Insects are diverse in their habits and a wide variety of trapping methods have been developed to capture them. Bees are no exception. Although malaise traps have traditionally been the method of choice for Hymenoptera, (Matthew and Matthews, 1971; Masner and Goulet, 1981; Noyes, 1989), netting is used more often for bees because it provides better quality specimens and generates floral visitation data. A disadvantage of netting is that it requires more effort than passive collecting methods and can generate limited samples. To overcome this, a second passive collecting method, pan trapping (Leong and Thorp, 1999), is often combined with netting. In an attempt to standardize collecting methods for bees, a Bee Inventory (BI) Plot protocol (http://online.sfsu.edu/~beeplot) was developed that combines netting and pan trapping with specified temporal and spatial parameters for each.

As a side project of a larger study surveying bee diversity in Louisiana longleaf pine savannas (Bartholomew, 2004), we compared the efficiency of a malaise trap protocol with the BI Plot protocol. Because we were surveying for a number of different insect orders (ants, beetles, and grasshoppers), we used malaise and flight intercept traps, which catch a wide range of groups. When we discovered the BI Plot protocol existed, we wanted to know the extent to which our study was compromised, if any, by not using this method. Here, we report results from both trapping protocols over a four month period in one of our savanna sites.

Materials and Methods

Following the BI Plot protocol at the time (it has since been slightly revised), a one hectare plot with three 100-meter transects was staked out in an upland longleaf pine savanna in southeastern Louisiana (Sandy Hollow Wildlife Management Area, Tangipahoa Parish). Along each transect, nine 6 oz. Solo™ brand bowls were placed at 10-meter intervals. A third of the bowls were painted with Ace Hardware™ brand fluorescent yellow paint, a third with fluorescent blue paint, and a third were unpainted and remained white. Pans contained a solution of 5 ml of blue Dawn dish detergent in 4 liter of water. Pans were placed in the plot at approximately 9 A.M. and removed in the afternoon at approximately 3 P.M. Two people netted bees in the plot for 30 minutes each in the morning, and 30 minutes each in the afternoon. Samples were taken on 16 June (afternoon netting cancelled due to rain), 10 July, 29 July and 15 August, 2003.

Our malaise trap (MT) protocol included a malaise trap, flight intercept trap and netting. A Townes (1972) light-weight malaise trap (panel size: 178 cm long, 178 cm high in front and 110.5 cm high in back) was placed within the one hectare plot described above. Two plastic trays (81 cm × 17 cm × 10 cm) were placed below the median barrier for a flight intercept trap. A preservative consisting of a 1:2 mix of Prestone LowTox™ antifreeze and water with detergent (2 ml/liter) was placed in the trays and malaise trap cup. Traps were run for one week periods, once every three weeks during 2003, with each sample starting on the same dates as the BI Plot. Bees were netted by two people for 45 minutes each on each trapping date. Host plant data and a complete list of bee species are in Bartholomew (2004).

To compare protocols, an adjustment was required to standardize netting times and a correction factor of 1.17 was applied to the MT protocol. Paired t-tests of means were calculated to determine if the two trapping protocols differed. Tukey-Kramer HSD was calculated to determine if there were differences among pan colors. Sorenson’s Index was calculated to obtain an estimate of similarity of species caught by each method (Magurran, 1988).

Results and Discussion

The BI Plot appeared to be slightly superior to the MT protocol at collecting bee species and individuals (Table 1). However, pooled totals for the two protocols indicated differences were not significant for species...