**Analyzing Factors – Dataset:**

* EDA
* Data Collection
* Data Understanding
* Data Cleaning
* Data Transformation
* Data Visualization

**Skills take away from Project:**

1. Data Cleaning and Preprocessing
2. Exploratory Data Analysis (EDA)
3. Data Visualization
4. Geographic Analysis
5. Trend Analysis

**Goal of the Project:**

* Observation data of bird species present in ecosystems.
* Identifying patterns of habitat preference.
* Impact of these habitats on bird diversity.
* Habitats conservation (Wildlife conservation).

**Overview**

This dashboard provides an analytical overview of bird observations from the 2018 survey, summarizing key metrics, species diversity, observation conditions, and survey effort. Use these visualizations to explore patterns in species occurrence, environmental conditions, observer participation, and survey site characteristics.

**Insights**

* Elizabeth Oswald contributed the highest survey effort, making the largest number of observations among all observers.
* Survey effort is relatively well distributed among the three main observers, with each providing a significant share of the total observations.
* Most bird observations occurred during "Partly Cloudy" and "Clear or Few Clouds" weather, particularly when wind speeds were light (1-3 mph).
* Very few observations were made during mist/drizzle and fog conditions, regardless of wind speed.
* The majority of observations were recorded at temperatures between 20-25°C, with much fewer observations at both higher and lower temperatures.
* Average humidity levels remained stable across most temperature ranges but increased sharply in the 30-35°C range, even though fewer observations were made at these higher temperatures.
* The Northern Cardinal was the most frequently observed bird species, with the Carolina Wren being a close second; observation counts dropped noticeably after these top two species.
* Singing was the dominant observation method for the top 5 most observed species, far surpassing other methods such as visualization.
* Visualization was a significant observation method only for the Northern Cardinal among the top 5 species.
* Among non-watchlist species, Indigo Bunting, Eastern Wood-Pewee, and Field Sparrow had the highest observation counts.
* The Eastern Towhee was the most frequently observed species on the Partners in Flight (PIF) Watchlist, with a substantial gap in observations compared to other watchlist species.

**QUERIES:**

1. **Temporal Analysis**

* Goal: Analyze trends over time (year, date, time of day).
* Relevant columns: Year, Date, Start\_Time, End\_Time.
* Power BI visuals: Line charts for counts per year/month, heatmaps for time-of-day activity.

1. **Spatial Analysis**

* Goal: Explore patterns by location.
* Relevant columns: Admin\_Unit\_Code, Sub\_Unit\_Code, Site\_Name, Plot\_Name, Location\_Type.
* Power BI visuals: Maps (using latitude/longitude if available), bar charts by site or region.

1. **Species Analysis**

* Goal: Examine species diversity, abundance, and trends.
* Relevant columns: Common\_Name, Scientific\_Name, AcceptedTSN, NPSTaxonCode, AOU\_Code, PIF\_Watchlist\_Status, Regional\_Stewardship\_Status
* Power BI visuals: Bar charts for species counts, pie charts for status categories, trend lines for key species.

1. **Environmental Analysis**

* Goal: Assess how environmental factors affect observations.
* Relevant columns: Temperature, Humidity, Sky, Wind, Disturbance
* Power BI visuals: Scatter plots (e.g., species count vs. temperature), boxplots for environmental conditions.

1. **Distance and Behaviour Analysis**

* Goal: Analyze how distance and observed behaviors relate to other variables.
* Relevant columns: Distance, Flyover\_Observed, Sex, Previously\_Obs, Initial\_Three\_Min\_Cnt.
* Power BI visuals: Histograms for distance, stacked bars for behavior by species or site.

1. **Observer Trends**

* Goal: Track observer activity and potential bias.
* Relevant columns: Observer, Visit, ID\_Method
* Power BI visuals: Bar charts for observations per observer, pie charts for ID methods.

1. **Conversational Insights**

* Goal: Summarize key findings, outliers, and patterns.
* Approach: Use Power BI’s text boxes, cards, and DAX measures to highlight insights (e.g., “Most observed species,” “Peak observation month,” “Observer with most records”).