```r
---
title: "PUC Weekly Bird Report"
author: "BirdWeather / PUC"
output:
  pdf_document:
    toc: false
    number_sections: false
fontsize: 11pt
geometry: margin=1in
---


``` r
knitr::opts_chunk$set(echo = FALSE, message = FALSE, warning = FALSE)

library(readr)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##     filter, lag

## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```r
library(lubridate)
library(ggplot2)
library(forcats)

tz_local    <- "Europe/Amsterdam"   # adjust if needed

no_data <- FALSE
reason  <- NULL

# --- Robust path lookup for master_detections.csv ---

# We try both from repo root and from scripts/ (one level below)
candidate_paths <- c(
  "data/master_detections.csv",
  "../data/master_detections.csv"
)

path_master <- NULL
for (p in candidate_paths) {
  if (file.exists(p) && file.info(p)$size > 0) {
    path_master <- p
    break
  }
```

```r
}

if (is.null(path_master)) {
  no_data <- TRUE
  reason  <- paste(
    "Master file missing or empty. Tried paths:",
    paste(candidate_paths, collapse = ", ")
  )
} else {
  df_raw <- read_csv(path_master, show_col_types = FALSE)

  # auto-detect species + time columns
 if (!all(c("timestamp", "species.commonName") %in% names(df_raw))) {
no_data <- TRUE
reason <- paste(
"Expected columns 'timestamp' and 'species.commonName' not found. Columns present:",
paste(names(df_raw), collapse = ", ")
)
} else {
df <- df_raw %>%
mutate(
species = .data[["species.commonName"]],
ts_utc = ymd_hms(.data[["timestamp"]], quiet = TRUE),
ts_local = with_tz(ts_utc, tz_local),
date = as_date(ts_local),
hour = hour(ts_local)
) %>%
filter(!is.na(species), !is.na(ts_local))

if (nrow(df) == 0) {
  no_data <- TRUE
  reason  <- "No valid detections after parsing timestamps and species."
} else {
  # define 7-day window based on latest date in data
  last_date  <- max(df$date, na.rm = TRUE)
  start_date <- last_date - days(6)
  end_date   <- last_date

  df7 <- df %>% filter(date >= start_date & date <= end_date)

  if (nrow(df7) == 0) {
    no_data <- TRUE
    reason  <- paste(
      "No detections in the last 7 days of data (",
      as.character(start_date), "-", as.character(end_date), ")."
    )
  } else {
    # global weekly metrics
    total_detections <- nrow(df7)
    unique_species   <- n_distinct(df7$species)

    most_common <- df7 %>%
      count(species, sort = TRUE) %>%
```

```r
  slice(1)

# confidence if present
conf_col <- intersect(c("confidence","score","probability"), names(df7))[1]
avg_conf <- if (!is.na(conf_col)) {
  mean(df7[[conf_col]], na.rm = TRUE)
} else NA_real_

# top 10 species
top10 <- df7 %>%
  count(species, sort = TRUE) %>%
  slice_head(n = 10)

# BirdNET-style palette
birdnet_colors <- c(
  "#4e79a7","#59a14f","#f28e2c","#e15759","#76b7b2",
  "#edc949","#af7aa1","#ff9da7","#9c755f","#bab0ab"
)

# order species for plotting
top10 <- top10 %>%
  arrange(n) %>%
  mutate(species = factor(species, levels = species))

# time-of-day categories
df7_periods <- df7 %>%
  mutate(period = case_when(
    hour >= 0  & hour <= 4  ~ "Night (0-4)",
    hour >= 5  & hour <= 8  ~ "Dawn (5-8)",
    hour >= 9  & hour <= 11 ~ "Morning (9-11)",
    hour >= 12 & hour <= 16 ~ "Afternoon (12-16)",
    hour >= 17 & hour <= 19 ~ "Evening (17-19)",
    hour >= 20 & hour <= 23 ~ "Night (20-23)"
  ))

tod <- df7_periods %>%
  count(period) %>%
  mutate(period = factor(period, levels = c(
    "Night (0-4)", "Dawn (5-8)", "Morning (9-11)",
    "Afternoon (12-16)", "Evening (17-19)", "Night (20-23)"
  )))

# daily detection trends
daily_trend <- df7 %>%
  count(date) %>%
  arrange(date)

# new species in this 7-day window
first_all <- df %>%
  group_by(species) %>%
  summarise(first_date = min(date), .groups = "drop")

new_this_week <- first_all %>%
```

```
      filter(first_date >= start_date & first_date <= end_date) %>%
      left_join(
        df7 %>% count(species, name = "detections_this_week"),
        by = "species"
      ) %>%
      arrange(first_date)
  }
}

}
}
if (no_data) {
cat("No data available for this weekly report.\n\nReason:\n", reason)
} else {
summary_tbl <- tibble::tibble(
Metric = c(
"Total detections",
"Unique species",
"Most common species",
"Detections of most common",
"Average confidence"
),
Value = c(
total_detections,
unique_species,
most_common$species,
most_common$n,
if (!is.na(avg_conf)) sprintf("%.1f%%", avg_conf * 100) else "n/a"
)
)

cat(
"Period: ",
as.character(start_date), " - ", as.character(end_date), "\n\n",
sep = ""
)

knitr::kable(summary_tbl, align = c("l","r"))
}
```

Period: 2025-12-16 - 2025-12-22

Metric	Value
Total detections	2348
Unique species	46
Most common species	European Robin
Detections of most common	1452
Average confidence	80.9%

```
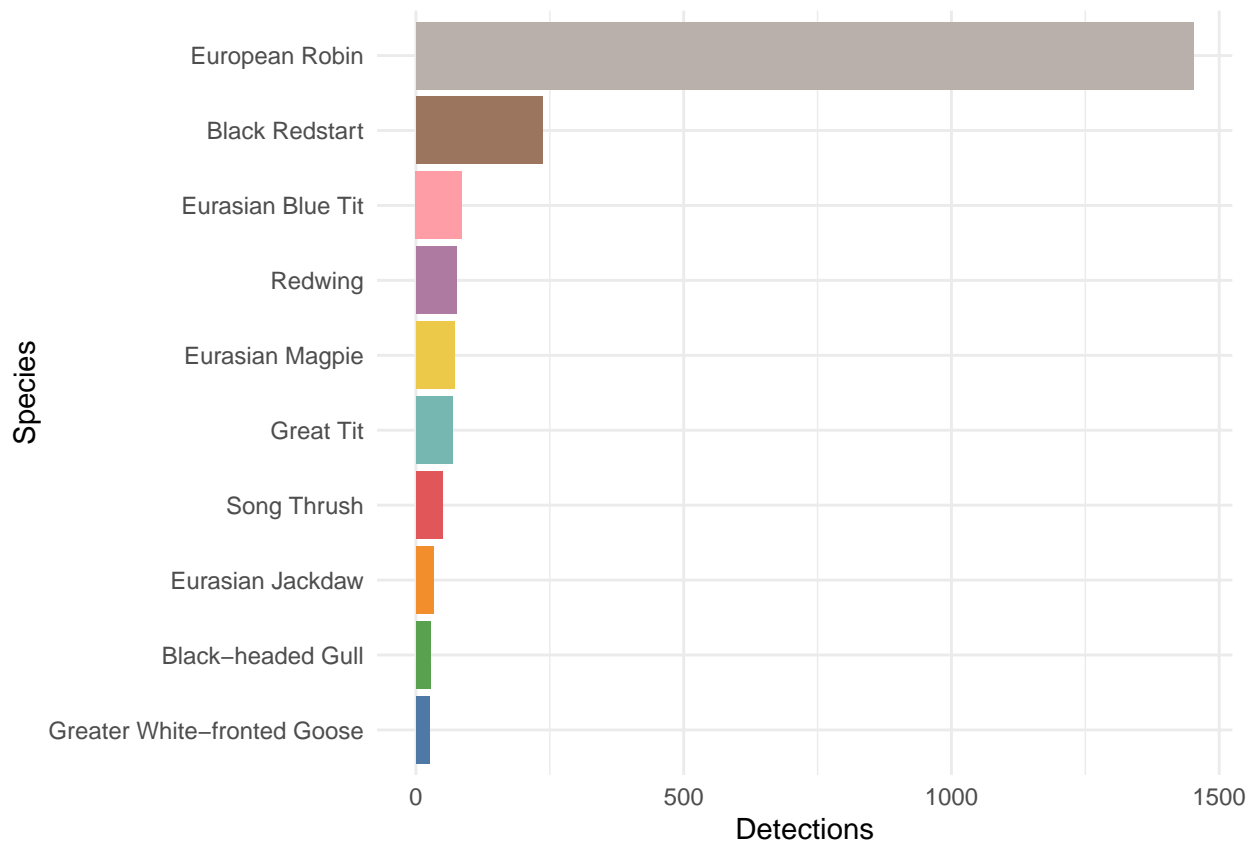if (!no_data) {
ggplot(top10, aes(x = species, y = n, fill = species)) +
```

```
geom_col() +
scale_fill_manual(values = birdnet_colors) +
coord_flip() +
labs(
x = "Species",
y = "Detections"
) +
theme_minimal(base_size = 11) +
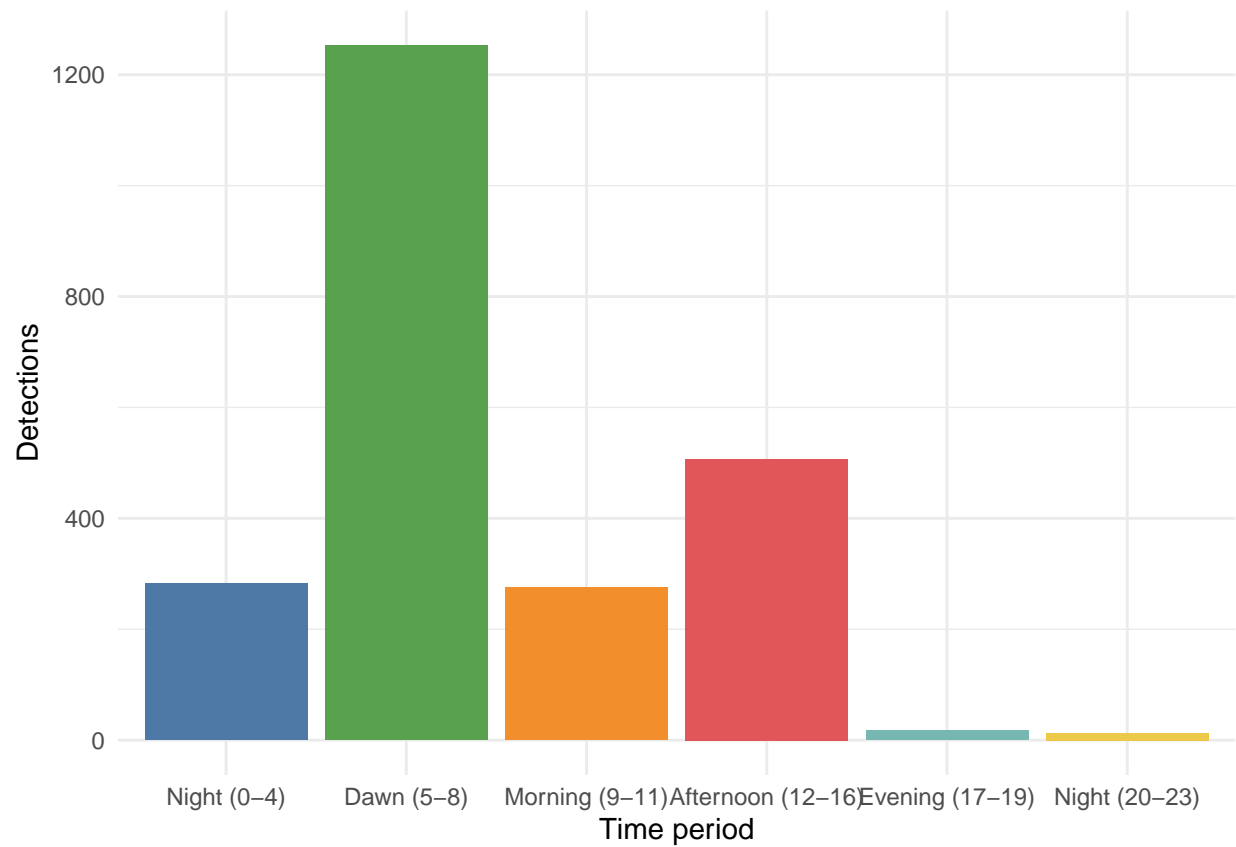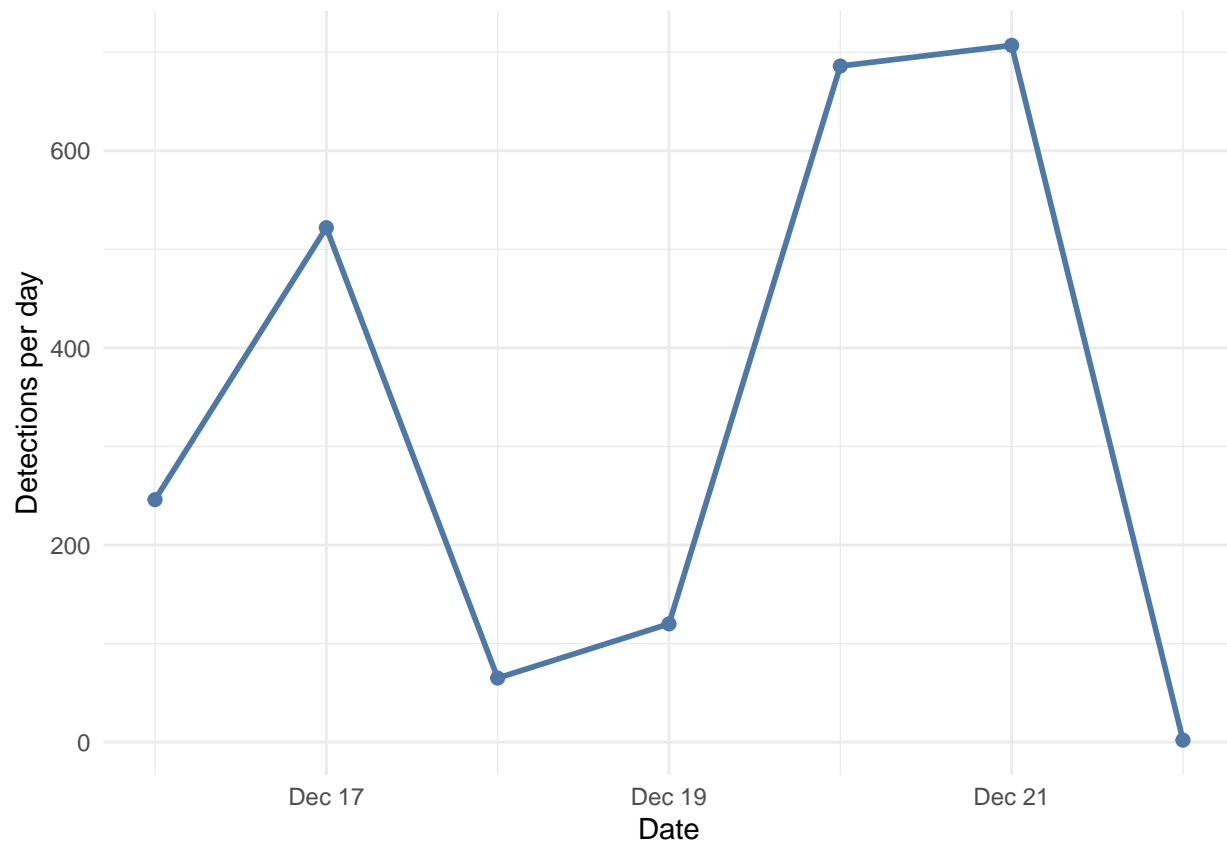theme(legend.position = "none")
}
```



```
if (!no_data) {
ggplot(tod, aes(x = period, y = n, fill = period)) +
geom_col() +
scale_fill_manual(values = birdnet_colors) +
labs(
x = "Time period",
y = "Detections"
) +
theme_minimal(base_size = 11) +
theme(legend.position = "none")
}
```

```
if (!no_data) {
ggplot(daily_trend, aes(x = date, y = n)) +
geom_line(color = "#4e79a7", linewidth = 1) +
geom_point(color = "#4e79a7", size = 2) +
labs(
x = "Date",
y = "Detections per day"
) +
theme_minimal(base_size = 11)
}
```

```
if (no_data) {
cat("No data available.")
} else {
if (nrow(new_this_week) == 0) {
cat("No new species detected in this 7-day period.")
} else {
knitr::kable(
new_this_week %>%
select(species, first_date, detections_this_week),
col.names = c("Species", "First detection", "Detections this week"),
align = c("l","c","r")
)
}
}
```

Species	First detection	Detections this week
Common Chaffinch	2025-12-16	1
Common Snipe	2025-12-16	1
Ring-necked Pheasant (Ring-necked)	2025-12-16	3
Ruddy Turnstone	2025-12-19	2
Eurasian Jay	2025-12-21	1