



Figure 6: Daily low temperatures for 2003, 2004, 2005 and the long-term average from 1979-2002 recorded at O'Hare airport (Weather Underground, Inc. 2005) during late April and May. Note the dips in late April and early May, particularly in 2003 and 2005. Birds may decide not to fly on a given night if the temperature is below a certain cold threshold.

Sherry and Holmes 1996, Ammon and Gilbert 1999, Conway 1999, Guzy and Ritchison 1999, Evans and Young 2000, Lowther et al. 2001).

The birds shown in Table 3 are most likely breeders at the Preserve. They all come from species that have been observed breeding on the site. Most have been captured multiple times within the same year as well as from one migration season to the next. We have yet to obtain a between-year recapture from a species known to use the site purely as a migratory stopover.

Foreign Recaptures

Foreign recaptures are birds captured at SWAMP that had been originally banded elsewhere, or birds originally banded at SWAMP and subsequently captured elsewhere. There have been five foreign recaptures over the four years of the study (Table 4). The Veery we captured in 2002 had been originally banded in 2001. The same is true of the American Redstart we captured in 2005 that had been banded somewhere in Canada (not yet reported) in the previous fall or summer. The Hooded Warbler we captured in 2004 had been banded 8 days earlier

in Ohio, which suggests a curious, westward trajectory along the southern edge of the Great Lakes to SWAMP. Two of our birds were captured a few days after being banded at SWAMP at points in Wisconsin; a Blue-winged Warbler in 2003 near Milwaukee, and an American Redstart in 2005 in Wild Rose, between Wautoma and Waupaca, Wisconsin.

Arrival Date

The timing of migration is affected by the interplay between the photoperiod, internal physiological clocks and weather conditions. The photoperiod is the signal that birds use to initiate pre-migratory behaviors, and then they may fine-tune their migratory

movements in response to weather conditions (Gill 1995). Several studies suggest that migration rates of birds are affected by the ambient temperature conditions they experience en route (Sparks and Menzel 2002, Huin and Sparks 1998, Saunders 1959, Marra et al. 2005). Huin and Sparks (1998) found that migration timing was earlier in warm weather and later in cold. Sparks and Menzel (2002) suggested that birds respond directly to the availability of invertebrate prey, which is affected by temperature. Alternatively, birds may use temperature as a direct cue.

In the spring of 2005, many bird-watchers in the Chicago region had the impression that cool weather pushed the spring migration later than usual. We also got this impression at SWAMP with some very slow days in early May and high capture rates toward the end of the month. We decided to analyze arrival dates to see if the numbers bore out this impression, and also to look at local temperature data to see if there might be a correlation. For these analyses, we used only 2003-2005 SWAMP data because banding was more complete and extensive in these years. It is important to note that our analyses include May arrival dates only, so the variation we analyzed is truncated at the beginning and end of the month.

The average arrival date for most of the century club species was, indeed, significantly earlier in 2004 than in 2003 or 2005 (Figure 4, Table 5). Exceptions include the Magnolia Warbler and American Redstart, who showed either the opposite pattern or no significant variation. This overall pattern of variation is consistent with the prediction that warmer temperatures result in earlier arrivals. Both 2003 and 2005 had later migration

Table 4: Foreign recaptures at SWAMP. Each of these three birds was originally captured at a different banding station.

Species	SWAMP capture	Foreign Capture
Veery	5/5/02	6/8/01 near Ripon, WI
Blue-winged Warbler	5/03	5/03 near Milwaukee WI
Hooded Warbler	5/20/04	5/12/04 Lacarne, OH
American Redstart	5/20/05	5/28/05 Wild Rose, WI
American Redstart	5/28/05	Canada (<i>originally banded prior to SWAMP capture, not yet reported by bander</i>)