By Bill Whan

Editors note: This article is a condensation of the introduction to Bill's publication of the same name, for which he is currently evaluating publishers. The full publication will contain all of the referenced sources (over 300 of them), as well as the checklist itself. Bill will supply the source list or items from it for readers who want to delve further into any of them. (billwhan@columbus.rr.com or 223 E. Tulane, Columbus 43202)

Franklin County's bird records rank very high in Ohio for the numbers of species involved, the quality of their verification, and their historical depth. Fifteen unusual Ohio species were first recorded here: King Eider, White-winged Scoter, Cattle Egret, Mississippi Kite, Golden Eagle, Prairie Falcon, Rufous Hummingbird, Red-cockaded Woodpecker, Bell's Vireo, Black-throated Gray Warbler, Green-tailed Towhee, Bachman's Sparrow, Harris's Sparrow, Yellow-headed Blackbird, and Bullock's Oriole. It was Franklin County observers for the most part who added fifteen additional first state records in adjacent counties: Eurasian Wigeon, Cinnamon Teal, Common Eider, Black Scoter, Surf Scoter, Magnificent Frigatebird, Harris's Hawk, Purple Gallinule, Long-billed Curlew, Ruff, Long-tailed Jaeger, Blacklegged Kittiwake, Franklin's Gull, Spotted Towhee, and Henslow's Sparrow.

Among the first checklists of the avifauna of an area dominated by a large American city was "List of the Birds of the District of Columbia," published as a 22-page pamphlet in 1862, then in 1883 as a 166page annotated version Avifauna Columbiana, by the eminent Elliott Coues and his friend and collaborator D. W. Prentiss. They, like Franklin County's J. M. Wheaton, were among the founding members of the American Ornithologists' Union in the latter year. At that time they offered their view of the changes in the birdlife at our latitude in and near Washington, D. C. in a way a Columbus observer of the day would have found familiar:

They have also noted, as far as their knowledge enabled them to do so, the changes in the Avifauna resulting from the growth of a great city. Twenty or twenty-five years ago, with a population of about 60,000, the National Capital was a mud-puddle in winter, a dust-heap in summer, a cow-pen and pig-sty all the year round; there was good snipes hooting within the city limits, and the country all about was as primitive as the most enthusiastic naturalist could desire. But...we have changed all that; Washington has grown up to 180,000, and become "citified" into quite a respectable establishment; the suburban wilderness has been reclaimed from Nature and largely given over to Art; while Ornithology has long been more assiduously and successfully pursued within than without the walls of the Smithsonian Institution. (Coues & Prentiss 1883)

Study of the birds of such a well-defined area, especially when conducted over many generations, must yield knowledge about how habitats and other conditions have been altered, and how the local abundances and behaviors of birds may have changed as a result. Certainly in an area like Franklin County, as in the District of Columbia, environmental changes wrought on the landscape by exploitation of the forests, then agriculture, and later by urbanization can be tracked by close study of its birds. Additionally, historical shifts in human attitudes and behaviors toward birds can be recognized by repeated observations, over time, of local species. Finally, as we cannot too often hear, much larger changes in the health of our natural environment may in important ways be assessed by attention to that of our birdlife.

Columbus ornithologist John Maynard Wheaton's rudimentary first Ohio checklist was published in 1861, and his acclaimed Report on the Birds of Ohio appeared in 1882, in both cases just a year before Coues and Prentiss's corresponding works. Little noted has been Wheaton's 15-page appendix to his Report titled "Check list of Ohio birds, with dates of their occurrence." Wheaton said of these entries that "these dates apply to birds observed in the vicinity of Columbus, so that, excluding the birds unnoted, we have a list of the birds of Franklin county," in effect our first list - of 241 species - for the county. For their part, Coues and Prentiss were to record 226 for the District of Columbia, where today's list numbers 331 (Maryland Ornithological Society 2012). The new Franklin County list, of 337 species, may be regarded as an update of Wheaton's, including brief annotations made possible by more than a century and a quarter of additional observations.

The sources of this checklist

Our county does not possess a remarkable variety or extent of productive bird habitats, but rather owes its extensive list to a history beginning with diligent local work begun in the nineteenth century, led by Wheaton (1840-1887), Theodore Jasper (1814-1897), Oliver Davie (1856-1911), and William L. Dawson (1873-1928). Later, numerous skilled local observers, collectors, curators, and researchers added to our knowledge. Milton B. Trautman (1899-1991) published in 1940 his monumental work of meticulously conducted field observations, *The Birds* of *Buckeye Lake* (1940. University of Michigan Museum of Zoology Miscellaneous Publications No. 44. Ann Arbor), valuable far beyond its narrow compass – the western end of the Lake is only 13

miles from the Franklin County line - providing observations and other data available nowhere else. This and other fruits of his sixty years of work with birds have guided all his successors. Margaret Morse Nice (1883-1974) conducted her studies of Song Sparrows in Columbus between 1927 and 1936 in publications exemplifying new approaches to the natural histories of birds. Extensive bird studies spanning the state were conducted by Lawrence E. Hicks (1905-1957), supplying many publications on Ohio records and important specimens to the collections of the Ohio State University Museum of Biological Diversity (OSUM). Edward S. Thomas (1891-1982) curated that collection 1931-1962, published many ornithological papers, and for 591/2 years wrote a weekly natural history column in the Columbus Dispatch that often treated bird observations. Donald Borror (1907-1988) accumulated many local specimen records of bird vocalizations, and wrote widely on this and other ornithological topics; the Borror Laboratory of Bioacoustics at the OSU Museum is but one result of his work. In 1989 and 2001 then-county resident Bruce Peterjohn published editions of his authoritative The Birds of Ohio (2001. The Wooster Book Co., Wooster, OH) that set new standards for accuracy and comprehensiveness in an Ohio monograph. The names of many other important contributors are to be found in the list and the literature cited below.

The checklist recognizes records of 337 wild bird species for Franklin County, Ohio, nearly half of them - 161 - confirmed as local nesters. Records verified by existing or recorded museum specimens are included, along with nearly all those documented by published peer-reviewed sighting reports, favoring in the case of rarity those accompanied by other physical evidence such as photographs, or the testimony of trusted witnesses. In a few cases such testimony, obtained via written communication, has alone served to verify records. In the annotations, efforts have been made to include the earliest historical records and specimens, significantly large numbers of individuals recorded, extreme migratory dates, and other details of local interest beyond those to be found in the standard references.

Also inserted in the annotated list are 24 other taxa reported or inferred but not accepted for inclusion in the list of accepted species, including the following:

Six species of hypothetical status for the county (Swallow-tailed Kite, Whooping Crane, Blackbacked Woodpecker, Band-tailed Pigeon, Common Raven, and Spotted Towhee). None of these is far-fetched as a potential member of the Franklin County list. While common sense might argue to admit at least several of them based on historical accounts (for example, the kite, the crane, the ivory-bill, and the raven), satisfactory evidence remains missing for each;

Eight recorded hybrid forms (Ross's Goose x Snow Goose, Mallard x American Black Duck, Cinnamon Teal x Blue-winged Teal, Green-winged Teal x American Wigeon, Hooded Merganser x Common Goldeneye, "Brewster's" and "Lawrence's" warblers, and Eastern Meadowlark x Western Meadowlark). None of these of course qualifies as a species eligible for the list, but they are included as significant recognizable forms, some with multiple county records;

One group of records identified only to the generic level (*Selasphorus*), deemed important because in certain plumages Allen's Hummingbird S. sasin may be virtually indistinguishable from the locally far more numerous Rufous Hummingbird *S. rufus* without careful in-hand examination. Both species have verified Ohio records;

Five unestablished species, observed here but known or presumed to have been artificially introduced, or of captive origin, despite records of establishment or instances of accepted wild origin elsewhere in North America (Barnacle Goose, Mute Swan, Trumpeter Swan, Monk Parakeet, and Sky Lark). Some of these have a foreseeable potential to join this list eventually should their local populations prosper and become established, or the wild origin of individuals be recognized;

Two taxa recognized as full species by authorities outside North America but not currently by the American Ornithologists' Union: "Common Teal" Anas creeca creeca, and "Audubon's Warbler" Setophaga coronata auduboni. Future taxonomic changes adopted by the AOU may add these and/or other taxa to the North American list as well as to that for the county;

One distinctive and oft-reported variant form ("Oregon Junco") which lost full species status recently enough (1983) to cause confusion;

Three records of mistaken status (Black-billed Magpie, Painted Bunting, and Groove-billed Ani). Though recorded in adjacent counties, each has erroneously been attributed to Franklin County in published records.

Franklin County bird habitats

As to the physical setting for these accomplishments, the 540 square miles of Franklin County straddle the 40th degree of north latitude and the 83rd degree of west longitude. Columbus is now reckoned the sixteenth-largest city in the United States, and Franklin County, with a human population of over 1,100,000, ranks thirty-third among U.S. counties. Our glaciated topography is fairly flat, varying gradually from 670 feet above sea level along the Scioto River where it leaves the county in the southwest to 1130 feet in the extreme northeast near New Albany. Habitats over the historical period here began with a landscape mostly of primeval forest of several hardwood mixes intersected by two substantial rivers running north to south, laced with ravines and fed by creeks, as well as associated wetlands such as beaver ponds, sloughs, seasonally flooded areas, and scattered marshlands. Incursions of prairies from the west containing variably wet areas with drier grassy uplands broke up the forest cover. Early accounts described certain areas near the rivers as "marshy and malarious [sic]" (Harris, p. 9). Wheaton (1882:418) mentioned the "swamp prairies south of the city," and Hubbard (p. 153) the "natural scarcity of timber" south of town. These and other discontinuous local extensions of the Darby and Pickaway Plains were called "barrens" (Lee 1892), and first well described by Caleb Atwater (1819; see also Sears 1926, Trautman 1981). In the old days, to these open areas must be added forested tracts of indeterminable size periodically cleared, mostly by burning, for hunting, agriculture, and ceremonial purposes by aboriginal peoples during their presence here.

In 1790, new settlers in what is now the state of Ohio numbered about three thousand. The first named settlement of people of foreign origin in what later became Franklin County was Franklinton, founded in 1797 on the west bank at the Forks, where the Whetstone (now Olentangy) River joined the Scioto. This low-lying area had been fertile land tilled by the Wyandot tribe, but frequent flooding eventually prevented it from flourishing as a town site for the new settlers, and it was eventually annexed by Columbus, soon built on higher ground on the east bank. At this time much of the county's ancient forest cover had been broken only by burns and small rude clearings, accompanied by floodplains and marshes adjacent to the rivers, with original prairie tracts mostly found in disconnected fashion in the southwest quadrant.

Though there are a few variably credible anecdotes, our knowledge about the county's birdlife in these early days is mostly inferential, except for archaeological data from remains found in middens, etc. at human sites nearby; very few such sites have been preserved and then carefully excavated in the county itself, however. Early ornithologists such as Wilson, Audubon, and Nuttall visited Ohio, but spent little time away from the Ohio River and Lake Erie during travels headed elsewhere, leaving only a few tantalizing details about their local experiences along the way. Publications more fully treating the birdlife of the state first appeared in 1838, with works from Jared P. Kirtland (listing 223 Ohio species) and Caleb Atwater (more informally treating about 75); they include only a few data for Franklin County, with a human population of about 5,000 by that time.

The first systematic investigations of the county's birds began with J. M. Wheaton, who in 1861 published a simple state list of 285 species, then in 1882 his comprehensive Report on the Birds of Ohio. In both works nearly all his first-hand knowledge seems to have come from field work in his native Franklin County. In the Report he offers on pages 585-7, for example, a list of birds observed in his mid-city garden on Fourth Street - only a block from Statehouse Square - numbering 113 species. By this time modern scientific ornithology had begun its work, but more than 90% of the county's original forest cover had been logged, accompanied by grievous losses among conspicuous forest species such as the Wild Turkey, the Pileated Woodpecker, the Common Raven, the Carolina Parakeet, the Ruffed Grouse, the Wood Duck, and the Passenger Pigeon, along with prominent prairie species such as the Greater Prairie-Chicken and the Swallow-tailed Kite, all of whose declines in numbers he or his informants had personally witnessed, and then regarded as rare or extirpated. To such observations may be added his remarks on commoner species in an earlier paper (1874:577-8):

In the vicinity of Columbus the Marsh and other hawks, and in fact nearly all the larger birds, have greatly diminished in number. Even the Pewee is much less numerous than formerly, probably for the reason that modern improvements have taken the place of his favorite breeding places. Very few water-fowl remain during the summer, compared with the number which formerly bred with us. As intimated, this is, no doubl, due more to the changes in the face of the country than to the fear of man or direct destruction by him. On the other hand, many birds have increased in numbers, and some have made their first appearance in the State within the last thirty years. Prominent among these are the Rough-winged Swallow, Loggerhead Shrike, Lincoln's and the Lark Finch [Lark Sparrow}, Bobolink, Cou-bird, Black-throated Bunting [Dickcissel], King-bird, Quail, and Woodcock. It will be noticed that all

the birds of these two groups are resident or summer resident, none of the birds which do not, or have not, bred with us being especially affected. I may further call attention to the fact that nearly if not all of the birds of the first group nest on trees or in secluded forests, while those which are increasing in number nest upon the ground or on low trees and bushes in open land.

Coues and Prentiss (1883:30), in their contemporaneous work on birds of the District of Columbia (comparable in many ways then and now to Franklin County), wrote that "[t]he Wild Turkey has been practically exterminated, though still lingering near us; and so has doubtless the Sand-hill Crane. The Pileated Woodpecker is nearly in the same predicament, though still seen once in a while." Ohio observers also joined them in reporting that rivers and creeks no longer flowed as constantly and clear as they had earlier, correctly attributing this to the removal of tree cover (James 1888, Trautman 1977:8-9). The ensuing altered hydrology also had a great effect on birdlife. In 1882 there still persisted in the county some altered remnants of primeval prairie grasslands. Portions of these grasslands and savannas had earlier in the century been dedicated to cattle-grazing, a practice which at least retained habitats attractive to certain prairie species, habitats that were to be drained, plowed, and dedicated to row crops in times to follow.

A study of the birds of what has become a largely urban county inhabited by more than a million humans must take full account of other interactions with Homo sapiens. The impact of the deliberate killing of birds, through hunting for food or plumage or sport and later as pests to be controlled, is now often overlooked but well worth mention in a historical context. During the twentieth century, Franklin County exceeded all others in the state in the number of hunting licenses issued. In the early days, certain eradications of wildlife were a civic duty: 1807 Ohio law mandated that along with cash payment a landowner was to furnish squirrel scalps in numbers determined by the township clerk (Dambach p. 210, Lee p. 294). Bounties were paid for remains of hawks, even those that often preyed on squirrels. As recently as a century ago, many species of interest at the time as food or items for sale, or merely as targets, were still widely hunted or trapped, but the excesses of commercial harvesting had made it clear that regulation was necessary. In Columbus, the Ohio legislature in 1874 had protected yearlong the "crossbill or corncrake, dummock, Eur. blackbird, great tit or blue tit, grossbeak, hedge sparrow, Hungarian robin, nightingale, redstart" (Dambach 224), for what that was worth. Such was the extent of knowledge about birds among the governmental officials for whom Wheaton was only a few years later to produce his most important work.

It is sobering to look at old lists of wild birds sold as food (see De Voe 1867). In 1883 Coues and Prentiss wrote of birds commonly for sale in markets of Washington, D.C. that Cedar Waxwings were "when they grow fat...frequently offered for sale," that harriers were "one of the species [of hawks] more frequently exposed for sale in the markets," that Pileated Woodpeckers were just as often vendors' goods, and even that Great Horned Owls were "sometimes found in markets." Bent (237:1671) related a 1903 report from game wardens of 80,000 frozen Snow Buntings, destined for the gourmet trade, discovered by game protectors in cold storage in a city on the east coast. The repugnant excesses of the feather trade have been well documented. A few species once regarded as extirpated or much reduced in numbers - the aforementioned Wild Turkey and Pileated Woodpecker for example, and the Wood Duck - have recovered, mostly with restoration efforts aimed at wiser harvests of game species. Those still legal to hunt require, and now receive, ongoing watchful protections and active enforcement by wildlife agencies that are required to maintain viable populations. Certain surprisingly generous legal bag limits of the modern era - e.g. 25 rails per day - seem now, in view of much-diminished rail numbers, unlikely to threaten such species any more than realistic ones, and perpetuated only to placate hunters. Eliminations of wild birds regarded as pests have probably been attempted often in the county, but except in cases where government wildlife managers have encouraged it - among raptors, for example - have not been documented. Overall, modern statutory protections (beginning with the Migratory Bird Treaty Act of 1918) for certain birds were considerable and effective, but for others came too late.

The unintentional poisoning of birds was widely recognized here when bird mortality was witnessed on the urban OSU campus in 1964 following spray treatments for Dutch elm disease (WCB 10:28). Soon thereafter populations of piscivorous birds like cormorants, pelicans, and certain raptors were widely noticed to be receding continent-wide, then rebounding after uses of DDT and certain other organochlorine compounds were banned in 1972. Less dramatic contaminations have seldom been so decisively dealt with, however. Other environmental threats – towers and windows, pet cats and urban raccoons, viral diseases, etc. – have justly been blamed for mortality or reductions in reproductive success among native birds. And large among the

threats are populations of deliberately introduced bird species that out-compete native ones under existing conditions. Trautman (1977:19) observed that the 1975 Buckeye Lake Christmas Bird Count tallied 4814 birds of 83 native species and 9251 of three exotic ones (Rock Pigeon, European Starling, and House Sparrow), commenting on how severe must be the effect of such a disparity on our native avifauna.

Troubling as these threats have been, the ongoing eradication of habitats by human activities has taken by far the greatest toll on our birdlife. The eventual extinction of the Passenger Pigeon, for example, however staggering the extent of slaughter by human hunters, was decided as much by the fatal erosion, mostly through logging, of its colonial life-style that depended on unbroken mature forest habitats. Trautman (1940:49) wrote of the Buckeye Lake area in the 1920s that "[i]t was in this period that the average farmer's enthusiasm for a weedless, brushless, intensively cultivated farm reached its height. It was so great as to leave the impression that the farmer had developed an almost innate hostility to all nature other than the plants he cultivated and the animals he owned." This attitude is commonly held today, abetted by new technologies, especially chemical aids to agriculture, that make it a prime antagonist of biodiversity in our rural areas. The history of changes imposed on local bird habitats can be briefly illustrated by the increasingly powerful tools used to advance human land use over the years:

1. THE AXE Clearing away trees was the first radical change Europeans wrought in the landscape. In the 1820s, stumps still hampered wheeled traffic along Wolf Ridge, later to be called High Street, in Columbus (Hooper, p. 33). Consequent transformations of large tracts of primeval forest to open country with scattered much smaller and younger wooded tracts altered conditions for all wildlife. Woodland birds retreated, and species of open habitats, from kestrels to larks, moved in. The change was rapid: Kirtland wondered in 1838 (p. 180) if the cowbird deserved a place on the Ohio list, but by 1864 (Christy 1936) he regarded this open-country species as abundant. Among forest birds, certain breeding species were able to adjust to new circumstances, but others moved close, or actually succumbed, to extirpation, and many relationships among fauna were radically changed. Dynamite was not widely available until the 1880s, so it was a common practice to girdle huge primeval trees on homesteads, then later to plant crops around their leafless remains; this practice at least provided habitats for martins, bluebirds, swallows, swifts, woodpeckers, etc. as these trees decayed. Since then the routine and easier removal of snags and dead or hollow trees everywhere has discouraged cavity-nesters in ways mostly unheeded through the present day. Related alterations led to the widespread practice of allowing livestock, especially hogs, to forage in remaining woodlots, eating eggs and erasing forest understory habitats for many bird species.

2. THE SHOVEL Atwater wrote that "the country lying between the Scioto and Miami rivers, had the twentieth part of its surface covered, during the months of March, April, and May, with water" (1838:98). Both farmers and city-dwellers wanted to control water, and here this usually involved draining wetlands, channelizing runoff, damming or redirecting streams, and, later, tiling to dry out croplands. Many water-loving species were greatly affected, with much-reduced numbers adapting to habitats that had become less than ideal. River dams, many built in the early twentieth century, erased gravel bars and encouraged siltation, while eliminating many edge habitats. By 1882, the year of Wheaton's Report, there were 230 drain tile manufacturers in the state, and the Drainage Journal estimated that as much tiling had been done in Ohio during that year alone as in all previous years combined (Howe 1900: I, 627). By 1960 it was estimated drain tile installed in Ohio laid end to end would reach to the moon (Nolte 2000). The county park system, in preparing an 800-acre tract for restoration as prairie in 2010, had to remove over 130 miles of tile to do so.

3. THE PLOW Next to be altered were many grasslands. The eradication of prairie vegetation and associated wetlands in the larger tracts, enabled by advanced plow designs of the 1830s, greatly changed bird populations. A significant number of grassland species managed to cope for varying periods, but others were more rapidly extirpated or nearly so (prairie-chickens, kites, cranes, then bitterns and rails, etc.). For a while, agricultural practices often included pastureland for livestock, where some of the more adaptable prairie species were able to survive in reduced populations. With time, however, land-use trends have increasingly favored monocultures of a few field crops rather than livestock, with further losses of diversity. Dense shelterbelts, usually of exotic species that benefited few native birds, were themselves removed to increase acreage for crops protected more by chemicals. Disappearances of meadows and even rotation crops such as clover and alfalfa have further reduced variety among habitats, and in recent decades declines in grassland species have surpassed those of other local settings.

4. THE TRACTOR Industrial-scale mechanized farming led to further losses of habitat by reductions in varied field crops, pastures, and orchards, in favor of fall plowing, fence-to-fence planting, early having, and the present dominance of corn, soybeans, and winter wheat as crops. Herbicides reduced cover, and insecticides food, for many bird species. A few artificial habitats in agricultural settings, in the form of wooden outbuildings, certain cover and rotation crops, farm ponds, bird-houses, etc., continued for a while to invite the more adaptable open-country birds. Later, farmland welcomed an increasingly narrow spectrum of bird life, and by the current day highly developed rural lands provide acre for acre less diverse habitats and fewer native birds than do far more densely settled urban and suburban neighborhoods.

5. THE BULLDOZER Farmland itself is now disappearing here with urbanization, as ever-growing industrial sites, housing tracts, highways and parking lots, etc., prevail. Over a quarter of the county's surface is now covered with buildings, pavement, mowed chemically-treated lawns, while areas dominated by native plants are increasingly difficult to find. Some birds have adjusted to urban settings, such as infrastructure and buildings (swallows, swifts, nighthawks), bird-feeders (species capable of wintering with their help, some breeders, and their avian predators), woodlots and plantings (native birds capable of flourishing in shrinking patches of habitats in an increasingly urban matrix), landfills (gulls, crows, etc.), and reservoirs and disused quarries (migrant waterfowl, gulls and terns, shorebirds, and some passerines). At the same time, urban settings have disproportionately benefited certain very prolific non-native species (Rock Pigeons, House Sparrows, European Starlings, Mute Swans, along with introduced non-migratory Canada Geese), all of which pose vigorous competition for native birds. In the suburbs, unnatural proliferations of raccoons, opossums, coyotes, and free-ranging cats have done incalculable damage to birds, especially those nesting on the ground.

Most of the birds whose names appear on the county list that follows are migrants here - wintering here or south of us, with many nesting mostly only to our north. A few are seldom-seen wanderers whose normal ranges lie far away. Some are extinct, and others have abandoned – or recently adopted - our part of their ranges. Habitat losses here are always troubling for regular transients, but elsewhere – in breeding ranges to our north and at wintering sites in central and South America – they are increasingly critical. The latter areas especially are in various stages of experiencing the same logging of virgin forests, draining of wetlands, new crop monocultures, and urbanization that have threatened birds here. Among local nesters, a host of species whose local breeding numbers have been reduced by over two hundred years of unchecked development – cuckoos, flycatchers, vireos, thrushes, warblers, tanagers, origles – are further declining because of habitat eradication on their wintering grounds farther south in the Americas. It may be unrealistic to expect our southern neighbors to deprive themselves there of what we have so stubbornly claimed as our rightful domain here, but perhaps they may yet learn from our example.

The local news is not all grim, however. Some results, at times unintended, of human-influenced habitats such as canals and flooded guarries, and in more recent years especially the construction of reservoirs and artificial or restored wetlands, grasslands, and native tree plantations in parks, have restored some diversity in our avifauna. On 11 Jan 1984, for example, about 7000 diving ducks of various species were found resorting to quarry ponds south of Columbus (WCB 1(28):11), an unprecedented gathering for the time, and certainly not in an area designed for the purpose. This took place where little more than a century earlier ancestral swampy areas between the river and the Ohio and Erie Canal feeder had hosted uncounted waterfowl. Today many species are more likely to persist in wooded areas and prairies protected in public lands, as well as near areas allowed to flood, dam pools, etc.

Wheaton's major work on birds was composed when the county's population was around 50,000, less than a fifth that of Cincinnati at the time. In times to come, the urbanization of an area with a population now twenty times as large, and now more than twice as populous as Cincinnati, will surely continue. Even in urban settings, more and more areas that have provided marginal habitats to adaptable species will be lost as modern buildings, alterations to watercourses, and pavements dominate. On the other hand, increasing efforts on behalf of the environment may offset some losses in numbers and diversity of bird species that might otherwise have occurred. As one important example, commendable efforts on the part of city and county park systems to acquire properties to restore, foster, and protect native environments will likely allow at least small numbers of important native species to persist and even to re-establish themselves here. The message is mixed, but includes hope.