This data set includes two R files and three data files, as described below.

**R File #1: nestRmarkPalmerDrought.R**  
This file performs mark-recapture analyses of bumble bee nest detection and creates Figures 3A and 3B (in main manuscript) from the output of the mark-recapture analysis. It also includes post-hoc analyses using linear regression and creates Figures 4A, 4B, and 4C (in main manuscript) from the output of these post-hoc analyses. The supplementary tables S1, S2, and S3 were produced from the mark-recapture analysis model selection output.

**R File #2: drought.figures.R**  
This file contains code for Figure 1 and Figure 2 (in main manuscript) using two datasets of palmer drought indices.

**Data File #1: all years capture history.csv**  
This file contains capture history data for all bumble bee nests detected in our study site over seven years. Each row represents one nest and its associated capture history. This file was used to perform mark-recapture analysis and produce Figures 3 (A&B) and Figures 4 (A&B&C) in the main manuscript. The columns have the following meanings:

Year –Year in which data was collected (2018-2024)

Species – Species identification of the bumble bee nest

Habitat Type – Habitat in which nest was detected (Meadow, Forest, or Hayfield)

S1, S2, S3, S4, S5 – Five separate survey events for each nest. “1” = nest was detected during the survey. “0” = nest was not detected during the survey.

ch – Capture history for each nest, created by collating the detection values across five surveys and representing a record of whether an individual nest was detected or not detected over the course of five surveys.

**Data File #2: palmer index coastal MA monthly.csv**  
This file includes Palmer Drought Indices (PDI) averaged for each month from 2005-2024 in coastal Massachusetts. The data are sourced from <https://www.ncei.noaa.gov/access/monitoring/weekly-palmers/time-series/1903>. This file was used to create Figure 1 in the main manuscript. These PDI values were also used in mark-recapture analysis to interpret effects of drought on bumble bee nest detection. The columns have the following meanings:

year – year in which values were recorded (2005-2024)

january:december – month in which values were recorded for a given year. Values are average PDI values (index values can range from minimum -6 to maximum 6) calculated from weekly PDI values during the calendar month.

**Data File #3: pmdi monthly coastal MA 1960.2024.csv**  
This file includes monthly Palmer Modified Drought Index (PMDI) values from 1960-2024 in coastal Massachusetts. The data are sourced from <https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/divisional/time-series>. This file was used to create Figure 2 in the main manuscript. The columns have the following meanings:

year – year in which values were recorded (1960-2024)

month – month in which values were recorded, presented as numerical representations of each month (i.e. “1”=”January”)

pmdi – Palmer Modified Drought Index value for specified month (index values can range from minimum -6 to maximum 8). PMDI is the operational Palmer Drought Severity Index.