

# WEATHER, RADAR, MIGRATION AND FALLOUTS

Migration of warblers is nocturnal, and occurs roughly between March-June and August-November. There are two kinds of peaks of migration: diversity of species and sheer volume of birds. Volume is hard to predict, but diversity typically peaks in the Northeast in early May, and then again in mid-September. Peaks further south, as in Texas, occur earlier (mid April) as the birds arrive there first from their wintering grounds, while peaks in fall occur later. In general, the Spring migration is more condensed, with warbler rushing to get up to breeding ground as quickly as possible, while the fall migration tends to be more protracted.

Every birder has experienced days in their local birding patch where the birds are everywhere, and likewise has seen that same patch be nearly devoid of any birds at all. Predicting which days are “hot” and which days are “cold” is as much art as science, but there are some general guidelines to use during migrations.

First, some areas are just better for warblers than others. We outline some of our favorite warbler spots in our *Warbler Hotspots* article. Each of those areas is favored geographically to be in the path of migrating birds, and also to induce those birds to stop momentarily during their travel. Cape May, for example, is famously good for migration in the fall, when the peninsula that it sits on acts as a funnel for south-bound migrants. Cape May is at the tip of that funnel, so that birds come to the 17-mile stretch of the Delaware Bay and often pause to get their bearings and refuel before continuing on. Large bodies of water can be a major obstacle for migrants - for most of these birds, landing in the water would mean certain death - so water can have a major effect on migratory paths.

A more fleeting but equally important influence on migration is wind. Strong headwinds can make it impractical for birds to fly - too great an energy expenditure for too little gain - so they may stay where they are and feed until the winds shift. Likewise, a tailwind can be a strong inducement to flight. So in the spring, south winds (winds blowing from the south) favor migration, while north winds can be a disincentive. In fall, the opposite is true, with southbound migrants preferring a north wind. The quality of the wind is important as well - moderate tail winds (10-15mph) seem to be ideal for migrants, while much stronger tail winds (25mph+) may actually be too strong. Light winds may not effect a migrant's decision to move, especially later in migration when there is more incentive to go, either to get to the breeding grounds quickly in spring, or to the wintering grounds as cold weather begins to eliminate food sources such as insects in the north.

East and west wind components are critical as well. In Cape May, located on the east coast, an east wind will drive warblers inland, thus missing the area, while a wind with westerly components may drift the birds toward the ocean.

Finally, the multi-day history of the wind is important. In spring, if there has been a strong north wind for several days, and it then shifts to south, it's likely there will be a large movement of pent-up birds. If there is a south wind for several days, there may be a continuous migration, and less dramatic movements of birds in local patches.

The most extreme example of this is called a “fallout”, a condition which birders may experience only once or twice in a lifetime. A fallout can occur in any number of places, but

the birding hotspots along the northern edge of the Gulf of Mexico are famous for them. High Island, Dauphin Island, and other spots along the coast may experience a sudden influx of a huge number of migrants that drop out of the sky like rain, and literally litter the ground and trees as they search for much needed food and rest. One might find hundreds of warblers in a single tree, or thousands along a beach, many of them too exhausted to do more than feed. These events are the result of shifting weather patterns. Transgulf migrants, that is, birds that make a direct flight from Central and South America over the Gulf of Mexico, may start their evening flight over the water with a tail wind. But if the winds shift to north mid-flight, the birds have no choice but to struggle forward to reach the southern coast of the U.S.. In these rare conditions, tens or hundreds of thousands of birds may perish in the waters of the Gulf, while the birds that do make it to land drop down as soon as they can in order to feed and recuperate after their ordeal. Places like High Island, TX and Dauphin Island, AL are located in areas where the birds are likely to make landfall first, and so experience a higher proportion of fallouts than most. That said, a true fallout may only happen once in a season, and can be very hard to predict.

So how can we tell if birds are migrating on a given night? One great way is using radar. Radar actually picks up on bird movements, and there are many smart phone apps and websites where that evening's radar is shown in real time...during migration, there are "blooms" of birds lifting off all over the country on a good migration night. Checking this radar regularly can confirm if birds are moving, and give a sense of whether the birding will be good locally the next day.

Another way to detect birds in migration is to listen. Many birds call frequently while in flight (hence the term "flight call"), and can even be identified by their specific call. If you are lucky enough to be in a good flight path, and if the birds are flying low enough that night (cloudcover helps with this), then you may hear chirps and chips as the birds go overhead. On a light migration night you might only hear a call every minute or two; on a heavy night there may be as many as several per second!

Finally, it can be fun to look for birds flying against the moon. On a night with a bright moon, aim your scope or binoculars and watch the moon's face. Birds flying by may pass through it, and you'll get a quick glimpse of their silhouette as they do. By counting the number of birds that pass through the moon per minute, you can establish a general sense of the density of migration that night.