | 11/17 | 10/29 | 9/25 | 9/ 2 | 11/ 5 | 11/25 | 11/ 9 | -- | -- |
| Semipalmated Plover | 9/25 | 9/26 | 0 | 0 | 0 | 9/29 | 0 | 0 | 0 | 0 | 9/26 | 0 | 0 | 8/17 | 0 | 10/ 2 | 8/27 | W |
| Lesser Golden Plover | 10/24 | 10/24 | 0 | 0 | 0 | 10/31 | 0 | 0 | 0 | 0 | 10/27 | 0 | 0 | 10/24 | 0 | 10/ 2 | 0 | 9/10 |
| Black-bellied Plover | 10/16 | 10/23 | 11/ 7 | 0 | 0 | 9/ 6 | -- | 0 | 0 | 0 | 10/29 | 10/24 | 0 | 10/22 | 0 | 0 | 10/21 | W |
| Whimbrel | -- | -- | 0 | 0 | 0 | 7/30 | 0 | 0 | 0 | 0 | 8/22 | 0 | 0 | 0 | 0 | 0 | 0 | 10/24 |
| Greater Yellowlegs | 10/27 | 11/ 2 | 0 | 0 | -- | 10/22 | 0 | 0 | 0 | 0 | 11/10 | 0 | 0 | 11/ 5 | 12/ 4 | 10/20 | -- | W |
| Lesser Yellowlegs | 10/ 8 | 10/17 | 0 | 0 | 10/18 | 10/15 | 0 | 0 | 0 | 0 | 10/27 | 0 | 0 | 10/17 | 0 | 10/ 2 | -- | W |
| Solitary Sandpiper | 9/23 | 9/17 | 0 | 0 | -- | 10/15 | 0 | 0 | 0 | 10/ 2 | 8/15 | 0 | 0 | 9/ 2 | 0 | 0 | 0 | 0 |
| Spotted Sandpiper | 9/23 | -- | 0 | 0 | 0 | 11/13 | 0 | 0 | 0 | 0 | 11/10 | 0 | 0 | 8/16 | 0 | 0 | 0 | -- |
| Short-billed Dowitcher | -- | 9/28 | 0 | 0 | 0 | 8/13 | 0 | 10/ 8 | 0 | 0 | 10/ 4 | 0 | 0 | 9/22 | 0 | 0 | -- | -- |
| Semipalmated Sandpiper | 9/25 | 10/ 2 | 0 | 0 | -- | 10/ 9 | 0 | 0 | 0 | 0 | 10/ 2 | 0 | 0 | 8/17 | 0 | 10/ 2 | -- | -- |
| Least Sandpiper | 9/19 | -- | 0 | 0 | -- | 10/ 9 | 0 | 0 | 0 | 0 | 10/ 9 | 0 | 0 | -- | 0 | 10/ 2 | -- | 0 |
| Pectoral Sandpiper | 10/11 | 10/19 | 0 | 0 | -- | 10/22 | 0 | 0 | 0 | 0 | 10/17 | 0 | 0 | 10/31 | 0 | 10/ 2 | -- | 10/19 |
| Dunlin | 11/10 | 11/ 9 | 0 | 0 | 11/20 | 10/ 9 | -- | 0 | 0 | 0 | 11/ 9 | 0 | 0 | 11/11 | 0 | 10/ 2 | -- | W |
| Stilt Sandpiper | -- | -- | 0 | 0 | 0 | 9/14 | 0 | 0 | 0 | 0 | 8/13 | 0 | 0 | 0 | 0 | 0 | 0 | 9/10 |
| Laughing Gull | 11/ 3 | 11/ 3 | 0 | 0 | 0 | 1/ 3 | -- | 0 | 0 | 0 | 12/12 | 10/25 | 10/10 | 11/12 | 0 | 10/21 | 10/21 | 12/27 |
| Bonaparte's Gull | 12/ 9 | 12/14 | 12/17 | 0 | 12/26 | W | -- | 0 | 12/10 | 0 | W | 0 | 0 | 11/11 | 0 | 0 | -- | -- |
| Forster's Tern | 11/ 3 | 10/21 | 0 | 0 | 0 | 10/20 | 0 | 0 | 0 | 0 | 11/19 | 10/ 2 | 0 | 11/18 | 0 | 9/16 | 10/21 | W |
| Common Tern | 10/15 | 10/20 | 0 | 0 | 0 | 10/28 | 0 | 0 | 0 | 0 | 11/16 | 0 | 9/ 1 | 9/18 | 0 | 10/20 | 0 | -- |
| Little Tern | -- | -- | 0 | 0 | 0 | 9/19 | 0 | 0 | 0 | 0 | 9/17 | 0 | 0 | 8/ 5 | 0 | 0 | 0 | -- |
| Caspian Tern | 10/ 7 | 10/10 | 0 | 0 | 0 | 10/20 | 0 | 0 | 0 | -- | 10/26 | 0 | 8/23 | 8/11 | 0 | 9/30 | 10/21 | -- |
| Yellow-billed Cuckoo | 9/27 | 9/28 | -- | 9/28 | -- | 10/ 7 | -- | 9/18 | 10/10 | -- | 9/30 | -- | 9/22 | 10/23 | 10/ 4 | -- | 9/16 | -- |
| Black-billed Cuckoo | 9/27 | 9/24 | 9/22 | 9/ 5 | 0 | 10/ 3 | 0 | 0 | 9/24 | 0 | 0 | 0 | 0 | 9/28 | 0 | 0 | 0 | 0 |

| Species | Median 10-yr | Median 1977 | Garr | Al/W | Carr | Balt | Harf | Howa | Mont | PrGe | AnAr | Char | C/SM | K/QA | Caro | Talb | Dorc | LES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common Nighthawk | 9/17 | 9/17 | 9/25 | -- | -- | 10/15 | -- | 9/ 8 | 9/ 6 | 9/ 6 | 10/16 | 9/ 1 | 8/26 | 9/25 | 9/29 | -- | -- | -- |
| Chimney Swift | 10/10 | 10/11 | -- | 9/22 | -- | 10/15 | -- | 10/18 | -- | -- | 10/18 | 10/22 | 10/11 | 10/11 | 10/ 6 | 10/ 2 | 9/16 | 9/28 |
| Ruby-throated Humming. | 9/27 | 10/ 2 | -- | -- | -- | 10/20 | -- | 11/ 5 | 9/15 | 9/15 | 9/29 | -- | 10/15 | 10/ 2 | 9/14 | 10/ 2 | -- | -- |
| Eastern Kingbird | 9/15 | 9/17 | -- | -- | -- | 9/20 | -- | 9/21 | 8/28 | -- | 9/27 | 9/ 1 | 9/15 | 9/18 | -- | -- | 8/27 | -- |
| Great Crested Flycat. | 9/16 | 9/16 | -- | -- | -- | 9/28 | 8/20 | 9/21 | 9/14 | -- | 10/ 7 | -- | -- | 9/11 | 9/16 | -- | 9/16 | 9/29 |
| Eastern Phoebe | 10/24 | 10/21 | -- | 10/13 | -- | 10/21 | -- | 10/15 | 10/20 | 10/18 | 10/29 | 10/26 | 10/17 | 10/12 | 10/21 | 10/21 | 10/21 | W |
| Yellow-bellied Flycat. | 9/22 | 9/22 | 0 | 9/18 | 0 | 9/28 | 9/ 5 | 0 | 10/ 1 | 9/12 | 9/ 3 | 0 | 0 | 9/27 | 10/20 | 0 | 0 | 0 |
| Acadian Flycatcher | 9/19 | 9/17 | -- | -- | -- | 9/29 | 9/10 | -- | 9/24 | 9/17 | 9/ 4 | -- | 9/ 6 | -- | 9/29 | -- | -- | -- |
| Traill's Flycatcher | 9/18 | -- | -- | -- | -- | -- | -- | 0 | 10/ 8 | 9/ 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Least Flycatcher | 9/22 | 9/28 | -- | 9/28 | -- | 9/28 | 8/26 | 0 | 10/ 5 | 0 | 9/18 | 0 | 0 | 9/28 | 0 | 0 | 9/16 | 0 |
| Eastern Pewee | 10/ 3 | 9/29 | 9/21 | -- | -- | 9/29 | -- | 9/21 | 10/17 | 9/21 | 9/21 | 9/28 | -- | 10/ 1 | 10/ 5 | 10/ 1 | -- | 9/29 |
| Olive-sided Flycatcher | -- | 9/ 6 | 0 | 8/26 | 0 | 9/ 6 | 0 | 0 | 9/21 | 0 | 0 | 0 | 0 | 9/ 5 | 0 | 0 | 0 | 0 |
| Tree Swallow | 10/18 | 10/20 | -- | -- | 10/18 | 10/21 | -- | 10/15 | 10/15 | -- | 11/10 | 0 | 9/28 | 10/22 | 10/ 9 | 10/21 | 10/21 | -- |
| Bank Swallow | 9/10 | -- | 0 | 0 | 0 | 9/10 | -- | 0 | 0 | 0 | 9/15 | 0 | -- | 9/ 5 | 0 | 0 | 0 | 0 |
| Rough-winged Swallow | 9/27 | 10/ 1 | 0 | 0 | 0 | -- | -- | 0 | 10/15 | -- | 10/ 1 | 0 | 9/ 7 | 10/ 4 | 0 | 0 | 0 | -- |
| Barn Swallow | 9/18 | 9/19 | -- | -- | -- | 9/19 | -- | 10/ 1 | -- | -- | 10/ 9 | 9/11 | 9/10 | -- | -- | -- | -- | -- |
| Purple Martin | 9/ 7 | 9/ 7 | -- | -- | -- | 9/ 6 | -- | 9/ 9 | -- | -- | 9/24 | -- | 9/10 | 9/ 5 | 9/ 7 | -- | 8/27 | -- |
| House Wren | 10/11 | 10/18 | 9/22 | 9/25 | 10/25 | 10/20 | -- | 9/18 | 10/21 | 10/12 | 10/22 | -- | -- | 10/16 | 9/14 | 10/21 | 10/21 | W |
| Gray Catbird | 10/21 | 10/20 | 10/22 | 9/28 | 10/25 | 10/22 | 9/23 | 10/11 | 10/28 | 10/16 | W | 10/25 | 9/29 | 11/12 | 10/12 | 10/18 | 10/21 | W |
| Brown Thrasher | 10/21 | 10/21 | 9/22 | 10/14 | -- | 10/30 | 10/15 | 9/18 | 10/29 | 10/15 | W | -- | 10/24 | 11/ 5 | -- | 10/21 | 10/21 | W |
| Wood Thrush | 10/11 | 10/11 | -- | -- | -- | 10/12 | -- | 10/ 9 | 10/15 | 10/10 | 10/11 | 10/16 | 9/23 | 10/12 | 10/ 5 | -- | -- | 9/29 |
| Swainson's Thrush | 10/14 | 10/15 | 10/10 | 10/23 | -- | 10/15 | 10/ 8 | 0 | 10/25 | 10/15 | 10/23 | 0 | 9/29 | 10/31 | 10/ 4 | 0 | -- | 9/29 |
| Gray-cheeked Thrush | 10/10 | 10/15 | 0 | 9/28 | 0 | 10/15 | 10/ 4 | 0 | 10/16 | 10/10 | 10/16 | 0 | 0 | 10/24 | 0 | 0 | 0 | 0 |
| Veery | 9/28 | 9/26 | -- | 9/25 | -- | 10/12 | -- | 0 | 10/ 3 | 9/20 | 9/21 | 9/ 5 | 9/26 | 10/ 8 | 0 | 0 | -- | 0 |
| Blue-gray Gnatcatcher | 9/15 | 9/ 4 | -- | 8/20 | -- | 9/11 | -- | -- | 8/15 | 8/17 | 12/ 4 | -- | 8/26 | 10/ 1 | -- | 9/17 | 8/27 | 10/ 3 |
| White-eyed Vireo | 9/26 | 9/26 | -- | 9/28 | -- | 10/10 | 9/20 | 9/18 | 9/24 | 10/17 | 10/11 | 9/18 | -- | 10/ 8 | -- | 9/11 | -- | -- |
| Yellow-throated Vireo | 9/12 | -- | 0 | 0 | 0 | 9/12 | 0 | 9/18 | 0 | 0 | 9/ 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Solitary Vireo | 10/14 | 10/18 | -- | 10/23 | -- | 10/21 | -- | 0 | 10/11 | 10/16 | 10/24 | 0 | 0 | 10/ 9 | 0 | 0 | 0 | -- |
| Red-eyed Vireo | 10/ 3 | 9/28 | -- | 9/25 | -- | 10/ 7 | -- | 9/18 | 10/12 | 9/25 | 9/28 | 9/18 | 9/29 | 10/ 8 | -- | 9/11 | -- | 9/29 |
| Philadelphia Vireo | 9/27 | 10/ 1 | 0 | 10/ 1 | 0 | 10/ 4 | 0 | 9/18 | 10/23 | 9/16 | 0 | 0 | 0 | 10/ 5 | 0 | 0 | 0 | 9/28 |
| Black-&-white Warbler | 10/ 6 | 9/30 | -- | 9/ 5 | -- | 10/10 | -- | 9/18 | 9/30 | 10/10 | 9/28 | 10/ 2 | 9/29 | 10/30 | 9/15 | 9/11 | -- | 10/ 3 |
| Worm-eating Warbler | 9/12 | -- | -- | 9/ 5 | -- | 9/ 1 | 0 | 0 | 9/22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -- | -- |
| Golden-winged Warbler | 8/31 | -- | -- | -- | 0 | 9/ 1 | 0 | 0 | 8/26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Blue-winged Warbler | 9/13 | -- | -- | -- | -- | 9/ 9 | -- | -- | 9/16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tennessee Warbler | 10/ 8 | 10/11 | 10/13 | 10/14 | 0 | 10/20 | 0 | 10/11 | 10/19 | 10/ 9 | 10/11 | 9/11 | 0 | 10/11 | 0 | 9/11 | 0 | 10/ 3 |

| Species | Median 10-yr | 1977 | Garr | Al/W | Carr | Balt | Harf | Howa | Mont | PrGe | AnAr | Char | C/SM | K/QA | Caro | Talb | Dorc | LES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Orange-crowned Warbler | -- | -- | 0 | 0 | 0 | 11/17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -- |
| Nashville Warbler | 10/ 5 | 10/ 1 | -- | 9/28 | 0 | 9/22 | 0 | 0 | 10/22 | 0 | 10/11 | 10/ 2 | 0 | 10/ 8 | 0 | 9/18 | 0 | 9/29 |
| Northern Parula Warb. | 10/ 4 | 10/ 2 | -- | -- | -- | 10/ 2 | -- | -- | 10/15 | -- | 10/21 | -- | 9/25 | 10/ 8 | -- | 9/11 | -- | 9/29 |
| Yellow Warbler | 9/16 | 9/29 | -- | -- | -- | -- | -- | 10/ 8 | 8/27 | -- | 10/ 9 | 9/10 | 9/29 | 9/11 | 10/ 5 | -- | -- | -- |
| Magnolia Warbler | 10/ 6 | 10/ 5 | 9/ 9 | 10/ 1 | 0 | 10/10 | 10/ 1 | 10/15 | 10/10 | 10/16 | 10/ 5 | 10/ 2 | 9/29 | 10/10 | 10/13 | 0 | -- | 10/ 3 |
| Cape May Warbler | 10/ 5 | 10/16 | 10/ 3 | 10/23 | 0 | 10/15 | 0 | 0 | 10/19 | -- | 11/ 9 | 0 | 0 | 10/16 | 10/ 5 | 10/19 | -- | 9/29 |
| Black-throated Blue W. | 10/ 8 | 10/ 5 | -- | 9/25 | 0 | 10/20 | -- | 10/10 | 10/13 | 10/ 2 | 10/ 7 | 10/ 2 | 0 | 10/12 | 10/ 5 | 10/ 2 | 0 | 9/29 |
| Black-throated Green W | 10/10 | 10/ 6 | 9/23 | 10/ 1 | 0 | 10/15 | 0 | 10/ 9 | 10/22 | 10/ 8 | 10/ 9 | 0 | 9/21 | 10/ 6 | 0 | 9/11 | 0 | 9/29 |
| Blackburnian Warbler | 9/28 | 9/16 | 9/13 | 0 | 0 | 9/29 | 0 | 9/18 | 9/ 4 | -- | 10/ 6 | 0 | 0 | 9/11 | 0 | 0 | 0 | 0 |
| Chestnut-sided Warbler | 9/29 | 9/21 | 9/21 | 9/22 | 0 | 9/28 | 0 | 0 | 9/15 | 0 | 9/12 | 0 | 0 | 9/28 | 0 | 9/11 | 0 | 0 |
| Bay-breasted Warbler | 9/30 | 10/ 5 | 9/23 | 9/22 | 0 | 10/ 9 | 0 | 0 | 10/ 8 | 0 | 10/ 6 | 0 | 0 | 10/ 8 | 10/ 5 | 9/11 | 0 | 9/29 |
| Blackpoll Warbler | 10/10 | 10/10 | 9/30 | 10/23 | 0 | 10/21 | 0 | 10/10 | 10/24 | -- | 11/ 2 | 9/18 | 9/22 | 10/12 | 10/ 5 | 0 | 0 | 9/29 |
| Prairie Warbler | 9/20 | 9/18 | 0 | 8/20 | 0 | 9/ 7 | -- | -- | -- | -- | 10/12 | 9/ 5 | -- | 10/ 6 | -- | -- | -- | 9/28 |
| Palm Warbler | 10/19 | 10/15 | 0 | 9/25 | 0 | 10/15 | 0 | 0 | 10/24 | 10/ 9 | 11/ 9 | 0 | 11/ 1 | 10/11 | 0 | 0 | 0 | W |
| Ovenbird | 10/ 6 | 10/ 4 | -- | 10/ 5 | -- | 10/10 | 10/ 1 | -- | 10/24 | 9/30 | 10/11 | -- | 9/19 | 10/13 | -- | 10/ 2 | -- | 9/29 |
| Northern Waterthrush | 10/ 2 | 10/ 3 | -- | 0 | 0 | 10/ 8 | 0 | 0 | 9/30 | -- | 10/ 5 | 0 | 0 | 9/30 | 0 | 0 | 0 | 0 |
| Louisiana Waterthrush | -- | -- | -- | -- | -- | -- | 8/12 | -- | -- | -- | -- | 9/ 5 | -- | 0 | -- | 8/31 | 0 | -- |
| Kentucky Warbler | 9/ 4 | 9/ 1 | 0 | 9/ 4 | -- | 8/29 | 8/19 | -- | 9/12 | -- | -- | 9/ 5 | 8/19 | -- | -- | -- | -- | -- |
| Connecticut Warbler | 9/29 | 9/29 | 9/ 8 | 9/25 | 0 | 9/28 | 0 | 0 | 10/ 2 | 0 | 10/ 3 | 0 | 9/29 | 0 | 0 | 0 | 0 | 0 |
| Mourning Warbler | 9/25 | 9/25 | 0 | 9/ 4 | 0 | 9/19 | 0 | 0 | 10/ 5 | 0 | 0 | 0 | 0 | 9/30 | 0 | 0 | 0 | 0 |
| Common Yellowthroat | 10/14 | 10/18 | 9/21 | 9/22 | 10/20 | 10/20 | -- | 10/ 9 | 10/23 | 10/30 | 10/23 | 10/16 | 9/29 | 10/13 | -- | 10/19 | W | W |
| Yellow-breasted Chat | 9/29 | 9/ 7 | -- | 9/ 4 | -- | 9/ 5 | -- | -- | 9/ 7 | -- | 10/16 | -- | -- | 9/25 | -- | -- | -- | -- |
| Hooded Warbler | 9/16 | 9/ 5 | 9/22 | 9/18 | 0 | 9/ 5 | 8/20 | -- | 9/ 5 | -- | 9/ 8 | 9/ 5 | 8/19 | 0 | 0 | 0 | 0 | -- |
| Wilson's Warbler | 9/29 | 10/ 2 | 0 | 9/18 | 0 | 9/29 | 0 | 0 | 10/ 5 | -- | 10/ 5 | 0 | 0 | 10/ 2 | 0 | 0 | 0 | 0 |
| Canada Warbler | 9/25 | 9/28 | -- | -- | 0 | 10/10 | 10/ 1 | 0 | 9/21 | -- | 9/28 | 0 | 0 | 9/27 | 0 | 0 | -- | 0 |
| American Redstart | 10/ 4 | 10/ 4 | 9/21 | 10/ 5 | -- | 10/20 | 10/ 1 | 10/ 9 | 10/ 9 | 10/ 9 | 10/ 7 | 10/ 2 | 9/29 | 10/10 | 9/10 | 10/ 2 | -- | 10/ 3 |
| Bobolink | 9/19 | 9/17 | -- | 0 | 0 | 9/12 | 0 | 0 | -- | 9/18 | 10/16 | 0 | 9/ 7 | 9/10 | 9/16 | 10/21 | 10/21 | -- |
| Northern Oriole | 9/24 | 9/17 | -- | -- | -- | 9/ 5 | -- | 12/ 1 | 9/ 3 | 8/21 | -- | 8/25 | 11/18 | -- | 12/ 3 | -- | -- | 9/29 |
| Scarlet Tanager | 10/ 6 | 10/ 3 | 9/21 | -- | -- | 10/15 | -- | 10/ 3 | 10/15 | 10/10 | 10/ 5 | 9/ 5 | -- | 10/10 | 9/17 | 10/ 2 | -- | 9/29 |
| Rose-breasted Grosbeak | 10/ 6 | 10/ 8 | -- | 0 | 0 | 10/ 9 | 0 | 10/ 9 | 10/16 | 10/ 6 | 10/ 2 | 0 | 9/17 | 10/ 7 | 10/ 8 | 10/21 | 10/21 | 9/29 |
| Blue Grosbeak | 9/22 | 9/16 | 0 | 0 | 0 | 8/22 | 0 | 9/18 | 0 | 8/17 | 0 | 0 | 8/31 | 9/18 | 9/14 | 10/ 2 | 10/21 | 0 |
| Indigo Bunting | 10/ 5 | 10/ 4 | -- | 9/30 | -- | 10/ 7 | -- | 10/22 | 10/15 | 9/17 | 10/15 | 9/18 | 9/16 | 10/13 | -- | 10/ 2 | -- | -- |
| Savannah Sparrow | -- | 10/15 | 10/14 | 0 | 10/30 | 10/15 | 0 | 0 | 0 | 0 | -- | 0 | 0 | -- | 0 | -- | -- | W |
| Chipping Sparrow | 10/25 | 10/20 | 10/18 | 9/25 | -- | 10/15 | -- | 10/15 | 10/30 | -- | 11/19 | -- | 9/29 | 11/12 | -- | 10/21 | 10/21 | W |
| Lincoln's Sparrow | 10/11 | 10/18 | 0 | 0 | 0 | 10/30 | -- | 0 | 10/23 | 9/28 | 10/15 | 0 | 10/12 | 10/20 | 0 | 0 | 0 | 0 |

Table 3. Migrant Diurnal Raptors at Sandy Point and Annapolis

| Species | Total | First-Last | High Count |
|---|---|---|---|
| Turkey Vulture | 156 | 9/10-11/20 | 32 on 11/16 |
| Black Vulture | 3 | 11/18-11/20 | 2 on 11/18 |
| Sharp-shinned Hawk | 246 | 9/11-11/20 | 51 on 10/15 |
| Cooper's Hawk | 12 | 9/11-11/15 | 2 on 9/28, 10/17, 10/18 |
| Red-tailed Hawk | 567 | 8/14-12/ 3 | 213 on 11/16 |
| Red-shouldered Hawk | 43 | 9/ 4-12/ 3 | 6 on 11/15 |
| Broad-winged Hawk | 5,104 | 8/ 6-10/ 2 | 2,750 on 9/21 |
| Bald Eagle | 3 | 10/ 2-11/16 | 1 on 10/ 2, 10/20, 11/16 |
| Northern Harrier | 29 | 10/ 3-11/19 | 5 on 10/16 |
| Osprey | 42 | 8/14-10/29 | 7 on 9/20, 9/28 |
| Merlin | 4 | 9/24-10/14 | 2 on 10/14 |
| American Kestrel | 96 | 8/ 3-11/17 | 8 on 10/28 |

Table 4. Migrant Diurnal Raptors at North Point

| Species | Total | High Count |
|---|---|---|
| Turkey Vulture | 12 | 7 on 11/13 |
| Sharp-shinned Hawk | 252 | 150 on 10/15 |
| Cooper's Hawk | 26 | 8 on 10/15 |
| Red-tailed Hawk | 102 | 73 on 11/13 |
| Red-shouldered Hawk | 2 | 1 on 9/10, 11/13 |
| Broad-winged Hawk | 4 | 4 on 9/10 |
| Golden Eagle | 1 | 1 on 10/ 3 |
| Northern Harrier | 21 | 12 on 10/15 |
| Osprey | 12 | 11 on 9/10 |
| Peregrine Falcon | 1 | 1 on 10/20 |
| Merlin | 1 | 1 on 10/28 |
| American Kestrel | 22 | 15 on 9/10 |

River, Oct. 23 (Blom, Orgain), and making an attack at a feeder in Chestertown, Nov. 23 (Parks). More good totals of **Sharp-shinned Hawks** came from: Kent Co. - 20 at Eastern Neck, Sept. 22 (Reese), Talbot Co. 350+ on Oct. 2 (Reese), and Dorchester Co. - 112 at Hooper Is., Oct. 21 (Armistead, Reese). A large flight of **Broad-winged Hawks** occurred on Sept. 28 when Wierenga observed 1,500 in Anne Arundel County and Stasz and Ed Boyd 1,000+ over Clifton Park in Baltimore City. The first **Rough-legged Hawk** was seen on Nov. 21 near the Mountain Lake sewage lagoons, Garrett Co. (Pope). Other **Golden Eagles** were seen on Sept. 22 over the Youghiogheny River near Oakland, Garrett Co. (Pope), and on Oct. 10 over Black Marsh, Baltimore Co. (Blom), and over the Patapsco River (Blom, Orgain). The highest count of **Bald Eagles** was 6 immatures at Blackwater Refuge, Aug. 27 (Armistead). The latest **Osprey** was one at Denton, Caroline Co., Nov. 25 (S. Westre). Other **Peregrine Falcons** were one at Point Lookout on Sept. 29 and an immature on Assateague Is., Oct. 4 (Rowlett). A record early **Merlin** was seen by Stasz in Baltimore

City, Aug. 7. Finally, Parks counted 25 **American Kestrels** at Golts, Kent Co., Oct. 6.

Rails, Shorebirds. A **Virginia Rail** was found dead on Main Street in Preston, Caroline Co., Aug. 16, and 2 early **American Coots** were at Kent Narrows, Aug. 2 (Reese). Single **American Avocets** were seen on Jenkins Pond, Sept. 9 (Rowlett), and at West Ocean City, Worcester Co., Oct. 19 (Slaughter). A high count of **Killdeer** was 400+ at Preston, Oct. 26 (Engle). A **Piping Plover**, exceedingly rare on the Western Shore, was seen on Pleasure Is., Baltimore Co., Aug. 13 (Kaestner, Resch, Taylor McLean). **Lesser Golden Plover** arrived in unprecedented numbers in Maryland in October. In a plowed field near Galena, Kent Co., a flock of up to 850 by Oct. 22 had gathered before moving south (Parks, Rowlett). Interesting reports of **Black-bellied Plover** were one in Charles County, Oct. 24, fourth county record, and one at Broadford Reservoir, Nov. 7, very late in a mountain location. A late **Hudsonian Godwit** was at Sandy Point, Oct. 4 (Wierenga, Rowlett) and single **Marbled Godwits** were at Eastern Neck, Aug. 11 (Reese) and on Assateague Is., Sept. 17 (Rowlett, Gus Daniels). There were two significant reports of **Whimbrels** from Rowlett. One was found on a pelagic trip 74 miles east of Ocean City, Sept. 18, and the other was near Snow Hill, Worcester Co., Oct. 24, a state departure record by 18 days. Unusual on the Western Shore were single Whimbrels off Miller Is., Baltimore Co., July 30 (Kaestner) and at Sandy Point, Aug. 22 (Wierenga). Kaestner's counts of **Upland Sandpipers** in Baltimore County were 6 in the Worthington Valley near Sagamore Farms, Aug. 2, and another 6 in the Belfast Valley near Sparks, Aug. 7. An Upland Sandpiper at Blackwater Refuge, Aug. 24-26 (Guy Willey) provided the second Dorchester County record. Three at Chesapeake College, Queen Annes Co., Aug. 28 (Armistead), were at a new location. **Willets** ranging north up the bay were single birds at Eastern Neck, Aug. 11 (Reese), and at Sandy Point, Aug. 21, with 2 there on Aug. 22 (Wierenga). Late **Spotted Sandpipers** were one at Sandy Point on Nov. 10 and one at North Point on Nov. 13 (Wierenga). Two **Wilson's Phalaropes** were reported: one at the north end of Lock Raven, Baltimore Co., Aug. 12-13 (Kaestner), and one on Jenkin's Pond, Sept. 10 (Rowlett). Five **Northern Phalaropes** were off Ocean City, Sept. 18 (Rowlett). The only **Long-billed Dowitchers** reported were 6 on Jenkin's Pond, Sept. 10 (Rowlett), and one at Sandy Point, Oct. 4-9 (Wierenga). **Baird's Sandpipers** were one at Loch Raven, Aug. 5-6 (Resch, Hardiman), and one at Back River sewage plant, Sept. 2 (Stasz, Knight). One **Purple Sandpiper** away from the coast was at Chesapeake Beach, Calvert Co., Nov. 3 (Wierenga). A late **Dunlin** in the Piedmont was at Piney Run, Nov. 17-20 (Ringler). **Buff-breasted Sandpipers** appeared at Sandy Point, with singles on Aug. 22, Sept. 4, and Sept. 10 (Wierenga), and 2 at West Ocean City, Sept. 9-10 (Rowlett). A Reeve (female **Ruff**) was at Lily Pons, Frederick Co., Sept. 21 (Rowlett).

Jaegers, Gulls. Off Ocean City on Sept. 18 were 4 **Pomarine Jaegers** and 8 unidentified jaegers. Three **Parasitic Jaegers** were seen in Chesapeake Bay this fall. Two were at Sandy Point, Aug. 20, an immature flying by and a dark adult sitting on the beach (Wierenga). The other was a dark adult flying by North Point, Oct. 8 (Knight, Stasz). A species

that warrants a full article on field identification is **Thayer's Gull**. Any reports should be well-documented. Kaestner reported an adult at Druid Lake, Baltimore City, Nov. 4. The first fall records of **Franklin's Gull** in the state began with a bird on Back River, Sept. 10 (Blom). The highest count was 4 birds at the Back River Sewage Plant on Sept. 27 and the last was there on Oct. 26 (Stasz). All were in adult winter plumage. At Sandy Point there were three different birds in the period Sept. 14 to Oct. 30, 2 winter adults and an immature (Wierenga). **Bonaparte's Gulls** inland were 5 at Piney Run on Oct. 2 (Blom) and one on Broadford Reservoir on Nov. 22 (Pope).

Terns, Skimmers. A **Gull-billed Tern** was far up the bay at Sandy Point, Aug. 15 (Wierenga). High counts of other terns in the bay were: **Forster's**, 101 at Eastern Neck on Nov. 11 (Parks) and 85 at Hooper Is. (Armistead, Reese); **Common**, 250+ along the Choptank River on Aug. 23 (Reese) and 55 at Sandy Point on Oct. 30 (Wierenga); **Little**, 25 at Sandy Point, Sept. 8 (Wierenga); **Royal**, 75 at Barren Is., Dorchester Co., Aug. 27 (Armistead), and 35 at Hooper Is., Oct. 21 (Armistead, Reese); **Caspian**, 22 on the Choptank River, Aug. 23 (Reese); and **Black**, 2 at Sandy Point, Aug. 24 (Wierenga). Four **Black Skimmers** at Poplar Is., Talbot Co., Aug. 23 (Reese) were away from their breeding areas.

Doves, Owls. Many observers at Sandy Point, Nov. 10, were treated to seeing a **Common Ground Dove** (Wierenga). It is the first in the state to be documented by photograph. The Sandy Point **Long-eared Owl** returned to its roost on Nov. 27 and single **Short-eared Owls** were seen there, Nov. 6 and 11 (Wierenga, Knight). An early **Saw-whet Owl** was seen at Beltsville on Sept. 29 (Andrea Bobeck).

Hummingbirds, Woodpeckers. Exceptionally late hummingbirds were reported, one from a feeder in Randallstown, Baltimore Co., Oct. 20 (Shirley Supik) and one in Howard Co., Nov. 5 (Frances Ehlers). Any hummingbird this late in the season should be examined closely for the possibility that it may be a species other than Ruby-throated. Mrs. Pope observed an interesting behavior by a male **Red-bellied Woodpecker**. It was hoarding sunflower seeds at her feeder in Mountain Lake Park, Garrett Co., Nov. 14.

Flycatchers. A high count of **Eastern Kingbirds** was 50+ at Eastern Neck, Aug. 14 (Reese). **Western Kingbirds** were reported in Calvert County, Sept. 25, Nov. 12, 15, and 17 (Fales) and on Assateague Is., Oct. 24 (Rowlett). A somewhat lost **Yellow-bellied Flycatcher** was seen in Tanyard, Caroline Co., Oct. 17 (Engle). Two days later it crashed into a window and stunned itself. After examination in the hand the bird recovered and was released. It was last seen on the 20th singing. Most extraordinary was the **Western Pewee** banded in Laurel, Prince Georges Co., Sept. 3 by Robbins. An **Olive-sided Flycatcher** along Gunpowder Falls, Baltimore Co., Aug. 8 (Resch) broke the state arrival date by two days.

Swallows, Jays, Nuthatches. High counts of **Tree Swallows** were 500+ at Eastern Neck, Sept. 2, and 1,000+ in Talbot County, Sept. 7 (Reese).

A very late Tree Swallow was at Sandy Point on Nov. 10 (Robbins). A high count of **Purple Martins** was 500+ at Eastern Neck, Aug. 17, as were 500+ **Blue Jays** in Talbot County, Oct. 2 (Reese). An early flight of **Red-breasted Nuthatches** was noted in several areas, but the boldest of these birds was found 74 miles east of Ocean City on a pelagic trip, Sept. 18 (Rowlett).

Thrushes, Gnatcatchers. High counts of **American Robins** were 1,000+ on Kent Is., Queen Annes Co., Oct. 5 (Reese), 1,400 at Hooper Is., Oct. 21 (Armistead, Reese), and 2,000+ at American Corners, Caroline Co., Oct. 26 (Engle). A **Gray-cheeked Thrush** banded at Adventure Sanctuary, Montgomery Co., Aug. 19 (Donnald), broke the state arrival record by 9 days. A hardy Blue-gray Gnatcatcher was at Sandy Point, Nov. 27 to Dec. 4 (Wierenga).

Pipits, Shrikes, Vireos. High counts of **Water Pipits** were 200 near Galena, Kent Co., Oct. 20 (Rowlett), and 20 at Sycamore Landing, Montgomery Co., Nov. 12 (Warfield). Completing a strange trio of birds at Sandy Point was an immature **Northern Shrike**, Nov. 9-10 (Wierenga). Together with the Fulvous Whistling Duck and Common Ground Dove a more unlikely group of birds (and birders) is hard to imagine. Armistead reports that he sees more **Loggerhead Shrikes** in Dorchester County in August than at any other time. He outdid himself on Aug. 27 by finding 3. A very late **Philadelphia Vireo** was banded at Sandy Spring, Montgomery Co., Oct. 23 (Weske).

Warblers. A **Lawrence's Warbler** hybrid was banded at Adventure, Aug. 22 (Mrs. Donnald). The only **Orange-crowned Warblers** reported were a very early one on the Goucher College campus, Baltimore Co., Sept. 17 (Resch), one at Ocean City, Sept. 29 (Slaughter), and a late one at Liberty Reservoir, Baltimore Co., Nov. 17 (Ringler, Blom). An adult **Cape May Warbler** on Dans Mountain, Allegany Co., Aug. 20 (Paulus), broke the state arrival record by two days. A **Blackpoll Warbler** at Sandy Point on Nov. 2 was late and a **Palm Warbler** there on Sept. 4 was early (Wierenga). The highest count of migrating Bobolinks was 5,000+ flying south over Dover Bridge in 80 minutes prior to sunset, Sept. 7 (Reese, Denny Quirk).

Blackbirds. Exceptionally late **Bobolinks** were at Sandy Point on Oct. 16 (Wierenga) and at Hooper Is. on Oct. 21 (Armistead, Reese). Rowlett saw an adult male **Yellow-headed Blackbird** near Galena, Nov. 20. A bird identified in the hand as a **Brewer's Blackbird** was banded at Pleasant Valley, Garrett Co., Oct. 25 (Dorothea Malec).

Finches, Sparrows. Northern finches staged impressive flights through Maryland. After the few early arrivals of September and October the big numbers followed the cold front that passed through on Nov. 8. Armistead found three species of grosbeaks on Hooper Is., Oct. 21: 40 **Evening**, 1 **Rose-breasted**, and 1 **Blue**. Rowlett observed 15 **Pine Grosbeaks** migrating silently past Dans Rock, Nov. 19. Record early **Common Redpolls**, which were mere hints of those to follow during the winter, were 1 at a feeder in Churchville, Harford Co., Oct. 30 (Graham, Paul

Anderson) and 2 with a flock of **Pine Siskins** at North Point, Nov. 11 (Kaestner). A **Lark Bunting** was found at the Angelica Nursery, Kent Co., Nov. 18 (Rowlett, Parks), the fifth state record. A descriptive article will appear in a later issue. Rowlett found a **LeConte's Sparrow** at Ocean City, Oct. 23, only the second seen in Maryland. The highest count of **White-crowned Sparrows** was 100 at Angelica Nursery, Oct. 20 (Rowlett). **Lapland Longspurs** appeared earliest at Ocean City, Oct. 23 (Graham) and Sandy Point, Oct. 30 (Wierenga). **Snow Buntings** also began on Oct. 23 with 2 each at Sandy Point (Wierenga) and Ocean City (Rowlett, Steve Whitcomb). In Calvert County there were 1 or 2 at Mt. Harmony, Nov. 17-19, and 3 at Chesapeake Beach, Nov. 24 (Wierenga). Rowlett also encountered one at Dans Rock, Nov. 19. The high count at Sandy Point was 80 on Nov. 15.

Addenda & Corrigenda

32(1):21. Insert: A Cattle Egret in a field near Blackwater Refuge, Dec. 13, 1975 (Ringler, Hardiman) is the latest record for the state.

33(2):99. The American Oystercatcher at Sandy Point, Mar. 13, 1977 was the second report for Anne Arundel County, not the first. See *Md. Birdlife* 31:140.

33(3):119, 121. In the Spring Arrival Dates table the date for Prairie Warbler for Montgomery Co. should be 4/24 and the 1977 median should be 4/23. For Mourning Warbler it should read 0 for Baltimore and 5/30 for Howard Co. In the Spring Departure Dates for Magnolia Warbler the Montgomery Co. date should be 6/5 and Howard Co. 5/21. Also for Montgomery Co. Cape May Warbler should be 5/20 and Wilson's Warbler 5/15.

3501 Melody Lane, Baltimore 21207

## CHANGES IN BIRD NAMES

In the March 1975 issue of *Maryland Birdlife* (31:24-26) a number of changes in English and Scientific Names of Maryland birds were announced. The following additional changes were published in the 32nd and 33rd Supplements to the A.O.U. Check-List (*Auk* 90:411-419; 93:875-879) and these will be used in *Maryland Birdlife* starting with the present volume:

English Name: Fulvous Tree Duck becomes Fulvous Whistling Duck. (The cumbersome hyphen is omitted in accordance with A.B.A. policy.)

Scientific Names: Green Heron is considered conspecific with the tropical Striated Heron and is changed to *Butorides striatus*.

Tern genera *Thalasseus* and *Hydroprogne* are merged with *Sterna*, so Royal Tern becomes *Sterna maxima*, Sandwich Tern becomes *Sterna sandvicensis*, and Caspian Tern becomes *Sterna caspia*. This leads to some confusion, with the implication that *maxima*, the Royal Tern, is larger than *caspia*, which is untrue. Scientific nomenclature follows rules, not logic.

Mourning Dove is placed in the same genus with the Zenaida and White-winged Doves and becomes *Zenaida macroura*.

Merging of the Red-bellied Woodpecker and its close relatives into *Melanerpes* with the Red-headed Woodpecker, and of the Hairy, Downy, Red-cockaded and other *Dendrocopos* woodpeckers into the genus *Picoides* with the three-toed woodpeckers gives us the following: Red-bellied Woodpecker becomes *Melanerpes carolinus*, Hairy becomes *Picoides villosus*, Downy becomes *P. pubescens*, and Red-cockaded becomes *P. borealis*.

Marsh Wren is placed in the same genus as Sedge Wren and becomes *Cistothorus palustris*.

Boat-tailed Grackle is put in the same genus with Common Grackle and becomes *Quiscalus major*.

The genera *Acanthis* and *Spinus* are merged with the Old World genus *Carduelis*, which contains the European Goldfinch, so Hoary Redpoll becomes *Carduelis hornemanni*, Common Redpoll becomes *C. flammea*, Pine Siskin becomes *C. pinus*, and American Goldfinch becomes *C. tristis*.

Editor

## EDITORIAL

This special Atlas issue of *Maryland Birdlife* is dedicated to the many MOS members who are participating in the various county Atlas projects. In addition to presenting the final report on the Montgomery and Howard County Atlases, we are including brief progress reports on the four additional counties where breeding bird atlases have been started. From the Montgomery-Howard County nucleus the Atlas program has spread to two other central Maryland counties, Prince Georges and Baltimore, and to the first Western Maryland (Washington County) and Eastern Shore (Somerset) projects. Please note the appeals for more help from organizers in the more distant counties.

The Montgomery County Atlas was the first to be undertaken in the United States, and, together with Howard County, is the first breeding bird atlas to be published in the New World. Marylanders still have a great challenge ahead if we are to achieve our goal of atlasing all 23 counties. In the meantime, state or county atlases have been initiated in Massachusetts, Vermont, Maine, Illinois, Michigan (Kalamazoo County), Wyoming, and California (Marin County).

In Europe, where the atlas scheme was conceived and hatched, breeding bird atlases have been published for the British Isles, France, Denmark, and West Germany, and are in progress in Belgium, Bulgaria, Czechoslovakia, Estonian SSR, Finland, Italy, Malta, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey and Yugoslavia.

In the southern hemisphere, New Zealanders were the first to publish a provisional bird atlas, and the Australians are working hard on an atlas for their continent.

Editor

# BREEDING BIRD ATLAS OF BALTIMORE CITY AND COUNTY

*Robert F. Ringler*

Objectives for 1978, the first year of the Baltimore Atlas, were to find and confirm as many species as possible and determine how widespread each species was. A total of 130 species were found, and 106 of these were confirmed by various means. Nests of 60 species were found.

Of special interest were the Little Tern colony on Pleasure Island (34 nests), the Seaside Sparrow colony on Miller Island (several pairs), and the presence of Swamp Sparrows in every tidal marsh in the county. Other species that showed significant expansion in the county included Willow Flycatcher, Veery, Blue-winged Warbler, and Blue Grosbeak. Two species heard calling regularly this summer that have never been known to nest near Baltimore are the Black Rails and Chuck-will's-widows of Black Marsh.

During the next two years of the atlas the ranges of all species will be more accurately defined and confirmations will be sought for the less common birds. More participants are needed, especially in the northern half of Baltimore county.

3501 Melody Lane, Baltimore 21207

# ATLAS REVIEWS

ATLAS OF BREEDING BIRDS OF THE WEST MIDLANDS
J. Lord and D. J. Munns, editors. 1970. Collins, St. James's Place, London. 276pp., 121 maps. 30s.

This, the original bird Atlas, covers the three counties surrounding Birmingham, England. The 77 10-km squares were visited during 1966-68 by members of the West Midland Bird Club, who found between 31 and 91 species (mean 67) breeding, or probably breeding, in each square. Total breeding pairs of each species in the tricounty area were estimated in the following categories: 1-3-20-200-2,000-20,000. The text and pen-and-ink drawing of the bird are placed opposite each map. Distribution of woodland, rivers, and elevations over 600 feet are shown on the end-papers. Ed.

ATLAS OF THE BREEDING BIRDS OF THE LONDON AREA
David Montier, editor. 1977. B. T. Batsford, London. 288pp., 123 maps and diagrams. £12.50.

This Atlas covers an area of 3,424 sq. km., divided into 856 'tetrads' (2 x 2 km squares), a grid slightly finer than the MOS quarter-block. The largest number of species per tetrad was 89. Order from D. J. Montier, 6 Cloonmore Ave., Orpington, Kent. Ed.

THE ATLAS OF BREEDING BIRDS IN BRITAIN AND IRELAND
J. T. R. Sharrock, compiler. 1976. British Trust for Ornithology, Beech Grove, Tring, Herts, England. 477pp, 218 maps. £9.

This elegant hardback volume, patterned after the *Atlas of the British Flora* by Perring and Walters (1962), is the culmination of field work in 1968-72 by more than 10,000 observers. The 285,000 records are represented by red dots of three sizes on 6½ x 9 inch maps. Opposite each map is a highly informative text, including information on habitat, nesting, present estimated population in the British Isles, historic changes in range and populations, and selected references. Graphs showing population changes recorded by the Common Birds Census from 1962 to 1974 are included for many species. And for each species there is a fine pen and ink sketch, many of which show the bird in its habitat. Also for each species there is a summary showing the number and percentage of Possible, Probable, and Confirmed reports, and the number of 10-km squares (out of a total of 3,862) in which the species was found. Older distribution maps, a few dating back to the 19th century, also are shown for selected species. For an additional £1.50 a packet of 12 transparent overlays can be obtained. These make it easy to compare bird distribution with such important factors as temperature, precipitation, humidity, river systems, elevation, moorland, and distribution of Sessile Oakwoods. More than 40 percent of the birds in this book also occur in eastern North America, and many others have close relatives here; so any American interested in birds and their habitats will find this a fascinating volume. Ed.

BIRD DISTRIBUTION IN NEW ZEALAND--A PROVISIONAL ATLAS, 1969-1976
P. C. Bull, P. D. Gaze, C. J. R. Robertson. 1978. Ornithol. Soc. of New Zealand Inc., c/o P.O. Box 12397, Wellington North, N. Z. 254pp., 213 maps. $10 NZ. (Only 1,000 copies were printed.)

This spiral-bound Atlas is termed "Provisional" because only 85 percent of the 3675 10,000-yard squares had been visited from September 1969 to December 1976. A more definitive Atlas may appear in about 1980. Block size is slightly smaller than the 10-km British Atlas square. Because so few of New Zealand's land and fresh-water birds are migratory, year-round records were accepted. Evidence of breeding was not required. The South Island and North Island are shown on separate 4½ x 5½ in. maps. There are no maps for pelagic species or Arctic-nesting shorebirds. The text is restricted to a 5-page introduction, 4 pages of explanatory notes, and two appendices. The species are identified by English names only, and reference is made to those few species for which Notes are provided. Seasonal maps are shown for the South Island Pied Oystercatcher, Pied Stilt, and Blackbird, and there are 13 maps showing the distribution of key habitats that the observers reported visiting. A table showing for each species the number of cards received each month of the year shows which species are seasonal and which are present throughout the year; this table includes the pelagics and shorebirds as well as the species that are mapped. Ed.

ATLAS DES OISEAUX NICHEURS DE FRANCE
Laurent Yeatman, Coordinator and Editor. 1977 (copyright 1976). Soc. Ornithol. de France, 55 rue de Buffon, 75005 Paris. 282pp, 269 maps. F70.

Similar in format to the British Atlas, the French paper-back one has two maps per page, with correspondingly less information about each species on the facing page. Each left hand page has a good pen and ink sketch of one of the two species, so even those readers who cannot read French and do not know scientific names of birds can recognize many of the maps at a glance. The French Atlas blocks are rectangular, 20 x 27 km, conforming to their national grid. Some 500 collaborators succeeded in visiting all but 8 of the 1,000 blocks during the period 1970-1975, and in three-fourths of these blocks more than 75 species were found. A unique and very helpful feature of this Atlas is the inclusion of latitude and longitude on the maps; it is hardly legible on the species maps, but can be read on the expanded map in Appendix IV. National breeding populations have been estimated in powers of 10; for Mallard, for example, +++++ indicates between 10,000 and 100,000 pairs. Appendix maps show elevations, January and July isotherms, rivers, and the name and number of each Atlas block. Ed.

ATLAS DER BRUTVERBREITUNG WESTDEUTCHER VOGELARTEN, Kartierung 1975
Goetz Rheinwald. 1977. Zoologisches Forschungsinstitut und Museum A. Koenig, Adenauerallee 150-164, 5300 Bonn, BRD. 37pp + 136 maps. 12 DM.

This Atlas of West Germany and Berlin was conducted in 1975 using 50 km squares. In addition to the 136 species mapped, 91 others that occurred in all blocks or in only a few are discussed in the text. The maps contain only the German names of the birds, but the scientific names are given in the text. All the maps appear together, four to a page, in the back half of the paperback book; there is no index, but the species are listed in the same sequence as the European Peterson field guide. The text is very brief, generally 4 to 6 lines per species. Ed.

DE DANSK YNGLEFUGLES UDBREDELSE
Tommy Dybbro, coordinator. 1976. Dansk Ornithologisk Forening, DOF-salg, Faelledvej 9, 2200 Copenhagen N, Denmark. 293pp. 108.50 D-Kr.

The Danish Atlas is similar in format and symbols to the British Atlas, but is based on 5-km squares; 98 percent of the 2,160 squares were covered during the Atlas period, 1971-74. Danish and scientific names of birds are shown on each of the quarter-page maps. An illustration of each of the 189 species accompanies the text. Ed.

# COMING EVENTS

| | | |
|---|---|---|
| Mar. 1 | FREDERICK | Meeting. "Life in a Tidal Zone", Robert Hoffman. Hodson Science Bldg., Hood College, Frederick, 7:30. |
| 2 | ANNE ARUNDEL | Meeting. "Guess a Bird", W.Bodenstein. Co.Library, 8. |
| | HARFORD | Meeting. African Birds. Churchville Presby.Ch.,6:15. |
| 3 | BALTIMORE | Trip, Harford Co. Ames lot, Edgewood, Rt 40, 7:30. |
| | WICOMICO | Meeting, Asbury Methodist Church, Salisbury, 7:30pm. |
| 4 | HOWARD | Trip to Columbia Lakes. Swansfield Elem School. 1pm. |
| 6 | BALTIMORE | Ornithology course: Waterfowl, F.Beall, Cylburn, 8pm. |
| 7 | MONTGOMERY | Trip at National Zoo. Meet at duck ponds, 9:30 am. |
| 8 | KENT | Meeting. Listing, David Holmes. County Library, 7:30. |
| | HOWARD | Meeting. Southern Appalachians. Swansfield Sch, 7:45. |
| 13 | BALTIMORE | Lake Roland walk. R.E.Lee Park footbridge, 8 am. |
| 15 | MONTGOMERY | Meeting. Pt. Pelee migration. Perpetual Bldg., 8 pm. |
| 16 | BALTIMORE | Audubon lecture, J. Boswall, Dumbarton Jr High, 8pm. |
| | CAROLINE | Meeting. St. Luke's Church, 5th St., Denton, 7:30. |
| 18 | BALTIMORE | Loch Raven trip. Peerce's lot, Dulaney Val Rd., 8am. |
| | BALTIMORE | Come-as-you-are-tea. County library, Towson, 2:45pm. |
| | ANNE ARUNDEL | National Zoo. Meet Montg'y Ward, Gen's Hiway,12:30. |
| 20 | BALTIMORE | Lake Roland walk, R.E.Lee Park footbridge, 8 am. |
| 21 | FREDERICK | Meeting. Board of Education Bldg., Frederick, 7:30. |
| 24 | BALTIMORE | Trip to Geneso Farms. Towson Plaza Self-serv PO,7:30. |
| | KENT | Trip to Bombay Hook Refuge. Chestertown A&P, 8 am. |
| | FREDERICK | Trip to tum Suden Sanctuary. Culler L. Boat House, 8. |
| | MONTGOMERY | Trip to Patuxent Res. Center. Reservations 776-6737. |
| 25 | HOWARD | Trip to Bombay Hook Ref. Swansfield Elem School, 7. |
| | BALTIMORE | Trip to Back River Sewage Plant. Admin. Bldg., 8 am. |
| 26 | WICOMICO | Meeting. Dr. Harvey Hall. Asbury Meth. Church, 7:30. |
| 27 | PATUXENT | Meeting. St. Philips Church, 6th & Main, Laurel,7:45. |
| | WASHINGTON | Monthly Meeting. Details not available. |
| | BALTIMORE | Lake Roland walk. R.E.Lee Park footbridge, 8 am. |
| 29 | BALTIMORE | Tree walk at Cylburn Park, 10 am. Gordon Filbey. |
| 31 | HOWARD | Amphibian walk, 7 pm. Register Jo Solem, 725-5037. |
| | WICOMICO | Trip to Chincoteague. N. side Asbury Church, 7:30am. |
| | ANNE ARUNDEL | Trip to Rolling Ridge Farm, Harwood. Meet Montgomery Ward parking lot, General's Highway entr., 7:30. |
| Apr. 3 | BALTIMORE | Lake Roland walk. R. E. Lee Park footbridge, 8 am. |
| | BALTIMORE | Ornithology course: Pacific, Hackman. Cylburn, 8 pm. |
| 4 | KENT | Meeting. Flower to Seed, V.Weinland. Co.Library,7:30. |
| 5 | FREDERICK | Meeting. Flowers, S.Munch. Hodson Sci Bldg., 7:30. |
| | BALTIMORE | Cylburn walk and banding. Mrs. C. L. Conley, 9 am. |
| 6 | ANNE ARUNDEL | Annual Wildlife Lecture. No details, 8 pm. |
| 7 | ANNE ARUNDEL | Trip to New Design Rd. Meet Wards, 7:30 am. |
| | HOWARD | Trip to Blackwater. Meet Swansfield Elem Sch, 7 am. |
| | MONTGOMERY | Trip to Great Falls, Va. Meet S. parking lot, 7:30. |
| | BALTIMORE | Trip to Piney Run, Carroll Co. Meet Carrolltowne Shopping Center, Rt. 26, Eldersburg, 7 am. |
| 8 | BALTIMORE | Lake Roland walk. R. E. Lee Park footbridge, 4 pm. |
| 9 | HOWARD | Discovery Walk, Columbia. Hesperus Dr & Iron Pen,9:30. |
| 10 | BALTIMORE | Lake Roland walk. R. E. Lee Park footbridge, 8 am. |
| 12 | HOWARD | Meeting. Mary Leister, author. Swansfield Sch, 7:45. |

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| Apr. 12 | BALTIMORE | Cylburn walk & banding. Erana Lubbert, 9 am. |
| 13 | BALTIMORE | Audubon Wildlife Film, "Okefenokee: Land of the Trembling Earth", D.Holt. Dumbarton Jr High, 8 pm. |
| 14 | BALTIMORE | Trip, Joppa Trail, Gunpowder R. M.Brazeau 252-0583. |
| | FREDERICK | Trip to Lilypons. Culler L. Boat House, 7:30 am. |
| | HOWARD | Wildflower trip, Patapsco Park. Swansfield Sch, 8. |
| 17 | HOWARD | Discovery walk, Lake Elkhorn, Columbia. Meet at Boat Dock, 9:30 am. M.Krishnamoorthy, W.Eckert. |
| 19 | MONTGOMERY | Meeting. Warbler Songs, C. Robbins. Perpetual, 8. |
| | BALTIMORE | Cylburn walk & banding. Mrs. C.L. Conley, 9 am. |
| 20 | HOWARD | Woodcock walk. Limit 15 people, 992-7124. 6:15 pm. |
| | KENT | Meeting. "Wings over the Eastern Shore", Jeffrey Kuhn. Kent County Public Library, 8 pm. |
| | CAROLINE | Meeting. "Adventures on an Antarctic Ice Breaker" Stuart Engle. St. Luke's Methodist Church, 7:30. |
| 21 | ANNE ARUNDEL | Trip to Patapsco State Park. Montg'y Wards, 7:30. |
| | MONTGOMERY | Trip to Bombay Hook Refuge. Bowie parking lot,6:30. |
| | BALTIMORE | Trip to Jug Bay, Patuxent River. R.Newell 679-8489. |
| 21-22 | BALTIMORE | Pocomoke River canoe trip. Warren Therien 876-1218. |

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Editor: Chandler S. Robbins, 7900 Brooklyn Bridge Road, Laurel, Md. 20810 (725-1176)
Asst. Editor: C. Douglas Hackman, 3033 Woodside Ave., Balto. 21234
Art Editor: William N. Schneider
Production: Romell Decker, Kathleen Klimkiewicz, Andrea Robbins, George Robbins
Mailing: Barbara Larrabee and committee