

THE BIRDS OF MAGEE MARSH



W.H. MAJROS

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*For Brandy and Daisy,
who have been to Magee, and who found it
thoroughly unremarkable, apart from the
excellent swimming.*



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Preface

I remember very clearly the first time I came to Magee. At that time it was called Crane Creek State Park. I wasn't expecting much. I'd been on the road for a week or so, driving up and down the East Coast, looking for places to photograph birds. Magee was to be my last stop before returning to North Carolina at the end of my spring vacation. I'd been through Virginia Beach, Cape May, and various places in and around Washington, D.C., including Monticello Park in Alexandria and the C&O Canal National Historical Park along the Potomac. But it had been very challenging, trying to get detailed photos of warblers and other spring migrants at all of the spots I'd visited. Even Cape May, with its renown as a prime birding destination, had been underwhelming. The main problem was that I was concentrating on songbirds, and it was proving difficult to get close enough to them to get the types of frame-filling shots I was

after. They were all high up in the trees, too far for even my enormous super-telephoto lens.

Then I came to Magee. I remember driving into the parking lot for the first time. I pulled up next to two photographers—who would later become friends of mine—and asked if they ever saw any warblers there.

They looked at me as if I was crazy.

Do we ever see warblers here? Are you kidding?

I parked the car, got out the camera gear, and hit the boardwalk. An hour later, I was a changed man. I had found my warbler paradise, and it was



everything I had hoped for. I vowed to come back every year, to witness and document the magnificent spectacle of the songbird migration along the shore of Lake Erie.

As I hope you'll appreciate from reading this book, Magee is a special place. The few years I've been unable to make the trip, my life has felt incomplete. The birder in me is most at home at Magee.

Chapter 1

History and Significance of Magee Marsh

Magee Marsh is a wetland in northern Ohio, on the southern shore of Lake Erie. What makes this particular wetland special to birders is what happens here every spring, when migrating birds fly north and encounter Lake Erie in their path. If there's a good tailwind, they may continue their journey by flying over the lake to their breeding grounds in Canada.

But often there's *not* a good tailwind, and the birds stop to rest and refuel before risking the long flight over the lake. If there are unfavorable winds for several days, the steady stream of migrants arriving from the south results in an accumulation of birds all waiting for the weather to change. And that provides an opportunity for birders and photographers to get exceptionally close looks at

the birds. Indeed, many of the birds are so obsessed with collecting calories to fuel their further travels that they don't bother to keep their distance from the humans loitering nearby. At these times, you can get within a few feet of the birds, and if you have a camera, you can get stunningly detailed photos (as we'll discuss in Chapter 3) of these exquisite, little creatures.

1.1 History of Magee Marsh

Magee and the surrounding lands are remnants of what used to be the Great Black Swamp, an

Figure 1: Sunset along the road leading into Magee Marsh. Magee is a remnant of the Great Black Swamp, which once spanned hundreds of thousands of acres. Most of the original swamp is gone, to the detriment of the wildlife that once depended on it.



extensive wooded swampland in northwestern Ohio that once spanned hundreds of thousands of acres. Several centuries ago, French pioneers trapped and hunted here, doing little to change the landscape. Later German settlers found that they could convert the land to agricultural use by draining and clear-cutting the marsh (ODNR, 1999), thus repurposing the land for human use. This was just the beginning of a long process of marshland eradication that has now massively transformed this region of Ohio, to the detriment of many birds and other wildlife. Fortunately, places like Magee Marsh and nearby Metzger Marsh, both on the shore of Lake Erie, are now protected from further development, and give us a glimpse of what the Great Black Swamp and adjacent marshlands used to be.

The first steps toward conserving these wetland habitats were in fact brought about by hunters. In the 1800s the area became popular with hunting clubs that sought out the plentiful waterfowl. Indeed, while Magee Marsh is now considered a prime destination for seeing warblers

and other migrating songbirds in spring, an early report from a soldier in the War of 1812 described waterfowl movements there on an epic scale, and over the succeeding decades the area became inundated with duck hunters (Mollenkopf, n.d.).

Then in 1903, a businessman named John N. Magee purchased 2,700 acres bordering Lake Erie, intending to drain them for agricultural use (Markey and Basting, 2015). His efforts were stymied—fortunately—by constant flooding from the lake, and eventually he gave up and decided to lease the area back to the hunters. When he passed away his daughters continued to manage the acreage for hunting and trapping. Though the land changed ownership in 1940, Magee's name remained associated with it, and when it was eventually acquired by the state of Ohio in 1951, it became known as Magee Marsh Wildlife Area (a portion was also incorporated into the adjacent Ottawa National Wildlife Refuge).



Figure 2: Historical marker for Magee Marsh Wildlife Area, with the Sportsmen's Migratory Bird Center visible behind it. (Photo by author; courtesy Ohio History Connection).

Originally, the site we now call Magee Marsh Wildlife Area was split into two parts. One part was administered by the Ohio Department of Natural Resources (ODNR) for hunting, while the other was given over to the Department of Parks as Crane Creek State Park. In 2008 the state park was absorbed into Magee Marsh Wildlife Area, which is now entirely managed by ODNR, and it remains a very productive duck hunting site.

While hunting has a long tradition at Magee, the site's emergence as a preeminent birding

destination is much more recent. In the early 1960s a naturalist named Laurel Van Camp noticed prodigious concentrations of songbirds close to the shoreline of Lake Erie, in the wooded marsh just behind the barrier beach, and in 1970 he established a foot trail there (Mollenkopf, n.d.). In 1989 ODNR built a boardwalk over the trail, and during the following decade its popularity swelled among birders.

Figure 3: Magnolia warbler photographed from the boardwalk at Magee, where close views of warblers in spring are commonplace.



The boardwalk at Magee is now legendary, with tens of thousands of people traveling here

every spring from all over the world to witness the spectacle of the warbler migration. In May there is an annual festival at the site, with bird walks, distinguished lectures, and other events. A number of groups and publications have in recent years voted Magee one of the top birding destinations in America.

1.2 Significance of Magee to Bird Conservation

Many neotropical migrants travel thousands of miles every spring to reach their breeding grounds. This is an amazing feat for a tiny bird like a warbler. Unfortunately, the trip is filled with danger, and it has been estimated that mortality rates during migration can be as high as 80% (Silllett and Holmes, 2002). The recent increase in numbers of cell towers and wind turbines, as well as continued changes in land use in general, all threaten to increase this (Shieldcastle, 2017).

Migration stopovers such as Magee are essential for long-range migrants. In order for a songbird to sustain powered flight for thousands of

miles, it needs to store large amounts of body fat to fuel its journey. In some cases a bird will accumulate fat equivalent to 50% of its body mass in preparation for migrating (Berthold, 1975). Even with this reserve, most birds can't reach their destination without additional feeding along the way. Since many birds are specialized in their feeding adaptations, finding a quality rest site with the appropriate habitat can be challenging.

Large bodies of water present an additional complication. Birds arriving at Magee are faced with the prospect of having to cross Lake Erie (which is over 20 miles wide in most places) without being able to stop and rest as they make their way across the lake. Magee represents one of the last undeveloped sites for birds migrating through this area to use for fueling up before taking their chances over the water.

Fortunately, the habitat at Magee—a designated Important Bird Area—is both varied and extensive. While the birds wait for a tailwind to help push them across the lake, there are ample opportunities for them to feed and find protective

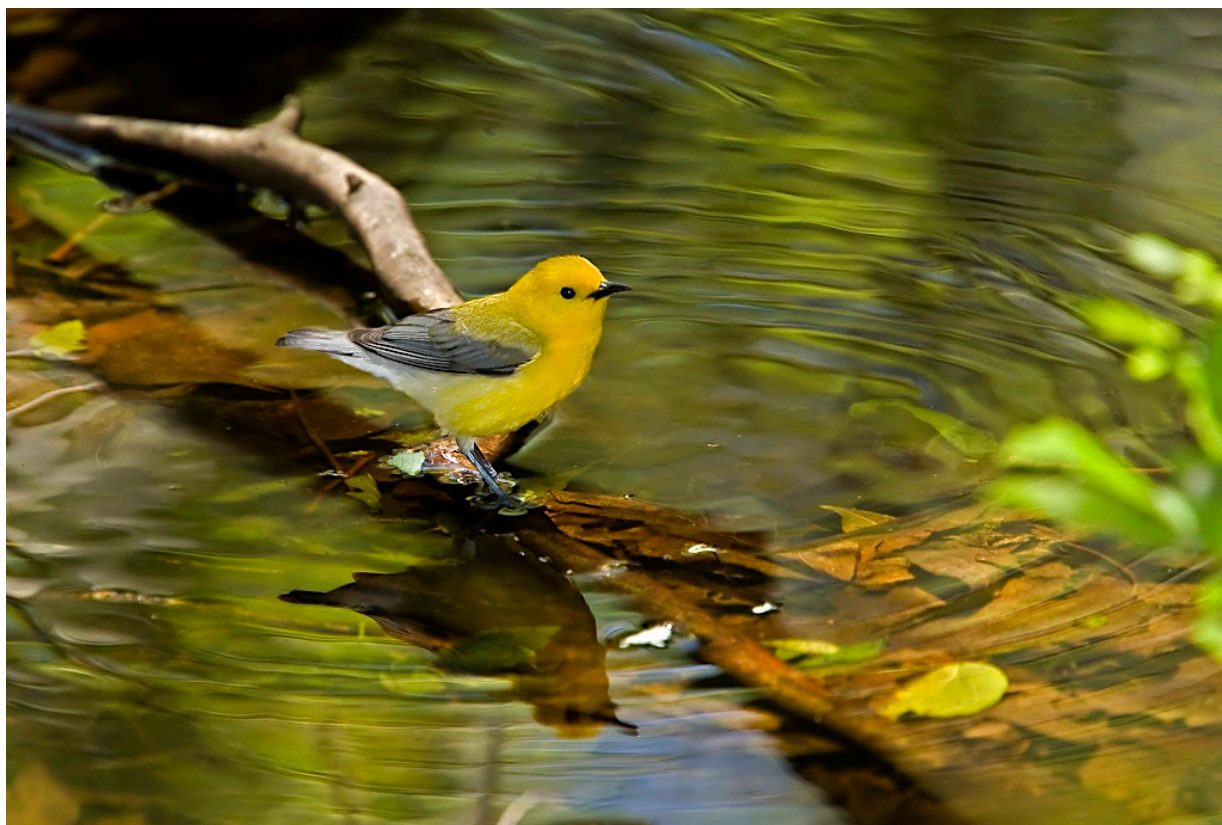
cover. It can hardly be doubted that protecting this habitat from development contributes substantially to the well-being of the many thousands of migrants (and non-migrants) that use it every year.



Figure 4: Kirtland's warbler at Magee. Once close to extinction, this species is now recovering and was recently removed from the endangered species list. They are, however, still very rare, and it's a privilege to see one in the wild.

The fact that so much marshland has been lost in this area likely explains—at least in part—why the birds seem to concentrate more in the vicinity of Magee and nearby undeveloped locations than along other parts of the lake shore. The pristine nature of Magee clearly helps to attract and sustain migrants as they pass through. Nearly 350 species of birds have been found here (ODNR, n.d.),

including over 150 species of songbirds (ODNR, 1999).



*Figure 5:
Prothonotary warbler
foraging in a small
pond next to the
boardwalk at Magee.*

Wetlands are known to have numerous beneficial effects on local ecosystems, such as the buffering of runoff water, and the filtering of pollutants and other harmful sediments from human activities. Many species are so adapted to living in wetlands that they cannot survive elsewhere.

In addition to protecting this critically important land from development, the Magee

Figure 6: Scarlet Tanager in the west lawn close to the boardwalk entrance. This bird suddenly popped out in front of me at the end of a very long day of birding—I barely had the energy to get my camera on the bird and snap this photo.



Marsh Wildlife Area supports essential research efforts, including the Black Swamp Bird Observatory (BSBO) and the Crane Creek Wildlife Research Station (CCWRS). The BSBO has been banding birds and studying bird migration patterns in this area for over 40 years (Shieldcastle, 2017), providing important insights into issues related to bird conservation.

Similarly, the CCWRS performs wildlife surveys and monitoring of bald eagles and other species of special interest. To the extent that the work performed by these groups informs current

and future policy that affects birds and other wildlife, their efforts are of enormous value in the face of the unrelenting expansion of human development and its effects on our planet.



Figure 7: Blackburnian warbler photographed from the boardwalk at Magee. Magee offers phenomenal opportunities to get close-up views of a wide variety of birds in spring.

1.3 Significance of Magee to Bird Watchers

The spring birding festival at Magee typically attracts around 70,000 visitors each year (Markay, 2013). The reason so many birders flock to this site every spring is that Magee offers phenomenal

opportunities for getting close-up views of a wide variety of birds.

That ability to get close to the birds is particularly important to photographers. While birders may get excited about glimpsing a tiny bird at the top of a tall tree, when trying to photograph a small songbird it's important to be able to get close, if you want to get a detailed, frame-filling shot. The large concentrations of birds at Magee in spring make that easier.

Figure 8: Prothonotary warbler along the boardwalk at Magee. Though many species of warblers migrate through Magee, the prothonotaries are often the stars of the show, as they breed along the boardwalk and don't shy away from big crowds.



But why do migrants congregate at Magee Marsh specifically? The answer is that Magee combines several important features that the birds seem to intentionally take advantage of. First, as described earlier, much of the southern shore of Lake Erie is developed.



The vicinity of Magee is relatively unique in this regard, in that there is a contiguous section of approximately five miles of undeveloped shoreline, with several shorter stretches nearby. Migrants flying in from the south around sunrise,

Figure 9: Bay-breasted warbler having a snack at Magee. Magee provides quality habitat for migrants needing to refuel before risking the long flight over Lake Erie.

if they're high enough, would likely be able to see this stretch of wilderness even from miles away, and may navigate toward it.

A second important feature is the wooded beach ridge present along this section of the lake shore (Shieldcastle, 2017; Mollenkopf, n.d.). During the last ice age the great lakes were much higher than they are today. When the glaciers melted, the lakes receded, leaving behind ridges that had formed over thousands of years along their edges. At Magee Marsh a low, wooded ridge sits between the marsh and the lake, providing cover by shielding the marsh from northerly winds coming off the lake, while also controlling inundation of the marsh and supporting a range of habitats. All of these are beneficial for migrants seeking food or rest.

A third factor that may concentrate the birds is the existence of an island chain spanning the lake from Port Clinton in the south to Point Pelee in the north (Figure 10). Studies have shown that birds take several routes from Ohio to Canada, with some following an overland route around the

western edge of the lake, some flying across the open water, and some following the island chain to Point Pelee. It's not clear whether the birds preferentially follow the island chain as opposed to the open water route, though some research suggests they might (Sanders and Mennill, 2014). If so, the proximity of Magee, with its quality habitat, to that archipelago may influence the spatial clustering of the birds, though more research is needed to better understand these matters.

Figure 10: An island chain near Magee spanning Lake Erie may allow for safer passage of migrants, by giving them places to rest along the way. (Map based on data from OpenStreetMap).



As we'll discuss in the next chapter, the conditions do need to be right on any given day for a fallout at Magee. Every day is different, and some days are much better than others. The migration through Magee is often described as occurring in "waves", and bird abundance can be quite low on slow days. However, when there's a fallout, there can be so many birds along the boardwalk that it's hard to know which way to look. As we'll see in Chapter 2, when planning a trip to Magee it's a good idea to plan to stay for several days in order to maximize your chance of being there when a fallout occurs.

At the peak of the spring migration, the numbers of birds and the species diversity can make for a truly exhilarating birding experience. On good days, it's possible to bird the boardwalk for twelve hours straight, without a lull. Over 38 species of warblers can be seen here in spring, including a number of somewhat more elusive species such as the mourning, Connecticut, and golden-winged warblers, and in many years there

are sightings of the formerly endangered Kirtland's warbler (see section 2.5).

Finally, many people enjoy visiting Magee because of the camaraderie and the opportunity to meet other birders. It's almost impossible not to make new friends during a visit to Magee in May. And though it is true that the crowds can get very large at the peak of migration—particularly around International Migratory Bird Day—having many birders around can help with finding and identifying birds.

Figure 11: A crowd of birders watching a rare bird at the top of a tree near the parking lot at Magee. Though the crowds can get very large and can be difficult to deal with at times, having many birders around is useful for finding the birds—especially rarities.



Chapter 2

The Birds of Magee Marsh

Figure 12: Baltimore oriole foraging in a flowering tree on the edge of the parking lot at Magee. (Note that this tree was an invasive species and has been removed.)

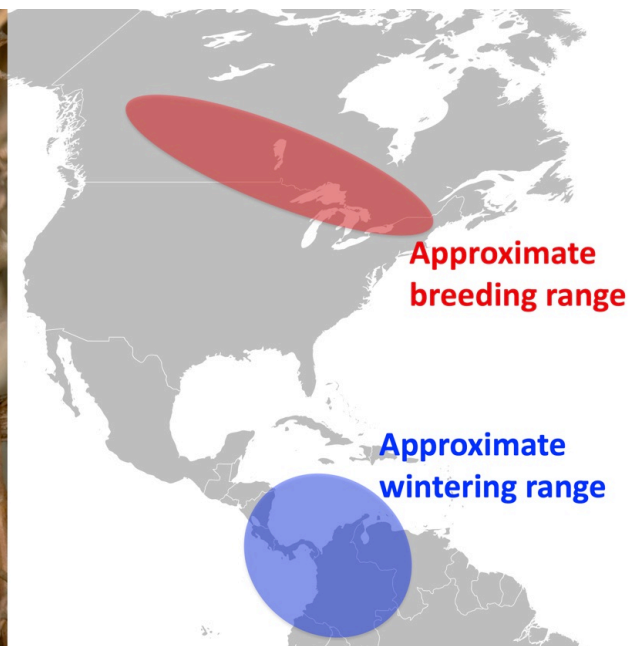
In this chapter we'll delve in detail into the birding opportunities at Magee, with a focus on spring migration patterns and identifying where and when you'll have the greatest chance of seeing particular species.



2.1 The Migration

Bird migration is a truly remarkable phenomenon. In the case of warblers and similarly diminutive songbirds, many of these birds weigh less than an ounce, and yet they are able to reliably navigate hundreds or thousands of miles between wintering and breeding habitats that are, in many cases, located on separate continents (Figure 13). These journeys are fraught with danger—including danger from predators as well as hazards stemming from uncertainty in availability of food, unpredictable weather, and human-made structures such as wind turbines (Kaufman, 2019).

Figure 13: Mourning warbler at Magee, and its approximate breeding and wintering ranges. Many songbirds travel hundreds or thousands of miles each spring while migrating to their breeding grounds. (Map by author based on data from Sauer et al., 2017; Cox, 1960)



Collectively, these birds and their ancestors have been making these peregrinations for millions of years. The rigors of these travels have clearly left their marks through the effects of natural selection, as can be seen from, for example, the relationship between wing length and migratory distance (Nowakowski et al., 2014; Vágási et al., 2016), the extent of plumage coloration and dimorphism among migratory versus sedentary species (Simpson et al., 2015), or variation in the timing of arrival on their breeding grounds (Francis and Cooke, 1986). Indeed, the need to migrate has extensively shaped these species, producing the wonderfully varied forms we see today.

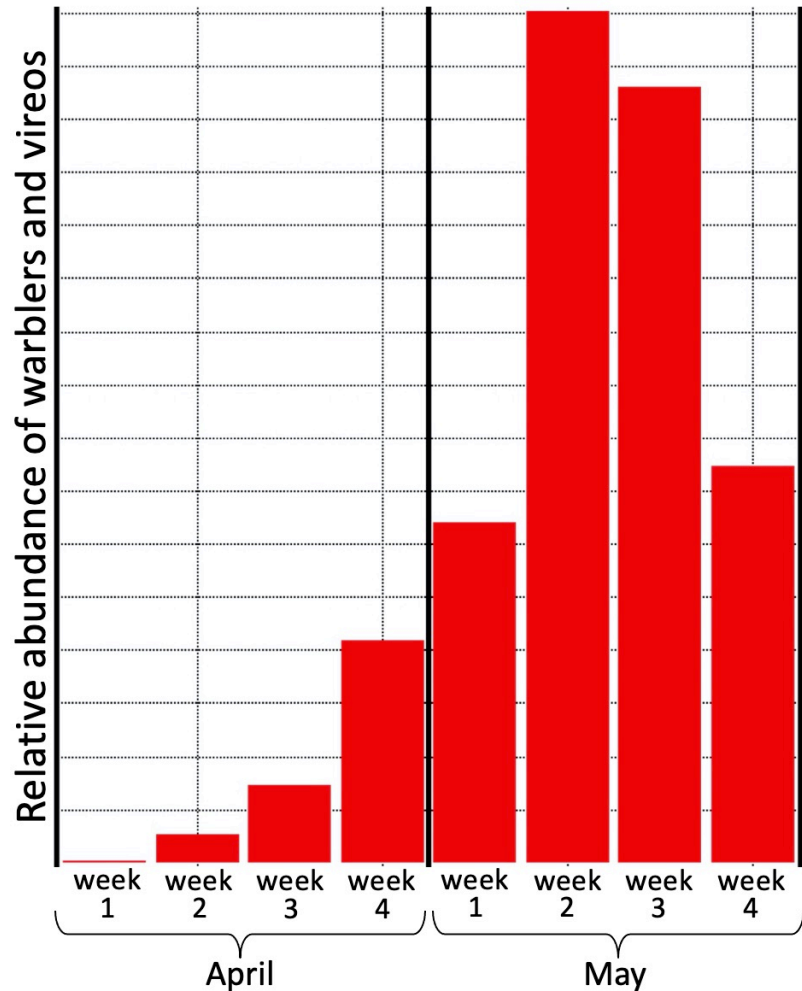
Even their brains have been finely tuned to this task. Remarkably, many songbirds make these journeys largely in the dark, at night. Many are known to navigate by observing the rotational movements of star constellations (Foster et al., 2018), or by detecting the orientation of the Earth's magnetic field together with the polarization of light at sunset (Muheim et al., 2016).

They are also highly adaptable, able to adjust

their schedules as necessary to accommodate variations in weather. As a result, the precise timing of migration can differ quite a bit from year to year, though there are clear trends that are apparent across years. As a practical matter, knowing about these trends can be useful to birders planning a trip to a migration stopover site such as Magee.

The first trend to be aware of is that migrant abundance at Magee increases through April and early May, peaks around the middle of May, and then declines in late May, as shown in Figure 14 on the next page. As you can see from the figure, the abundance of warblers and vireos is much greater in May than in April (the height of the bars indicates relative abundance). The peak is around May 14th, which is usually close to International Migratory Bird Day. This is also around when the birding festival is typically held at Magee, and tends to be the most productive time to visit, in terms of maximizing the numbers of birds you're likely to see, and the species diversity.

Figure 14: Abundance of warblers and vireos captured by banders in the vicinity of Magee Marsh in spring. Abundance typically peaks around May 14th, though there is much year-to-year variation. (Public domain data from Navarre Marsh banding station / BSBO, provided by the United States Bird Banding Laboratory, USGS.)



After mid-May there's still quite a lot of species diversity (as we'll discuss shortly), but the trees tend to leaf out after that, making it increasingly difficult to see the birds through the foliage—this is particularly frustrating for photographers hoping to get “clean” photos with few distracting leaves in-frame (see Chapter 3 for photography tips). In April there's typically little or no foliage to obscure the view, but unfortunately

the numbers of birds and species diversity are much lower then. Thus, I always recommend that new visitors aim for the second week of May for a first visit. However, there's a caveat to that, which we'll get to in a moment.

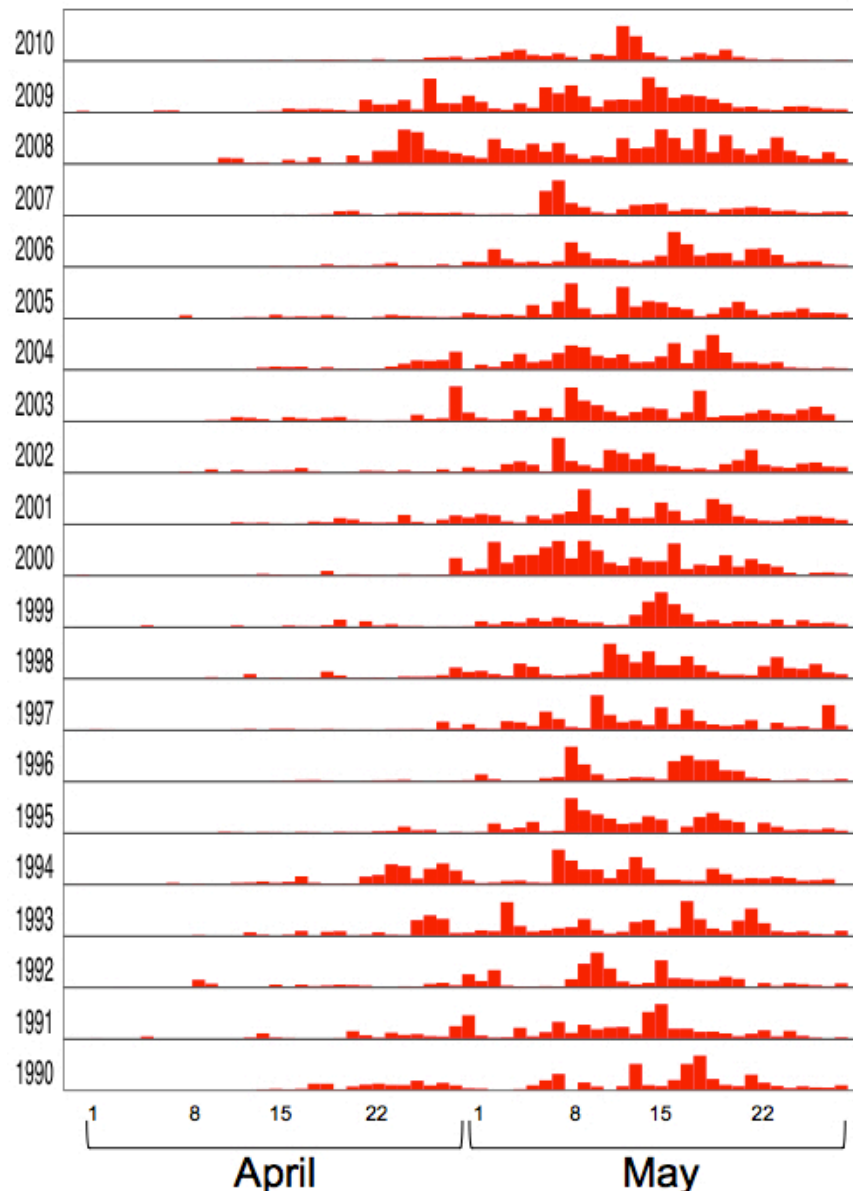


While the graph on the previous page illustrates the overall trend in bird abundance during spring, it's important to understand that this is an average over many years. Every year is different, and indeed, there can be enormous variation from year to year. Figure 16 depicts relative abundance in individual years, from 1990

Figure 15: Cape May warbler singing next to the Magee boardwalk. The second and third weeks of May are typically the best time to see this species at Magee.

through 2010. While you can still see an overall trend for May to have higher migrant abundance than April, there's clearly a lot of variation between years. Indeed, if you randomly pick any two years in this graph, you may find that the “best” day or week (in terms of abundance) is not the same each year.

Figure 16: Yearly variation in the timing of warbler and vireo banding captures in the vicinity of Magee Marsh. Though mid-May is typically the best time for seeing a wide variety of songbirds at Magee, the exact timing of migration is different each year, and is difficult to predict in advance. (Public domain data from Navarre Marsh banding station / BSBO, provided by the United States Bird Banding Laboratory, USGS.)



This variability is important to keep in mind when planning a visit. Though you will often hear birders talk about Magee having three big “waves” of migration in spring, it’s not clear from this data that these waves are consistent in their timing, their magnitude, or even whether there are always exactly three waves. And unfortunately, as we’ll discuss shortly, predicting these waves far in advance can be difficult.

While the overall trend is for abundance to peak in mid-May, individual species move through Magee at different times, with some arriving earlier and others arriving later, as shown in the next two tables.

Thus, for example, the best time to see palm warblers and yellow-rumps is in late April or very early May, whereas Canadas, bay-breasteds, and blackburnians are more likely to be seen in the second half of May. This is very useful to know: if you have a specific list of birds you want to see, the following tables can help you choose the optimal time for your visit.

Last week of April	1 st week of May	2 nd week of May	3 rd week of May
Gnatcatcher Ruby-crowned kinglet Yellow-rumped Palm warbler	Gnatcatcher Ruby-crowned kinglet Yellow-rumped Palm warbler Black-throated green	Yellow-rumped Nashville warbler Black-throated green Black-and-white Warbling vireo Yellow warbler Northern parula Cape May warbler Black-throated blue Chestnut-sided Magnolia warbler Prothonotary warbler	Yellow warbler Black-throated green Black-and-white Cape May warbler Black-throated blue Chestnut-sided Tennessee warbler Magnolia warbler Bay-breasted warbler Blackburnian warbler Blackpoll warbler Prothonotary warbler Canada warbler Wilson's warbler Northern parula Warbling vireo Philadelphia vireo Red-eyed vireo

Figure 17: Warbler and vireo species most likely to be encountered, by week, at Magee, according to bird banding data. Note that due to yearly variation in the timing of spring migration, not all of the species listed will be encountered in appreciable numbers during a visit to Magee at the indicated time. There is also much day-to-day variation in bird numbers in general, and it's advisable to plan to visit Magee for several days, or even a week if possible. (Public domain data from Navarre Marsh banding station / BSBO, provided by the United States Bird Banding Laboratory, USGS.)

	April				May			
<i>week starting:</i>	1	8	15	22	1	8	15	22
golden-crowned kinglet		C	C					
blue-gray gnatcatcher			C	C	C			
ruby-crowned kinglet			C	C	C			
yellow-rumped (myrtle) warbler				C	C	C		
palm warbler					C	C		
solitary (blue-headed) vireo						U		
orange-crowned warbler						U		
blue-winged warbler						R		
white-eyed vireo						U		
yellow-throated vireo						U		
Nashville warbler						C		
northern waterthrush						U		
Kirtland's warbler						R		
golden-winged warbler						R		
black-throated green warbler					C	C	C	
black-and-white warbler						C		
ovenbird						U		
warbling vireo						C		
yellow-breasted chat						R		
yellow warbler					C	C	C	
northern parula						C	C	
Cape May warbler						C	C	
black-throated blue warbler						C	C	
chestnut-sided warbler						C	C	
Tennessee warbler						C	C	
common yellowthroat						U	U	
magnolia warbler						C	C	
bay-breasted warbler						C	C	
blackburnian warbler						C	C	
American redstart							C	C
blackpoll warbler							C	C
Philadelphia vireo							C	C
Wilson's warbler							C	C
prothonotary warbler						C	C	C
Canada warbler							C	C
red-eyed vireo							C	C
Connecticut warbler							U	U
mourning warbler							U	U

C=common U=uncommon R=rare

Figure 18:
Abundance of
warblers and
vireos at Magee
Marsh in spring.
C=common,
U=uncommon,
R=Rare.

(Public domain
data from Navarre
Marsh banding
station / BSBO,
provided by the
United States Bird
Banding
Laboratory,
USGS.)

Given that there is so much year-to-year variation in the timing of the migration, there's no guarantee that you'll see the species listed in the foregoing charts even if you time your visit according to these historical trends. You might wonder, however, whether it's possible to predict this yearly variation ahead of time. While it may not be feasible to precisely predict an entire season months in advance, many birders do try to predict day-to-day variation, in terms of anticipating the timing of the next big fallout.

Any kind of intelligent prediction requires data. In the case of local migration activity, the primary types of predictive data are weather patterns and radar imagery, as veteran birder Kenn Kaufman describes in his excellent book, "A Season on the Wind" (Kaufman, 2019). The following very briefly summarizes Kaufman's approach to predicting fallouts; interested readers should consult his book for details.

Because songbirds are so lightweight and so affected by wind, a large influx of birds into the Magee region is most likely to occur when the wind

is blowing from the south—helping the birds rather than hindering them. Local birders like Kaufman are highly skilled at interpreting the movements of high- and low-pressure systems and their effects on wind patterns. In making their predictions, they also take into account rain. For example, whereas rain to the south may hinder birds moving northward toward Magee, rain over the southern shore of Lake Erie may compel them to stop at Magee rather than continuing on into Canada. I've

Figure 19: Tree swallow in the rain. Rainy days at Magee can be interesting, and even fun, though they can also be slow, depending on other factors.



also noticed during my trips to Magee that on rainy days the birds are often lower in the trees (and therefore more visible), possibly because the rain

knocks the insects off of the higher branches, and the birds then follow the food. Rainy days can be good at Magee.

Another source of information used by local birders is Doppler radar, which can, remarkably, detect flocks of birds and their movements. As Kaufman describes in his book, when radar stations south of Magee detect large bird movements shortly after sunset, there are likely to be many birds flying north toward the lake. Depending on various factors (such as whether it's still dark when they reach the lake—Diehl et al., 2003), they may stop at Magee to refuel.

Figure 20: Black-throated green warbler foraging beside the Magee boardwalk. This species tends to be very common at Magee in the first three weeks of May.



Keep in mind that these considerations are for short-term prediction—on the order of one or two days. For the longer term, the best bet is probably to rely on historical trends, as represented in the foregoing charts. When I visit Magee, I don't find short-term predictions to be of much use, personally, because once I'm in town, I'm going to go to Magee and look for birds even if no big wave is predicted. I even go on rainy days, and indeed some of my fondest birding memories are of dreary, wet days at Magee. Even though there may be fewer birds, the crowds are much smaller, giving me more room to move around on the boardwalk and get close to the birds that are present.

2.2 Early Birds: Late April to Early May

As mentioned previously, the warbler activity at Magee tends to be much slower in April than in May, and the species diversity is also much lower. Three prominent migrant species in late April and early May are the yellow-rumped warbler, the palm warbler, and the black-throated green warbler.

Other birds you're likely to encounter early in the season are kinglets (both golden- and ruby-crowned), blue-gray gnatcatchers, and yellow warblers—and of course many non-warblers such as sparrows. We'll come back to the yellow warblers later when we discuss local breeders.



Figure 21: Male yellow-rumped warbler with pollen on its beak. Yellow-rumps are among the earliest warblers to come through in spring, and although they're usually plentiful in April, by mid-May they can be quite scarce.

Yellow-rumped warblers (*Setophaga coronata*) are among the earliest warblers to come through. In my home state of North Carolina, this species is seen all winter, though in spring the males sport a more striking plumage that features a strongly contrasting black and yellow pattern (Figure 21). Though they are insectivores like

other warblers, yellow-rumps can also survive on berries—particularly waxy berries present at some locations in the colder months. This likely explains why they are able to winter so far north compared to other warblers. Like many other migrants, the males tend to migrate earlier in spring than the females, presumably to gain advantage in claiming a territory when they reach their breeding grounds. This is a general trend across the New World warblers (Francis and Cooke, 1986), as is the tendency for males to be more colorful than females (Simpson et al., 2015).

My favorite among the earlier migrants is the **palm warbler** (*Setophaga palmarum*), which is most common at Magee during the first two weeks of May. Their most distinguishing features are their rusty cap (Figure 22) and their tendency to continually bob their tails. They often forage on the ground (similarly to ovenbirds). Though they are primarily insectivores, they will sometimes feed on berries. This species winters primarily along the gulf coast of the United States, and

breeds mostly in Canada (Clements et al., 2019). I often see them when I visit Florida in winter.



Figure 22: Palm warbler at Magee. Palms are easy to identify by their plumage, and by the constant bobbing of their tails. I don't see enough of these birds, because I typically visit Magee in mid-May, after they've already passed through.

The palm warbler is one bird I've long wished to spend more time photographing. Because I typically visit Magee at the end of the second week of May, I tend to miss the peak of their passage through Ohio. Though I usually see one or two at Magee in mid-May, that's not enough to get the types of photographic opportunities I like. As we'll discuss in Chapter 3, to get really astounding images of warblers—tack-sharp images

that reveal minute feather detail and that show the bird in a striking pose—you'll typically need to take many, many photos. Warblers move so quickly that most shots end up getting discarded, due to motion blur, obscuring branches or leaves, or suboptimal poses. This is important to keep in mind if you're a photographer seeking to capture the best possible warbler images, because you'll want to make sure the species you're most interested in are likely to be present in high numbers during your trip. For that reason, I highly recommend consulting the species abundance charts earlier in this chapter when planning your visit.

Black-throated green warblers (*Setophaga virens*) are among the most common warblers at Magee during the first three weeks of May. The males sport a strong yellow-and-black plumage (with dull olive-green on the head giving rise to its name) that is difficult to confuse with other species (Figure 23). The females are similarly easy to identify, though their plumage features less black. This bird winters in Central and South America and

breeds in southeastern Canada and in various locales in the eastern United States (Dunn and Garrett, 1997).



Figure 23: Black-throated green warbler along the Magee boardwalk. In some years, these birds are so common that I have to force myself to stop photographing them, to avoid missing other species. That's hard to do, though, because they have a tendency to allow birders to get very close, providing wonderful views.

Because this species is so common at Magee in May, it's relatively easy to get high-quality photos of it, because there tend to be ample opportunities to get many shots of these birds. I've taken thousands of photos of black-throated greens at Magee over the years, though as with any warbler, I do still find that only a tiny percentage of my shots end up being "keepers." When they first come back in early May, I and other

photographers at Magee spend a lot of time shooting them, and I'm always delighted just to see this beautiful bird, especially since they tend to let me get so ridiculously close. I've literally had black-throated greens foraging within fifteen inches of my face on the boardwalk at Magee. My camera can't even focus that close! I've joked with other birders that it's best to keep your mouth closed at Magee, to keep the warblers from accidentally flying into it.

By the end of my yearly Magee trip, I've typically seen so many black-throated greens that I have to force myself to stop photographing them, for fear of missing out on other species. I still end up shooting them, though, even after I've already snapped countless new photos of them, because I know that when I get back to the hotel and look at the images on the computer, most will be marred by motion blur or other problems. In Chapter 3 we'll discuss ways of minimizing motion blur and other issues that are specific to warbler photography.

2.3 Birds of Mid-May

I generally plan my Magee visits for mid-May, for two reasons. First, the numbers of birds and species diversity both tend to be very high, on average, during this time. Remember, though, that there is still substantial day-to-day variation, and there can certainly be *very* slow days even during this period—which is why it's good to plan to stay for three or more days. The second reason is that in the second half of May the trees typically leaf out to the point that the foliage severely impedes photography. Thus, mid-May is when opportunities for photographing warblers tend to be maximized.

What I particularly like about this time frame is that some of the most colorful migrants pass through around this time, including blackburnian, bay-breasted, Cape May, magnolia, chestnut-sided, and black-throated blue warblers, as well as northern parulas, Baltimore orioles, and both scarlet and summer tanagers. Other migrants that I enjoy seeing at this time are black-and-white warblers, Nashville warblers, Tennessee warblers,

ovenbirds, and warbling vireos (and sometimes other vireos, such as the Philadelphia). The extremely rare Kirtland's warbler, which we'll discuss in section 2.5, sometimes makes an appearance during this time as well.

Two common migrants that I particularly cherish seeing are the **chestnut-sided warbler** (*Setophaga pensylvanica*—Figure 24) and the **magnolia warbler** (*Setophaga magnolia*—Figure 25). Both of these birds winter in Central America and breed in the northeastern United States and

Figure 24: Chestnut-sided warbler hanging over the boardwalk at Magee. These birds tend to be very acrobatic when they forage, and will often come so close to the boardwalk that my camera can't even focus on them. They're typically most plentiful at Magee in mid-May.



southeastern Canada (Clements et al., 2019; Dunn and Garrett, 1997).

When I lived outside Washington, D.C. I spent many spring mornings staring straight up at the tops of the trees in Rock Creek Park, hoping for a glimpse of these stunning little beauties. On the boardwalk at Magee it's often possible to see these birds at eye level, which both reduces the problem of "warbler neck" (a stiff neck from looking straight up for too long) and makes photography much more feasible.

Figure 25: Magnolia warbler along the Magee boardwalk. The eye-level views possible at Magee make for a truly astounding birding experience.



When the birds are high above you, you'll tend to mostly get "belly shots", because the bird's underside is just about all that's visible. At Magee you can get eye-level photos that provide a more engaging view by bringing the viewer to the bird's level—a rare experience for many people. This is one of the main reasons I come to Magee. Being so close to these precious little creatures—so full of life and seemingly boundless energy—is truly a unique and delightful experience. At Magee I feel that I'm actually *connecting* with the birds, rather than just seeing them.

Figure 26: Ovenbird foraging on the ground at Magee. People were literally stepping on me while I was lying on my belly to shoot this bird. But it was worth it.



Ovenbirds (*Seiurus aurocapilla*), though not extremely numerous at Magee in spring, peak in abundance in the second week of May. What I like about ovenbirds is that they spend a lot of time on the ground. To get eye-level shots of them, I lie on my belly on the boardwalk and shoot them when they're foraging in the underbrush. This creates a unique visual perspective (see Figure 26). Unfortunately, I do find that people tend to step on me while I'm lying in the path—but it's worth it to me to be able to get the shot.

The **Cape May warbler** (*Setophaga tigrina*) is one of the most colorful birds to migrate through Magee. The males (Figure 27) are unmistakable with their chestnut-colored cheeks, black caps, and streaked yellow breasts. The female is less striking (Figure 28) but still very beautiful, in my opinion. Like a number of other warblers, this species winters in the Caribbean and Central America and breeds largely in Canada (Clements et al., 2019; Dunn and Garrett, 1997). They tend to be insectivorous, like most warblers, though they are also adapted to drinking nectar, thanks to their



uniquely shaped tongues. Despite the name, these birds neither breed nor winter at Cape May, New

Figure 27 (previous page, top): Male Cape May warbler.

Figure 28 (previous page, bottom): Female Cape May warbler.

Figure 29 (below): Black-throated blue warbler at Magee. These birds are difficult to expose properly when photographing them, due to the high contrast and the potential for feather glare when using flash.

Jersey, where the first specimen was collected by ornithologists in the early 1800s (Wilson, 1812).

The **black-throated blue warbler** (*Setophaga caerulescens*) is not easily confused with the black-throated green described earlier, as it features a striking blue head and back, strong black patterning on the face and flanks, and a pure white chest and belly (Figure 29). They tend to come through Ohio just slightly later than the black-throated greens. They are particularly difficult to photograph, due to their plumage:



exposing for the white breast tends to underexpose the black face, while exposing for the black face tends to overexpose the breast.

In addition, the hue of the blue on the head and back is hard to capture well with flash (see Chapter 3), due to feather glare. For this reason, I have very few photos of this bird that I like, and I always look forward to encountering more of them in the field. Unfortunately, their numbers tend to peak right when the leaves are coming out at Magee, making photography even more difficult. This is another bird that winters in the Caribbean and breeds in the northeast (Clements et al., 2019).

Two truly stunning birds that pass through Magee in mid-May are the **blackburnian** (*Setophaga fusca*) and **bay-breasted** (*Setophaga castanea*) warblers. These related taxa winter in northern South America and breed largely in southeastern Canada (Dunn and Garrett, 1997).

The blackburnian is unmistakable with its flaming red throat and chest, and strong orange-and-black head patterning (Figure 30). The bay-breasted is almost as striking with its chestnut-



Figure 30: Male blackburnian warbler along the Magee boardwalk. These birds tend to be most numerous at Magee in mid-May. Unfortunately, in some years that's when the leaves are coming out, making it hard to see the birds.

colored cap and throat, and its strong black face (Figure 31). Though both of these species can be somewhat abundant at Magee in mid-May, they are highly sought after by birders and photographers, due to their breathtaking beauty. For some reason, I seem to encounter both species more often toward the western end of the boardwalk, near the tower (see Figure 51 in section 2.7.1 for a map of the boardwalk). In truth, I never seem to see as many of these birds as I'd like. I typically get only one or two good photos of them each year at Magee.



If you're a photographer, it's worth noting that with highly colorful species such as these, you'll find that you can bring out those colors much better if you use flash. Otherwise, using only ambient light, colors often appear more drab than they really are, particularly in mid-May when the canopy above is starting to leaf out and direct sunlight is not always available. We'll discuss flash and other lighting issues pertaining to warbler photography in Chapter 3.

Figure 31: Male bay-breasted warbler along the Magee boardwalk. With colorful species like this, using flash when photographing them can bring out the colors better than relying solely on ambient light, especially later in spring when the foliage gets thick and the birds often aren't in direct sunlight.

Figure 32: Black-and-white warbler in a tree beside the boardwalk. These birds tend to forage while climbing up and down tree trunks and vines. Though they're sometimes confused with blackpoll warblers, black-and-whites are easy to identify by their song, which sounds like a squeaky wheel.

Black-and-white warblers (*Mniotilta varia*) are another striking bird, due to their high-contrast plumage (Figure 32). Though males and females have slightly different patterning, both are striking, and although I do see these birds in my home state of North Carolina (sometimes even in winter), I always enjoy the chance to take more photos of them at Magee. These birds tend to forage while climbing up and down tree trunks and thick vines (like a nuthatch or brown creeper), rather than



while perched on a branch or twig like other warblers.

Because of its strong black-and-white plumage, this species is most easily confused with the blackpoll warbler (see Figure 40 in section 2.4). Black-and-whites winter in Central and South America, and breed in parts of the United States and Canada (Clements et al., 2019).

Yet another warbler that is common in mid-May at Magee is the **northern parula** (*Setophaga americana*—Figure 33). This bird breeds through much of eastern North America, and winters in

Figure 33: The northern parula is another common migrant at Magee in mid-May. Like other May migrants, they can sometimes be hard to see after the trees leaf out.



Central America and the Caribbean (Clements et al., 2019).

Although they're not warblers (which form their own taxonomic group, due to evolutionary relatedness), orioles and tanagers are equally sought out by many Magee visitors, due to their striking beauty. **Baltimore orioles** (*Icterus galbula*) in particular are commonly seen from the parking lot at Magee, and they tend to be very cooperative for photography.

Figure 34: Female Baltimore oriole next to the parking lot at Magee. Though the males are a bit more colorful, I think the females are gorgeous. (See Figure 53 in section 2.7.1 for a photo of the male.)



While the females (Figure 34) are not quite as brilliant as the males (Figure 53 in section 2.7.1),

both are highly worthy photographic subjects, in my opinion. Note that while the orioles can be easily attracted with oranges, this practice is not permitted at Magee. **Orchard orioles** (*Icterus spurius*), which feature a chestnut-colored rather than orange plumage, are also present at Magee in appreciable numbers in mid-May, though they tend to be less abundant than Baltimore orioles.

Scarlet tanagers (*Piranga olivacea*) are equally stunning with their bright red bodies and black wings and tail (Figure 35).

Figure 35: Male scarlet tanager in the lawn next to the parking lot at Magee. Summer tanagers can also be seen at Magee, and can be distinguished by the lack of black on their wings and tail.



Although scarlet tanagers appear, based on banding data, to be nearly as abundant in some years as Baltimore orioles, I seem to see fewer of them at Magee. **Summer tanagers** (*Piranga rubra*), which are similar to scarlet tanagers, but without the black in their plumage, can also be seen at Magee, though typically in lower numbers.

*Figure 36:
Philadelphia vireo or
warbling vireo? It can
be hard to identify
these confidently in the
field, unless you get a
very good look.*

A final group of birds worth mentioning in this section are the vireos—tiny, warbler-like birds from the genus *Vireo* (Figure 36). There are several vireos that tend to be seen mostly in the



latter half of May. The **warbling vireo** (*Vireo gilvus*) is the one I encounter most often in mid-May, though the **Philadelphia vireo** (*Vireo philadelphicus*) can also be seen. Indeed, given the individual plumage variation in these birds, it's sometimes hard to distinguish these species in the field, particularly when viewing conditions are not ideal. This is one case in which having lots of other birders around can be useful, since others in the crowd may be better at identifying these birds, or may simply have a better view. Don't hesitate to ask other birders for help: I've found that most people at Magee are quite happy to help others both find birds and identify them.

2.4 Birds of Late May

After mid-May, a number of things rapidly change at Magee. First, the foliage becomes noticeably thicker, and though there are still places along the boardwalk that remain relatively open, other sections become so leafy that it can be very hard to see (and particularly to photograph) the birds. It

can also get quite warm on some days, and you may start to encounter mosquitoes.



Figure 37: Male Canada warbler along the Magee boardwalk. These birds are often confused with magnolia warblers. I find the face pattern most useful in distinguishing them, though the streaking on the chest is also different.

However, there are some good things about visiting Magee in late May. First, the crowds typically diminish shortly after the annual birding festival ends, making it much easier to move around on the boardwalk. I typically leave a few days after the festival ends, and I definitely enjoy the peace and quiet on those last few days without the crowds. The other good thing is that some birds continue to move through in the third and fourth

weeks of May. Some particularly notable species are Canada and Wilson's warblers, blackpolls, and several species of vireos. In addition, the blackburnians and bay-breasteds can typically still be encountered, though their numbers are generally decreasing at this time.

Canada warblers (*Cardellina canadensis*—Figure 37) are one of my favorites—not surprisingly, given how similar they are in appearance to magnolia warblers. Indeed, many birders confuse these two species. While the magnolia tends to have longer streaks on the breast and flanks (as compared to the “necklace” pattern of the Canada), I find the stronger face mask on the magnolia to be easier to use for identification purposes. Canada warblers migrate from northern South America to breed in northeastern North America (Clements et al., 2019).

Another striking—and very much sought-after bird—is **Wilson's warbler** (*Cardellina pusilla*—Figure 38), named after the great ornithologist Alexander Wilson. As you can see from its scientific name, this bird is closely related

to the Canada warbler (they occupy the same genus, *Cardellina*), though you might not have guessed that, based on their different plumages. Wilson's warbler winters in Central America and breeds throughout much of Canada and limited parts of the United States (Clements et al., 2019).



Figure 38: Wilson's warbler perched on a branch overhanging the Magee boardwalk. This species is closely related to the Canada warbler (they're in the same genus), though you might not have guessed that, based on their plumage!

Two other species worth mentioning in this section are the **American redstart** (*Setophaga ruticilla*) and the blackpoll warbler (*Setophaga striata*). The male redstart has a very distinctive plumage that features large areas of black, with red

patches on the flanks, wings and tail (Figure 39). They winter in Central and northern South America and the Caribbean, and breed in the eastern United States as well as across much of Canada (Dunn and Garrett, 1997).



The female redstart, often referred to by birders as a “yellowstart” has a plumage dominated by gray, with yellow patches instead of red. These birds tend to move very rapidly, making them challenging to photograph. The males can be

Figure 39: Male American redstart over the boardwalk at Magee. These birds move very quickly, and can be very difficult to photograph, due to motion blur and the challenge of properly exposing them.

particularly difficult to expose properly without the use of flash, due to the extensive black in their plumage.

The **blackpoll warbler** (Figure 40) appears similar in some ways to the black-and-white warbler, and indeed, these two species are often confused by novice birders in the field. The blackpoll has a more substantial black cap than the black-and-white. Their song is also quite different: whereas the black-and-white sounds like a squeaky wheel, the blackpoll's song consists of a very high-pitched, staccato *chit-chit-chit-chit-chit-chit*.

Figure 40: Blackpoll warbler beside the Magee boardwalk. These birds are often confused with black-and-white warblers. I look for the solid black cap, and listen for the song, which is a high-pitched staccato chit-chit-chit.



Despite their somewhat similar appearance, these two species (the blackpoll and the black-and-white) are not very closely related (relative to other New World warblers). The same is true of the often confused Canada and magnolia warblers, which also are not in the same genus. Indeed, recent DNA-based taxonomic analyses indicate that plumage, migratory patterns, and singing behavior in the New World warblers all have complex evolutionary histories that often contradict apparent similarities and differences between species, due to evolutionary reversals, widespread gains and losses of traits, and convergent evolution between lineages (Mitchell et al., 2019; Terrill et al., 2020; Simpson et al., 2015). It is now clear that our wood warblers are the products of very convoluted evolutionary processes spanning millions of years (Barker et al., 2015; Pulido, 2007).

Finally, I'll just mention three related species that are not very abundant at Magee, but that are sometimes seen in the latter half of May: the **white-eyed vireo** (*Vireo griseus*), the **red-eyed vireo**

(*Vireo olivaceus*), and the **blue-headed vireo** (*Vireo solitarius*), all depicted in Figure 41.



Figure 41: Left to right: white-eyed, red-eyed, and blue-headed vireos at Magee. Vireos are classified as being in a separate family (*Vireonidae*) from the New World warblers (*Parulidae*), though they are similar in many ways, such as their size and their feeding habits. Many birders consider vireos to be “honorary” warblers, for the purposes of bird watching.

2.5 Rarer Species

There are a number of rarer species—both warblers and non-warblers—that can, on occasion, be seen at Magee. We’ll focus here on four warbler species, starting with the Kirtland’s.

The **Kirtland’s warbler** (*Setophaga kirtlandii*—Figure 42) is an extremely rare bird that, not long ago, was considered an endangered species, and which came close to becoming extinct.

The species has increased in numbers in recent years, and was formally removed from the endangered species list in 2019, though its population remains in the low thousands.

Kirtland's originally bred in Ohio (Henninger, 1906), but it no longer does so, and it now breeds exclusively in young jack pine forests in Michigan, Wisconsin, and southern Ontario, and winters in the Caribbean (Cooper and Marra, 2020).



Though the Kirtland's no longer breeds in Ohio, it is not at all uncommon for an individual to migrate through Ohio, and to stop over at or near Magee Marsh. Sightings at Magee, when they occur, are typically around the second week of May, and are often out among the bushes that grow along the beach (Figure 43), where the birds seem

Figure 42: Kirtland's warbler foraging along the Wildlife Beach Trail at Magee. Though they are still very rare, this formerly endangered bird is sometimes seen at Magee in May—usually for only a day or two. For many birders, the chance to see a Kirtland's is a once-in-a-lifetime opportunity.

to like the scrub habitat that may resemble their wintering grounds in the Bahamas.



Figure 43: The east beach at Magee, where a Kirtland's warbler can sometimes be found. This habitat apparently resembles that of their wintering grounds. The birds typically forage low in the bushes, and often come out in the open. A Kirtland's at Magee can be seen by literally thousands of people in a single day.

The best way to find a Kirtland's warbler at Magee is to be connected to other birders. When a bird is found, news of the sighting travels very quickly, so that within minutes the bird can be surrounded by literally hundreds of birders. Postings on social media sites seem to be the most common way people find out about sightings. I've always just relied on word of mouth, since I know

many birders and photographers at Magee. Though I've been fortunate enough to see and photograph a number of Kirtland's warblers at Magee over the years, I confess that I've never found one myself, and have always relied on information from other people.

The Kirtland's warblers I've seen at Magee have been very approachable, and none of them seemed to mind being surrounded by multitudes of birders. They've tended to stay low in the bushes along the beach, often foraging on the ground, out in the open—which is ideal for photographing them. They seem to stick around for only a day or two after being sighted. Note that males and females of this species have similar plumages, though the males are a bit more contrasty, with slightly richer colors.

I'll conclude this section by briefly mentioning three other species that, while not as rare as the Kirtland's, are uncommon and highly sought-after by the birders at Magee. The first two are the **mourning warbler** (*Geothlypis philadelphia*) and the **Connecticut warbler**

Figure 44: Connecticut warbler (top) and mourning warbler (bottom) at Magee Marsh. These birds always draw a crowd.

(*Oporornis agilis*), both shown in Figure 44. As you can see, these birds are similar in appearance, so care must be taken when identifying them in the field.



These two species, when they're seen, are often found along the western half of the boardwalk or in the thickets at the west end of the parking lot, though they're occasionally seen elsewhere at Magee. When one of these birds is sighted, large crowds quickly form. One section of the boardwalk in particular (which I call "Connecticut Avenue") tends to become impassable every year as sightings of these birds occur there. I've never had much luck photographing these birds at Magee, since they tend to lurk in deep shade and shy away from the crowds on the boardwalk.

The last species I'll mention here is the **golden-winged warbler** (*Vermivora chrysoptera*—Figure 45), also a highly sought-after bird, and a species I've had little luck photographing at Magee. This is another crowd-inducing bird.

The crowds at Magee are in fact both a blessing and a curse: they're a curse in that they can be hard to negotiate on the boardwalk, but they're also a blessing, in that all those pairs of eyeballs are

Figure 45: Golden-winged warbler perched high over the Magee boardwalk. This is another crowd-inducing bird.

useful in finding the birds. I've seen many, many birds over the years that I would not have seen had it not been for other birders pointing them out to me.



2.6 Local Breeders

A number of bird species breed locally at Magee, but I'll focus on just a few, starting with two warblers in particular: the prothonotary and the yellow.



The **prothonotary warbler** (*Protonotaria citrea*—Figure 46) is not only visually stunning, it's also a highly approachable bird that breeds along the boardwalk at Magee and appears to have no qualms whatsoever about being surrounded by immense crowds of birders. I've watched prothonotaries casually preen on a branch while bathing in continuous camera flash from hordes of photographers, apparently oblivious to the attention. I've even seen them walk on the boardwalk, sometimes mere inches from birders

Figure 46: Prothonotary warbler at Magee. Prothonotaries breed at Magee, and they are very approachable. They also tend to be very vocal, emitting a loud sweet-sweet-sweet-sweet that can be heard from far away.

(Figure 47). Be careful not to step on any warblers when you're at Magee!



*Figure 47:
Prothonotary warblers
walking on the
boardwalk railing at
Magee. Be careful not
to step on any
warblers!*

These gorgeous birds are easy to photograph, and though I see many prothonotaries back home, I never hesitate to snap more shots of them when I'm at Magee. It seems that just about every year at Magee we find prothonotary nests along the boardwalk (see Figure 50 in section 2.6)—typically a natural cavity low in a tree. They will often fight over these nest holes with other species such as tree swallows. Prothonotaries are easy to find at Magee by simply listening for their song, which is an intensely loud *sweet, sweet, sweet, sweet*.



While **yellow warblers** (*Setophaga petechia*—Figure 48) appear similar in some ways to prothonotaries, they are fairly easy to identify in the field, due to the red streaking on the breast and the different coloration on the wings. Although yellow warblers also nest at Magee, they don't use tree cavities as do prothonotaries, opting instead to construct their own nests out of twigs and other plant fibers. I've personally found the yellow warblers at Magee to be very difficult to

Figure 48: Male yellow warbler at Ottawa NWR, next to Magee. This species also breeds along the boardwalk at Magee, though I find the males to be much less approachable (and harder to photograph) than the fearless prothonotaries.

photograph, except when they're on their nests. Though I've seen many yellows at Magee over the years, I have very few good photos of them. I did have some luck once at Ottawa National Wildlife Refuge, which is situated next to Magee Marsh, and is worth a trip, though the habitat is quite different from that at Magee (as we'll discuss in the next section).

Common yellowthroats (*Geothlypis trichas*) also nest at Magee, but I've found them similarly difficult to approach. I've often wondered if the locally breeding birds (apart from the prothonotaries) are more wary because, unlike the other migrants that are still en route to their breeding grounds, they're not strictly focused on refueling for the lake crossing.

Bald eagles (*Haliaeetus leucocephalus*—Figure 49) are also commonly seen at Magee Marsh, and indeed they can be found all along the lands bordering the southern shore of Lake Erie. In some years they have even nested at Magee next to the boardwalk. Other raptors that nest at or near Magee include the **Eastern screech owl**

(*Megascops asio*) and the **great horned owl** (*Bubo virginianus*). Screech owls have been found nesting both along the boardwalk at Magee and along the Estuary Trail west of the parking lot, while great horned owl nests have been found at Ottawa NWR (Figure 50).



Figure 49: Bald eagle soaring over the parking lot at Magee Marsh. Eagles have nested at Magee for a number of years, both along the boardwalk and behind the Sportsmen's Migratory Bird Center. Eagles are in fact plentiful all along Lake Erie. It's easy to forget that they were once an endangered species.

Figure 50: Four nests at or near Magee Marsh: (clockwise from upper left) screech owl, great-horned owl (Ottawa NWR), prothonotary warbler, and yellow warbler. It's a testament to the quality of the habitat at Magee that so many birds nest there.



2.7 Finding the Birds

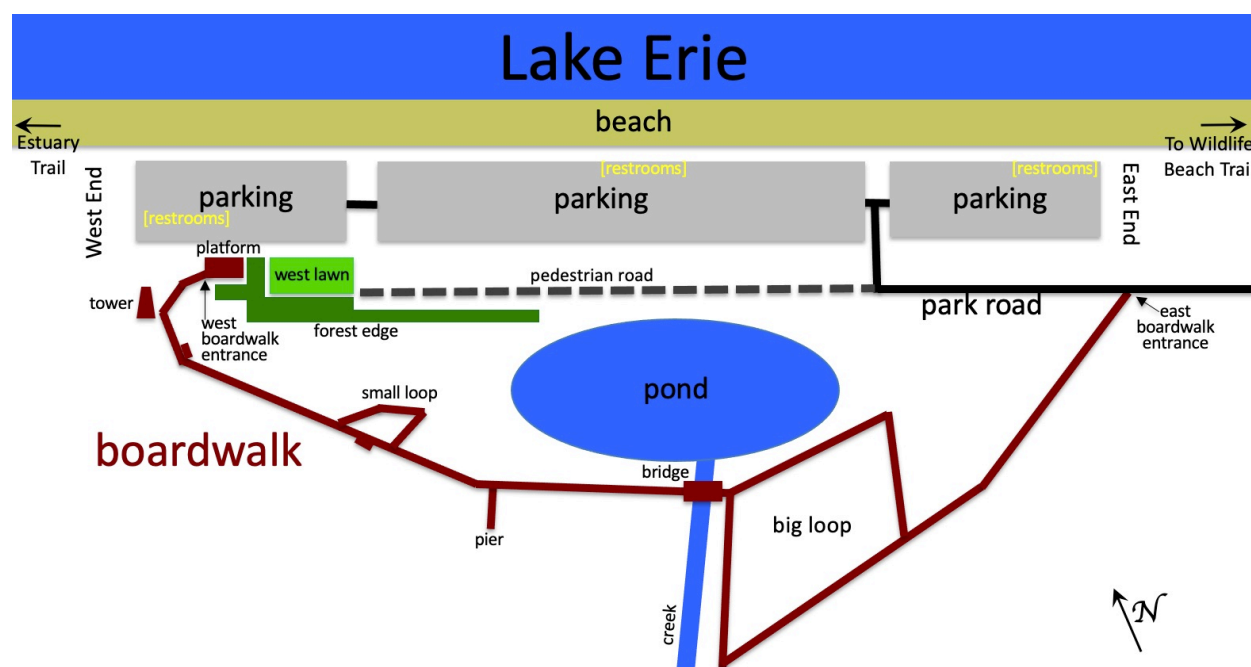
Magee is a big place, and on a first visit it can be daunting to try to figure out where to spend your time. Fortunately, the best birding tends to be on the boardwalk. However, there are a number of other locations that are worth checking out as well. We'll go through these one by one.

First, I'll just note that while some birders like to play bird songs on their cell phone to attract

the birds, that's frowned upon at Magee—and often unnecessary, given the bird abundance on peak days.

2.7.1 Main Parking Lot

The main parking lot is located at the far end of the access road into the park, right on the shore of Lake Erie, and provides access to the boardwalk and several other trails and birding spots (see Figure 51, below).



During the peak of the migration, you may start to see (or hear) birds as soon as you get out of your vehicle, since there's often bird activity along the forest edge immediately to the south of the

Figure 51: The Magee boardwalk and nearby areas. Though there are other places at Magee where you can find birds, this is where most of the action happens.

parking lot (see Figure 52 for a photo of a Nashville warbler I found singing there one morning). Indeed, for many birders, it can take quite a long time just to get out of the parking lot and onto the boardwalk, due to the bird activity there on good days in May.



Figure 52: Nashville warbler singing beside the parking lot at Magee. On good days, you can do quite a lot of birding before even leaving the parking lot!

It's a good idea to make sure you close your windows before leaving your vehicle: on one occasion a northern parula flew inside my car and I had trouble getting it to leave!

Baltimore orioles are often seen in the immediate vicinity of the parking lot, particularly

in the west lawn or in the sparse line of trees that separate the parking area from the beach. Scarlet tanagers are sometimes seen in this area as well.



The woods bordering the western edge of the parking lot can sometimes be productive. I once found a mourning warbler lurking in the bushes there—and I didn't have to contend with huge crowds to see it (as I normally would on the boardwalk).

In some years woodcocks and whip-poor-wills have been found in the grassy areas bordering sections of the parking lot.

Figure 53: Male Baltimore oriole at Magee. I most often see these birds in the main parking lot next to the lake. In the past, some people have used oranges to bring them down to the lower branches to photograph them, though feeding is not permitted at Magee.

2.7.2 Platform and West Lawn

Immediately next to the parking lot toward the western end is a grassy area beside a wooden platform that serves as the entrance to the boardwalk. Mounted on the platform is a handy display illustrating many of the species you can see at Magee. Photographers will often set up their tripods on this platform, since there can be quite a lot of bird activity along the forest edge here.

The lawn next to the platform can also be very productive. Birds will sometimes come out of the forest to the massively large tree that grows there. During the festival, tents will typically be erected in the lawn for vendors and banding demonstrations. Mourning and Connecticut warblers are sometimes spotted just inside the woods along the edge of the lawn.

2.7.3 Pedestrian Road

Running beside the parking lot from the west lawn to the main access road is a section of roadway that has been blocked off from vehicles, but is open to

pedestrians. Photographers with big camera rigs often set up here or in the west lawn, since it can be hard to use tripods on the boardwalk. I've mostly found the western end of the pedestrian road to be the most productive part, though on some days it's pretty dead. Be sure to check the trees on the other side of the road, since birds will sometimes come out into the open there.

2.7.4 The Boardwalk

The boardwalk (which is wheelchair accessible) is under a mile long, and as shown in Figure 51, it has two entrances—one at the east end, and one at the west end. Since most people start at the west end, that's the section that tends to be the most crowded. For that reason, I sometimes start at the east end instead.

If you start at the west end, you'll pretty quickly come to a wooden tower. The tower is usually pretty crowded, but it can be very productive, if you can find room. At the top of the tower you're near the tops of some of the shorter trees, so you can get eye-level views of any bird

that doesn't feel like coming down to the level of the boardwalk—like the Tennessee warbler hanging upside down in Figure 54.



Figure 54: Tennessee warbler foraging upside down at the top of the tower on the Magee boardwalk. Though the tower can get quite crowded, it's a great opportunity to see those birds that forage higher up in the canopy. On some days the birds don't come down as low as on other days, and on those days it's nice to be able to go up to their level.

Continuing past the tower, you'll go around a gentle corner and come to a long straightaway. This is what I call "Connecticut Avenue," since large crowds often form along various stretches here in search of Connecticut, mourning, or golden-winged warblers, or other highly-sought rarities. It's worth noting at this point that there are numbers etched into the boardwalk at regular intervals, and as you proceed from west to east,

those numbers increase. These markers are useful for communicating with other birders about sightings at particular locations.

Connecticut Avenue is interrupted around marker 7 by a small loop surrounded by open woods that I've often found to be very productive. Further eastward is a small pier that juts off into the marsh to the south. In 2008 a juvenile summer tanager was seen here by a massive crowd that nearly overflowed the boardwalk; the bird came so close to me that my camera could barely focus on it (Figure 55).

Figure 55: Juvenile summer tanager on the boardwalk at Magee. This bird was photographed by hundreds of birders that had amassed around it. The crowd was so thick that I had to hand-hold my big 600 mm f/4 lens to be able to get this shot.



The rest of this straightaway can be very productive, as it's largely surrounded by open woods with lots of space. I've had some of my closest encounters with birds here, including the ovenbird shown in Figure 56. That bird was foraging on the forest floor close to the boardwalk. In order to get this eye-level shot, I had to lie on my belly on the boardwalk with my huge 600 mm $f/4$ lens. People were literally walking on me as they went by.

Figure 56: Ovenbird foraging on the ground next to the boardwalk. This is the same individual shown in Figure 26 in section 2.3. Both of these images illustrate the value of getting low when shooting ground-foraging birds.



At marker 16 the boardwalk splits to form what people call “the big loop”. This eastern half of the boardwalk is a bit different, since it’s mostly next to water. Some sections border one of several ponds, while others border a canal that runs along the open marsh to the south.

All sections along the big loop, and beyond, can be good for birding. Some sections are more open than others, some more bushy, some more marshy, and the bird activity varies from day to day. I find the eastern sections to be a little more productive in the afternoons. One rainy day I spent hours along the western edge of the big loop shooting birds. The trick on slow days is to patiently patrol the boardwalk until you come across a bird. Songbirds often forage in mixed-species flocks, so once you find one bird, you’re likely to find others nearby.

The easternmost stretch of the boardwalk, from marker 29 to 33, runs along the open marsh, where you’ll often see herons and egrets, beavers, several species of swallows, gallinules, snakes, and

other wildlife. Warblers sometimes forage at eye level in the bushes along here.

Leaving the boardwalk at this end, if you continue along the road to the east, you can often find swallows and blackbirds among the reeds in the open marsh. Further out along the causeway, in May you'll sometimes see geese with their goslings—and occasionally an eagle hoping to take a gosling or two back to its nest.

2.7.5 Estuary Trail

A few years ago a new trail was established to the west of the boardwalk, called the Crane Creek Estuary Trail. This is a very wide, open trail that runs atop a causeway beside Crane Creek where it meets Lake Erie. The trail is accessed from the beach at the west end of the parking lot at Magee. The first part of the trail features woods on both sides, where you may encounter thrushes and occasionally warblers. The further parts of the trail have open water on one side and marsh on the other. This can be a good place to see shorebirds, when conditions are right. One year there was a

screech owl's nest in a dead tree where the trail opens up (Figure 50 in section 2.6). Near the beginning of the trail you'll sometimes find banders capturing birds with mist nets (Figure 57).



Figure 57: A warbler caught in a mist net at a banding station. The birds probably don't enjoy it very much, but banding is important for science, and promises to provide benefits to the birds in the long run.

2.7.6 Wildlife Beach Trail

To the east of the main parking lot at Magee is a trail that runs through a short stretch of woods beside the grassy overflow parking area, and then comes to the beach. Kirtland's warblers, when they show up at Magee, are often found here, apparently due to the shrub habitat. Other warblers

can sometimes be found here, though I've never found it to be as good as the boardwalk. Gulls and terns can sometimes be seen on the lake.

2.7.7 Sportsmen's Migratory Bird Center

On the way into the park, before reaching the parking area at the far end, you'll pass the Sportsmen's Migratory Bird Center. Behind the center is a loop trail where you can sometimes find warblers. There is a bird blind on the far side of the loop. Across the main road from the center is a grassy trail called Woodies Roost Trail, which connects Magee Marsh with Ottawa NWR to the west.

2.7.8 Ottawa NWR

To the west of Magee Marsh is Ottawa National Wildlife Refuge, which features wooded hiking trails and a long auto route called the Wildlife Drive. Note that the Wildlife Drive may be closed in certain seasons and on certain days of the week. I've seen warblers, owls, and eagles there. I don't think Ottawa NWR is as good for getting close to

warblers as the boardwalk at Magee, though one year I had some luck photographing yellow warblers there at close range—something I’ve had trouble doing on the Magee boardwalk.

2.7.9 Other Nearby Sites

It’s worth noting that there are other sites in the area that may be worth a visit if you tire of the boardwalk at Magee.

Metzger Marsh is a wildlife area located adjacent to Ottawa NWR. It features a marina with views of the open water where you may find ducks, gulls, terns, eagles, herons, and other wildlife.

Oak Openings Preserve Metropark in Toledo is a large city park that can be good for a variety of migrant birds, especially in late spring. This may be of particular interest to those staying in Toledo.

There are many other natural areas along the southern shore of Lake Erie that can be productive for bird watching, and these can generally be accessed via Route 2, the highway that runs past Magee. I highly recommend talking to the other

birders at Magee (particularly local residents) to find out which of these may be of interest.

For example, one year I was informed about a bald eagle nest behind a tavern in Sandusky (a town east of Magee on Lake Erie). The birds there turned out to be extremely approachable, and I was able to get very close-up shots of the birds at the nest (Figure 58).



Figure 58: Bald eagle at a nest in Sandusky. The nest was immediately behind the parking lot at a popular tavern on a busy road. As such, the birds had become accustomed to people approaching them, and it was easy to get detailed photos of the birds at the nest. Fortunately, some other birders at Magee told me about the nest, and gave me directions to it.

Chapter 3

Warbler Photography Techniques

Photographing warblers and other small, active songbirds is not easy—even at Magee. In this chapter we'll go over a number of tips that can help you to get better photos of these birds. For a more exhaustive treatment of this subject, see my free online book, *Secrets of Digital Bird Photography* (www.DigitalBirdPhotography.com), which features an entire section on photographing warblers. Here we'll highlight the more important points from that book.

3.1 Equipment for Photographing Warblers

There are two popular options for photographing birds: *digiscoping*, and the use of a standard telephoto lens attached to a DSLR camera. We'll

discuss the equipment used in these two approaches.

3.1.1 Digiscoping

Digiscoping is a method that uses a spotting scope (or even an astronomical telescope) as a lens. For birders who already own a scope, this is a very tempting option. The idea is simple: once you've found a bird in your scope, you position your camera against the scope's eyepiece and take a photo. It can work remarkably well for large, slow-moving birds. For fast-moving birds such as warblers, this can be an exercise in frustration. The main problems with digiscoping relate to focusing and exposure.

In terms of exposure, many digiscoping rigs have relatively small apertures, so they require more light to expose properly, and those smaller apertures can also result in distracting backgrounds due to a large depth of field. The focusing issue is perhaps a more serious hurdle: with digiscoping, you have to focus manually, using the focusing knob on the scope. For fast-moving birds like

warblers, it can be very difficult to keep the bird in sharp focus.

3.1.2 Telephoto Lenses

Because of the aforementioned challenges, a DSLR camera with a telephoto lens is recommended for shooting songbirds in a place like Magee. Since the birds can be so close at Magee, you often don't need a super-long lens. On the boardwalk, I find that a 400 mm $f/4$ is ideal (though 400 mm $f/5.6$ can work nearly as well). While a big 600 mm $f/4$ or 800 mm $f/5.6$ prime lens

Figure 59: The author using his 600 mm lens on the boardwalk at Magee. You don't need a big lens like this at Magee! A hand-held 400 mm lens is typically more useful on the boardwalk, given how close the birds can be, and the difficulty of moving through crowds with a big lens.



can be useful in other locations at Magee, these long lenses are generally difficult to use in the crowded confines of the boardwalk (especially so with tripods). I personally prefer prime lenses for their sharpness, though for general birding you might find a zoom to be useful.

Many photographers with shorter lenses are tempted to use teleconverters to increase their focal length (and hence magnification). The problem with teleconverters is that they both degrade image quality and make autofocus slower and potentially less accurate. I find that 1.4× teleconverters—if of a quality brand—can work fairly well, but 2× converters are often not worth using. On the boardwalk at Magee I've gotten excellent results using a 400 mm lens without a teleconverter.

I do, however, recommend using an extension tube on the boardwalk at Magee. Extension tubes allow your camera to focus closer than it otherwise could, and I've encountered situations at Magee where my camera, without an extension tube, couldn't focus on a warbler because it was too close. I recommend buying a

brand-name tube that has the proper electrical connections, so that autofocus will still work reliably. And keep in mind that with the tube attached you'll lose your ability to focus at longer distances.



Figure 60: The prothonotary warblers at Magee are so tame that you can get within inches of them. If your camera can't focus that close, an extension tube can help.

3.1.3 Flash and other Accessories

An extremely important tool for photographing warblers is flash. Indeed, my whole approach to photographing these tiny, energetic birds is dependent on flash. Most people would assume

that in order to get a tack-sharp image of an active bird, you would need to use a high shutter speed, but as I'll discuss in the next section, I have much better luck using a slow shutter speed together with flash, because it's the flash that "freezes" the bird. This is the same trick used by many photographers to freeze hummingbird wings. Most of the warbler photos in this book were taken at a slow shutter speed of 1/300 sec, using flash to freeze the bird.

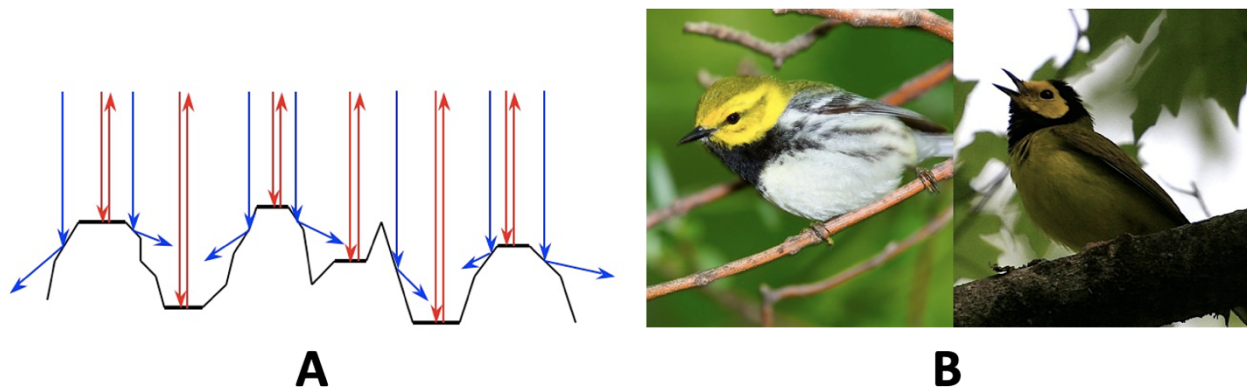


Figure 61: (A) Unidirectional light from flash accentuates microscopic detail on a surface, resulting in an impression of greater detail in the resulting photo. (B) Flash fills in shadows and results in more vibrant colors than ambient light alone. Left: black-throated green warbler with flash. Right: hooded warbler with no flash.

In addition to being useful for freezing motion, flash has two very important advantages. First, because camera flash is unidirectional, it can accentuate microscopic details in a way that omnidirectional ambient light can't. As illustrated in Figure 61A, when unidirectional light strikes a surface with complex microstructure—such as a bird feather—the return beams reflect

differentially from different facets of the surface, creating an effect that I call *microcontrast*. The result is quite often a massive increase in apparent detail in a subject like a bird. Direct sunlight can also create this effect, but indirect ambient light can't, because it's not unidirectional.

The other advantage of flash is that it can—believe it or not—result in more natural coloration in your photographs than ambient light. Though ambient light might seem more “natural” because it originates from the sun, the truth is that in many cases ambient light will have a cast to it that is not present in direct sunlight. Flash light is tuned to mimic the frequency spectrum of direct sunlight, and thus does not have that cast. As you can see in Figure 61B, flash can result in photos that are more vibrant and colorful than photos taken with ambient light alone.

It should be noted that flash is only effective at short distances (due to the physics of light propagation), so when shooting birds further than a few feet away, you'll want to use a *flash extender*. These are simple devices that use a fresnel lens to

magnify and concentrate beams of light emitted by your flash unit. I use one for most of my bird photography, though on the boardwalk at Magee the birds are often so close that the extender is not needed (and can create uneven illumination at those short distances). Another recommended flash accessory is an external battery pack, since flash units can eat through batteries very quickly.

Two low-tech accessories that I also recommend are knee pads and an umbrella mount. I've found knee pads to be very useful for kneeling when shooting birds on the ground (such as ovenbirds). On rainy days you'll want to use an umbrella to keep water droplets off of your glass, and if you use a tripod, there are umbrella mounts you can buy, though I use a bungee cord instead.

3.2 Photographic Techniques

In this section we'll briefly touch on some of the more important aspects of photographic technique required when shooting warblers in the field. Because these issues can be fairly complicated,

you'll want to refer to the online book referenced above for a more in-depth treatment.

3.2.1 Managing Exposure

One of the most challenging aspects of photographing birds lies in the difficulty of properly managing exposure when shooting a small, active subject like a warbler. Although modern cameras come with a number of different modes for automatically choosing exposure parameters (shutter speed, aperture, and ISO), these modes are typically tuned for photographing people and scenery, not for shooting birds, and thus they can over- or under-expose the bird. While it probably makes sense for beginners to start out by using their camera's "fully automatic" mode, I recommend switching to manual mode as soon as possible, because it provides more complete control over the camera without being too difficult to use (once you learn how), as I'll explain next.

My approach, based on manual exposure, is as follows. First, I set my lens' aperture to wide-open ($f/4$ or $f/5.6$) to achieve a shallow depth-of-

field (DOF) and maximal light collection. A shallow DOF helps to isolate the bird from its background, thus focusing the viewer's attention on the subject. Next, I set my shutter speed to my camera's *flash sync speed*, which is 1/300 sec, and I set my flash power to 1/32. Through trial and error I then find an ISO setting that produces a good exposure. Once I've found that initial setting, all I have to do when working a bird is to make minor adjustments to the ISO to maintain a good exposure as the bird moves into shadier or sunnier patches. That is, because I've fixed my aperture and shutter speed, I only have to manage one parameter: ISO. That's not hard to do, once you get the hang of it.

How do I determine if an exposure setting is a "good" one? I do *not* use the camera's light meter for that! Instead, I use *highlight alerts*. If you enable your camera's highlight alerts, then whenever you take a photo, your camera will highlight (on your camera's LCD screen) any parts of an image that are overexposed—i.e., regions that are so bright that the detail in that region is

obliterated. These regions show up as blinking red on my camera's LCD. To find a good initial exposure, I continually increase the ISO until the highlight alerts just barely start blinking, and then I turn it back one click. This gives me *the brightest exposure that doesn't blow any highlights*. This is a very popular approach, and is referred to as *Exposing to the Right*, or *ETTR*. ETTR helps to avoid underexposure and to retain maximal pixel-level information in the image without losing detail due to blowing highlights.

Choosing flash power is a little trickier, but fortunately I find that once I've found a good setting I typically don't have to change it very often. The main factors are distance to the bird, the plumage coloration of the bird, and the current level of ambient light. For birds that are closer, or that have large white areas in their plumage, you may need to use lower flash power to avoid overexposing the bird or blowing highlights. Also, the ratio of flash to ambient light can affect the relative brightness of the bird versus the

background and impact the aesthetics of the image (Figure 62).



Figure 62: The ratio of flash to ambient light can impact the relative brightness of the subject (such as this female Canada warbler) and the background, and that can impact the aesthetics of the image. Here they're roughly equal, and as a result, the background competes with the subject for attention (though fortunately the background is somewhat blurred due to shallow depth of field).

Note also that strong flash can result in *feather glare*, which typically shows up as color bleaching in specific parts of the bird's plumage.

3.2.2 Achieving Sharpness

There are many technical obstacles to obtaining tack-sharp images of active songbirds such as warblers. We will briefly address some of those here.

The first obstacle is motion—either that of the bird, or of the camera. Obviously, you need to hold the camera as still as possible in order to get sharp photos, and while a tripod can help with that, tripods are hard to use on the boardwalk at Magee. If your lens has an *image stabilization* (IS) feature, you can try using that, but I’ve found that mechanical IS actually causes me to lose many potential shots because the operation of the gyroscope slows autofocus acquisition. I therefore leave IS turned off when shooting active birds, and instead just try to hold the lens as steadily as I can. I find that that works better than using IS.

In terms of bird motion, my approach is, as described earlier, based on the use of flash. Because flash at low power settings has a very short duration (shorter than my camera’s fastest shutter speed), it tends to freeze the bird when ambient light is sufficiently low. However, motion blur can still occur due to ambient light, particularly when the bird is making large movements, such as flapping its wings or jumping from branch to branch (Figure 63).



Figure 63: Canada warbler at Magee. It probably goes without saying that motion blur is less likely if you wait to take the shot until the bird stops flapping its wings...

One way to minimize this is to take a shot every time the bird stops moving (see Figure 64B). By timing your shots carefully, you can often catch the bird when it's almost perfectly still, as it pauses to consider its next move. I call this "working the bird". I follow the bird for as long as I can, taking as many shots as I can, carefully timing each one. Even when I think I've taken enough photos of that one bird, I keep shooting, because when I get home and view the images on the computer I invariably

find that many of the shots need to be discarded due to poor backgrounds, twigs in front of the bird's face, or other problems.

Another big obstacle to obtaining sharp warbler photos is poor autofocus (AF). If you're in the market for a new camera, consider buying a used professional camera rather than a new consumer-grade model, because the pro bodies typically have much more reliable autofocus. I also recommend using single-shot rather than continuous ("servo") AF, using a single center focus point, and turning off AF point expansion. Some cameras allow you to calibrate (or "microadjust") the AF, to counteract any defects in the AF (such as front-focusing or back-focusing), and I've found that necessary even with pro bodies. Finally, some photographers like to use multi-shot drive mode, also called the "spray-and-pray" approach, since it involves taking multiple shots in rapid succession (like with a machine gun). I don't use this approach, because it tends not to work well with flash, but without flash it can be useful.

3.2.3 Shooting for Aesthetics

If you're merely trying to document that you saw a particular bird, or to document a bird's behavior, then aesthetics may not matter much to you. If, however, you're interested in taking artistic photos of birds, then there are a whole host of issues to consider beyond the technical ones we've covered so far.

I've already mentioned the issue of flash ratio, which affects the relative lighting of the subject versus the background, and depth of field, which affects how much of the background is in focus. These characteristics can strongly affect a photo's impact, artistically, by influencing how the viewer interacts visually with the various parts of the image. A related issue is *composition*—the arrangement of elements in the scene. Rather than placing the subject in the center of the frame, photographers often like to put the subject off to one side. Composition is also about the color palette represented in the image. There are no real rules here, because there are no rules in art. The

only rule I use is that I want my photos to be pleasing to the eye. It's all subjective.



Unfortunately, it's very difficult to compose warbler photos in the field, because the birds are typically moving too quickly for me to think about these issues. Instead, I just take as many photos of the bird as I can, in as many poses and positions as possible (Figure 64B), and then evaluate the aesthetics of each shot later during postprocessing (as we'll discuss in the next section). I find that trying to compose in the field just ends up costing me opportunities, because while I'm thinking about which focus point to use or how to position the subject in the frame, the subject often flies away.

Figure 64: (A) Prothonotary warbler chick with steel eye, before and after correction. (B) Northern parula in different poses. I typically take a shot every time the bird changes pose, and sort through them later on the computer.

3.3 Postprocessing

We'll finish this chapter with a very brief overview of digital postprocessing, including adjusting brightness, contrast, and sharpness, as well as some more sophisticated image manipulations such as replacing the background.

3.2.1 Filtering

The first step in postprocessing is to go through all the photos from a shooting session and decide which ones to keep. As described earlier, my strategy is to take as many photos of each bird as possible, and then to sift through them later on the computer. I discard any image that has poor exposure, lack of sharpness, an uninteresting pose, or an unattractive composition. Even without trying to compose in the field, I nonetheless find that just by luck some photos will have a much better composition and background than others in a set.

One thing that complicates filtering is that an image's overall impact can change considerably if you crop it differently. *Cropping* is what happens

when you cut away margins of the image, and it's how we can compose an image in postprocess, effectively moving the subject out of the center of the shot. It can take some time to consider all of the possible ways of cropping an image, but it's well worth going through the effort, because it can turn a merely acceptable image into an exceptional one. I find that it's one of the most creative parts of the image creation workflow.

3.3.2 Routine Adjustments

There are a number of routine adjustments that can (and should) be made to your images in postprocess, and that can often be done with free software. The most common are adjustments to brightness and contrast. I always adjust these so that the brightest part of the photo is nearly pure white and the darkest part is nearly pure black. This impacts the perceived dynamic range of the image.

I never increase the saturation, as I find that doing so often makes the image look artificial. However, I typically do *decrease* saturation

slightly after increasing contrast, since contrast adjustments affect saturation. Note that if your camera can export images in RAW, it's highly recommended that you do so, because RAW files typically retain more information than lossy image formats, and can result in higher image quality, particularly after digital processing.

Another very common adjustment is to sharpen an image. Many novices tend to over-sharpen, and indeed I've removed many bird photos from my web site over the years as I realized later that I over-sharpened them. My approach now is to sharpen an image until it looks good on my computer screen, and then to decrease the sharpness setting just slightly, to be sure I'm not over-sharpening.

3.2.3 Image Manipulation

If you have photo editing software on your computer, there are a number of more sophisticated image manipulations you may consider. I'll mention just a few here.

If you use flash, you may find that in many of your photos the bird has “steel eye” (Figure 64A), which occurs when the flash reflects from the bird’s retina. This can be fixed in software by first painting black over the unsightly reflection, and then placing a single white dot somewhere in the eye. Choosing the best location for the *specular highlight* (the white dot) can be tricky, and takes some practice.

A larger-scale manipulation, which I only rarely use, is to replace the entire background of the image (Figure 65). Many of the habitats at Magee are leafy or twiggy, resulting in backgrounds that are “busy” and that distract the eye. Using image

Figure 65: Palm warbler at Magee. I didn’t like the original background in this photo, so I changed it via digital editing—something I rarely do anymore, because it’s time-consuming and often looks unnatural.



editing software, it's possible to separate the pixels of the foreground (the bird and the branch it's perched on) from the pixels of the background, and then to swap in a new background from another image. I rarely do this, because it takes quite a lot of time and effort, and I find that the result often looks unnatural. It's also possible to selectively edit smaller regions of an image, such as to edit out a single twig in front of a bird. This can also be time-consuming.

An alternative approach is to blur the background rather than replacing it. You still separate the foreground from the background pixels, but then you apply a Gaussian blur filter only to the background pixels. This can help to make a busy background less distracting, but it takes some care to keep the blur filter from bleeding over into the foreground.

All of the foregoing methods are described in much greater detail in my free online book at:

www.DigitalBirdPhotography.com

Chapter 4

Planning a Trip to Magee

In this final chapter we'll very briefly review some of the things to consider in planning a trip to Magee Marsh.

4.1 When to Visit Magee

The most important consideration in planning a trip to Magee is the timing. As discussed in detail in Chapter 2, there are clear trends in the timing of migration, though there is also much variation—both yearly and daily variation. Based on these historical trends, I generally recommend that first-time visitors aim for mid-May, to maximize the number and variety of birds you're likely to see, while minimizing the effect of emerging foliage that can hide the birds. If you go too late, you may struggle just to see the birds behind the leaves,

whereas if you go too early, bird abundance may be low.

As we saw in Chapter 2, different species tend to travel through Ohio at different times in spring. If you review the charts in that chapter, you may find that particular species that interest you migrate through Magee at a particular time in the season. In that case, you'll probably want to plan your visit accordingly. Keep in mind that spring is the main time to visit Magee—there are birds there year-round, but the spring warbler migration is, for most people, the main attraction, and the fall migration is nowhere near as spectacular. Also remember that Magee can get very crowded during the annual festival, so if you have an aversion to crowds, you may want to aim for late April or late May instead of the migration peak in mid-May.

It's also important to remember that even at the peak of spring migration, there can be severe lulls in the birding at Magee, due to changing weather patterns. I've typically planned my visits for a duration of seven to ten days, and I've found that to work well. During that time I'll usually

have a number of truly exceptional birding days, as well as a handful of slow days due to rain or scarcity of birds. In recent years I've cut my visits down to three days centered on May 14th. So far I've been lucky and haven't had any three-day lulls lasting the full length of my stay. Just keep in mind that the shorter your visit, the greater the chance that you'll get unlucky and be there during a lull. As we discussed previously, though fallouts can sometimes be predicted a day or so in advance, longer-term prediction is much harder, and it's probably best to plan based on the historical trends shown by the charts in Chapter 2.

4.2 Travel and Accommodations

If you opt to travel to Magee by air, you can fly into Cleveland, Detroit, or Columbus, and then drive to Toledo. I recommend staying in Toledo, since there are many options in terms of hotels and restaurants. Some of the smaller towns near Magee have hotels, but there may be fewer options in terms of eateries. Wherever you stay, be sure to

ask for the birder's rate, since some hotels offer discounts during the festival.

Finding food can be an issue. Route 2—the main highway running past Magee—is fairly sparse in terms of eateries, though there are some convenience stores that sell snacks. I recommend packing a lunch.

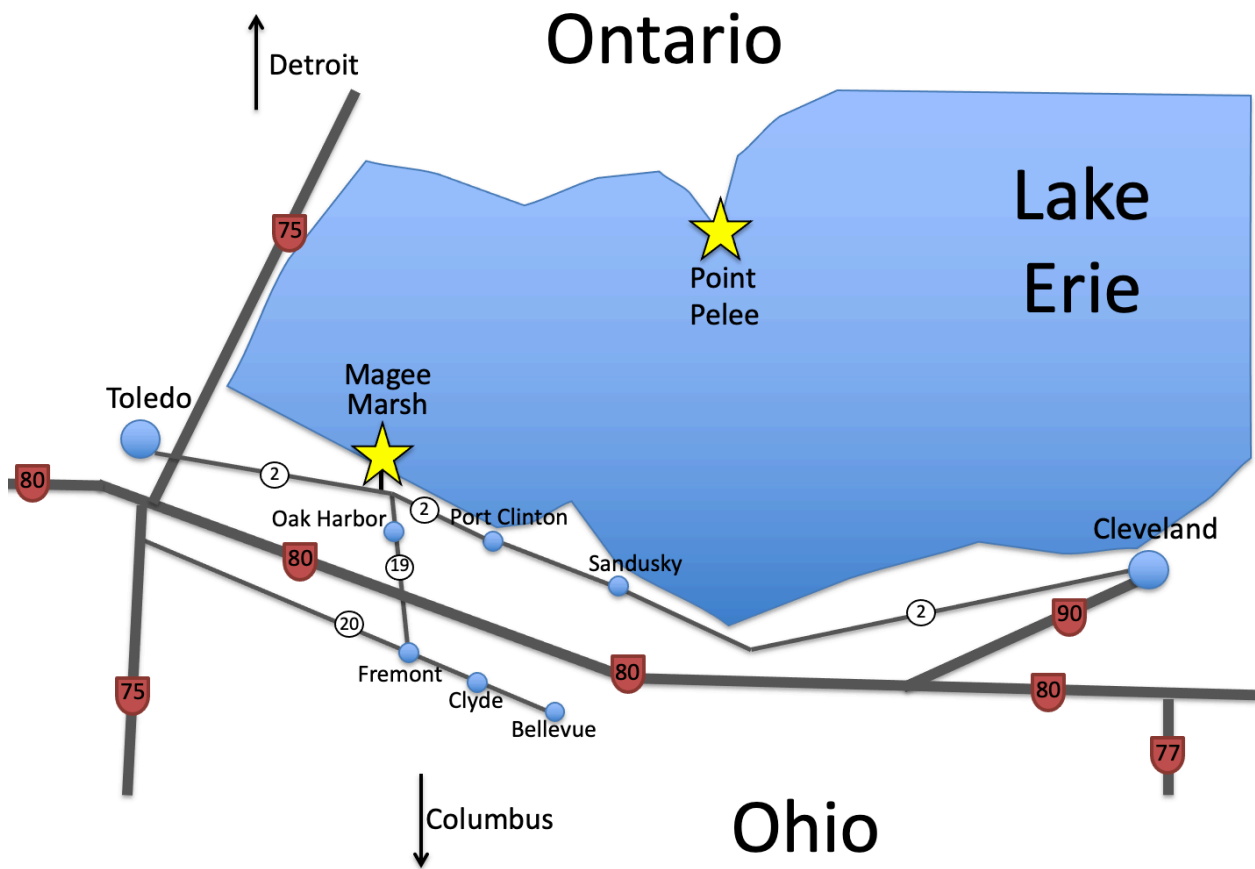


Figure 66: Magee Marsh can be reached via Route 2 from Toledo or Cleveland. (Map based on data from OpenStreetMap).

4.3 The Annual Festival

In most years there is a spring birding festival at Magee, organized by the Black Swamp Bird

Observatory. The festival is very popular, and in past years has featured talks by distinguished speakers, bird banding demonstrations, and guided birding walks. Proceeds from the festival support a good cause. The BSBO is involved in important conservation research, education, and outreach. You can find more information about the BSBO and the annual festival at **www.bsbo.org**.

Note that if you opt not to attend the festival, you can still go birding at Magee, and many visitors to Magee during the migration don't register for the actual festival.



References

- Barker FK, Burns KJ, Klicka J, Lanyon SM, Lovette IJ (2015) New insights into New World biogeography: An integrated view from the phylogeny of blackbirds, cardinals, sparrows, tanagers, warblers, and allies. *The Auk* 132:333–348.
- Berthold, P (1975) Migration: control and metabolic physiology. Pp. 77–128. In: *Avian Biology*, DS Farner and JR King (eds), vol 5. Academic Press: New York.
- Clements JF, Schulenberg TS, Iliff MJ, Billerman SM, Fredericks TA, Sullivan BL, Wood CL (2019) *The eBird/Clements Checklist of Birds of the World: v2019*.
- Cooper NW, Marra PP (2020) Hidden Long-Distance Movements by a Migratory Bird. *Current Biology* 30:4056–4062.
- Cox GW (1960) A Life History of the Mourning Warbler. *Wilson Bulletin* 72:5–28.
- Diehl RH, Larkin RP, Black JE (2003) Radar Observations of Bird Migration Over The Great Lakes. *The Auk* 120:278–290.
- Dunn JL, Garrett K (1997) *A Field Guide to Warblers of North America*. Houghton Mifflin Harcourt.
- Foster JJ, Smolka J, Nilsson DE, Dacke M (2018) How animals follow the stars. *Proceedings of the Royal Society B* 285:20172322.
- Francis CM, Cooke F (1986) Differential Timing of Spring Migration in Wood Warblers (Parulinae). *The Auk* 103:548–556.
- Henninger WF (1906) A preliminary list of the birds of Seneca County, Ohio. *Wilson Bulletin* 18:47–60.
- Kaufman K (2019) *A Season on the Wind: Inside the World of Spring Migration*. Houghton Mifflin Harcourt.
- Markey M (2013) Fest is for the birds—and flock of watchers. *Toledo Blade*, May 11, 2013.
- Markey M, Basting J (2015) A walk through the history of Magee Marsh. *Toledo Magazine*, May 10, 2015, C6.

- Mitchell LR, Benedict L, Cavar J, Najar N, Logue DM (2019) The evolution of vocal duets and migration in New World warblers (Parulidae). *The Auk* 136(2).
- Mollenkopf J (no date) *A Brief History of Magee Marsh*. <https://www.bsbo.org/a-brief-history-of-magee-marsh.html>
- Muheim R, Sjöberg S, Pinzon-Rodriguez A (2016) Polarized light modulates light-dependent magnetic compass orientation in birds. *Proceedings of the National Academy of Sciences* 113:1654–1659.
- Nowakowski JK, Szulc J, Remisiewicz M (2014) The further the flight, the longer the wing: relationship between wing length and migratory distance in Old World reed and bush Warblers (Acrocephalidae and Locustellidae). *Ornis Fennica* 91:178–187.
- ODNR (1999) *Magee Marsh: Cradle of Wildlife*. Ohio Department of Natural Resources.
- ODNR (no date) *Birds of Magee Marsh Field Checklist*. Publication 5342 (R0417). Ohio Department of Natural Resources.
- Pulido F (2007) The Genetics and Evolution of Avian Migration. *BioScience* 57:165–174.
- Sanders CE, Mennill DJ (2014) Acoustic monitoring of migratory birds over western Lake Erie: avian responses to barriers and the importance of islands. *The Canadian Field-Naturalist* 128:135–144.
- Sauer JR, Niven DK, Hines JE, Ziolkowski DJ, Pardieck KL, Fallon JE, Link WA (2017) *The North American Breeding Bird Survey, Results and Analysis 1966–2015*. Version 2.07.2017 USGS Patuxent Wildlife Research Center, Laurel, MD.
- Shieldcastle M (2017) *Migrational Movements and Habitat Usage of Migrant Passerines in the Great Lakes Region: Ottawa National Wildlife Refuge, Ohio*. Progress Report 2017, BSBO-18-1.
- Sillett TS, Holmes RT (2002) Variation in survivorship of a migratory songbird throughout its annual cycle. *Journal of Animal Ecology* 71:296–308.

- Simpson RK, Johnson MA, Murphy TG (2015) Migration and the evolution of sexual dichromatism: evolutionary loss of female coloration with migration among wood-warblers. *Proceedings of the Royal Society B* 282:20150375.
- Terrill RS, Seeholzer GF, Wolfe JD (2020) Evolution of breeding plumages in birds: A multiple-step pathway to seasonal dichromatism in New World warblers (Aves: Parulidae). *Ecology and Evolution* 10:9223–9239.
- Vágási CI, Pap PL, Vincze O, Osváth G, Erritzøe J, Møller AP (2016) Morphological Adaptations to Migration in Birds. *Evolutionary Biology* 43:48–59.
- Wilson A (1812) *American Ornithology, volume 6*. Bradford and Inskeep.

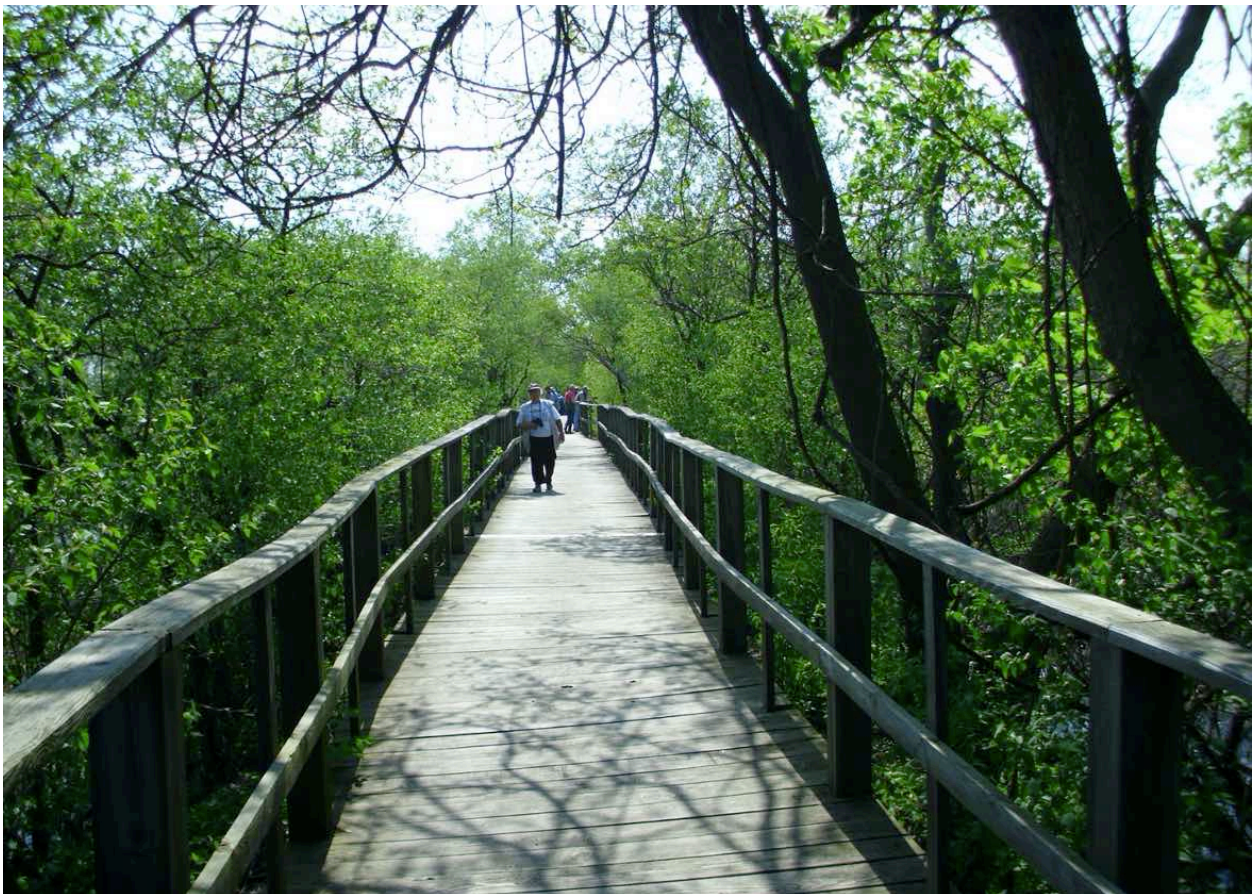


Appendix

For additional information about Magee Marsh,
please visit the web site:

www.MageeMarsh.org

That site contains additional links where you can
find information about the annual birding festival
and other resources.



For more information about photographing birds, the following web site hosts a free instructional manual that covers everything from equipment to field techniques:

www.DigitalBirdPhotography.com



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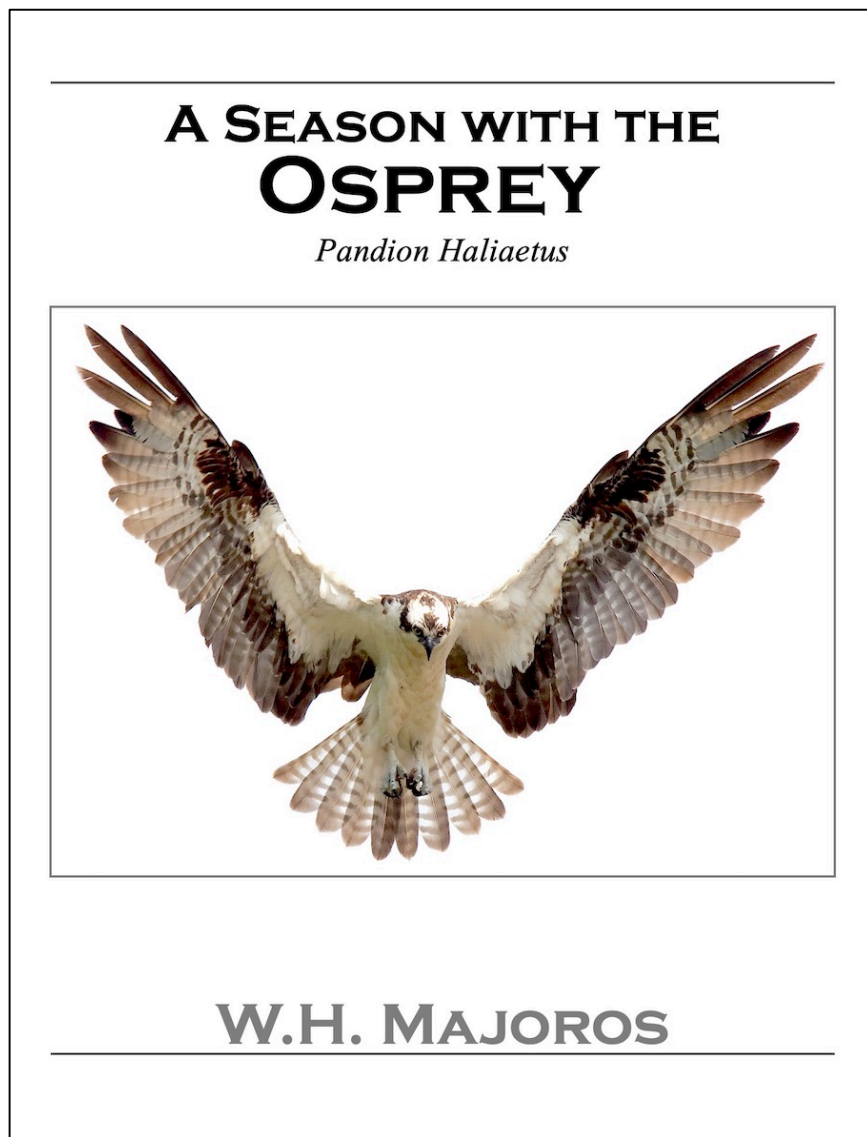


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