Giant cuttlefish
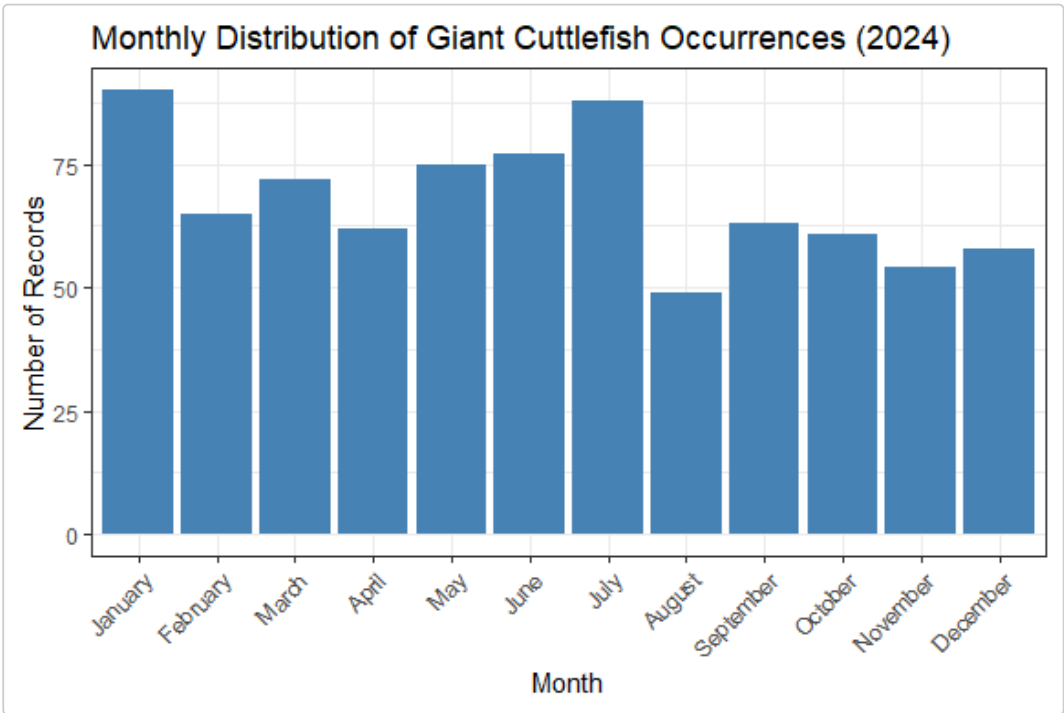

Giant Cuttlefish

We are investigating occurrence data of the **Giant cuttlefish** in Australia from the **Atlas of Living Australia**, and make a map showing the spatial locations of sightings for 2024.
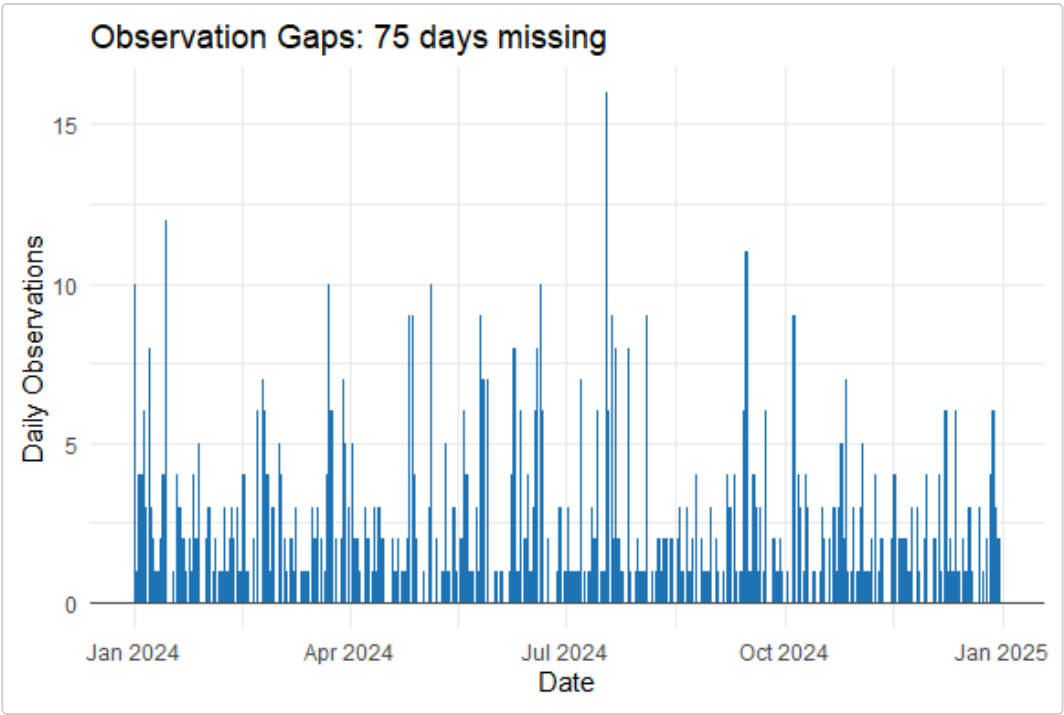
```
#> # A tibble: 6 × 5
#>     lat   lon  year eventDate            scientificName
#>   <dbl> <dbl> <dbl> <dttm>               <chr>
#> 1 -43.2  147.  2024 2024-03-24 12:47:00 Sepia
#> 2 -43.2  148.  2024 2024-06-08 13:40:00 Sepia
#> 3 -43.2  148.  2024 2024-02-03 15:04:55 Sepia
#> 4 -43.1  148.  2024 2024-10-05 13:08:00 Sepia
#> 5 -43.1  148.  2024 2024-10-05 13:51:00 Sepia
#> 6 -43.1  148.  2024 2024-10-05 13:52:00 Sepia
```

the length of the records is 814

Monthly Distribution of organism (2024)

Data Regularity & Temporal Gaps

Observation Gaps: 75 days missing

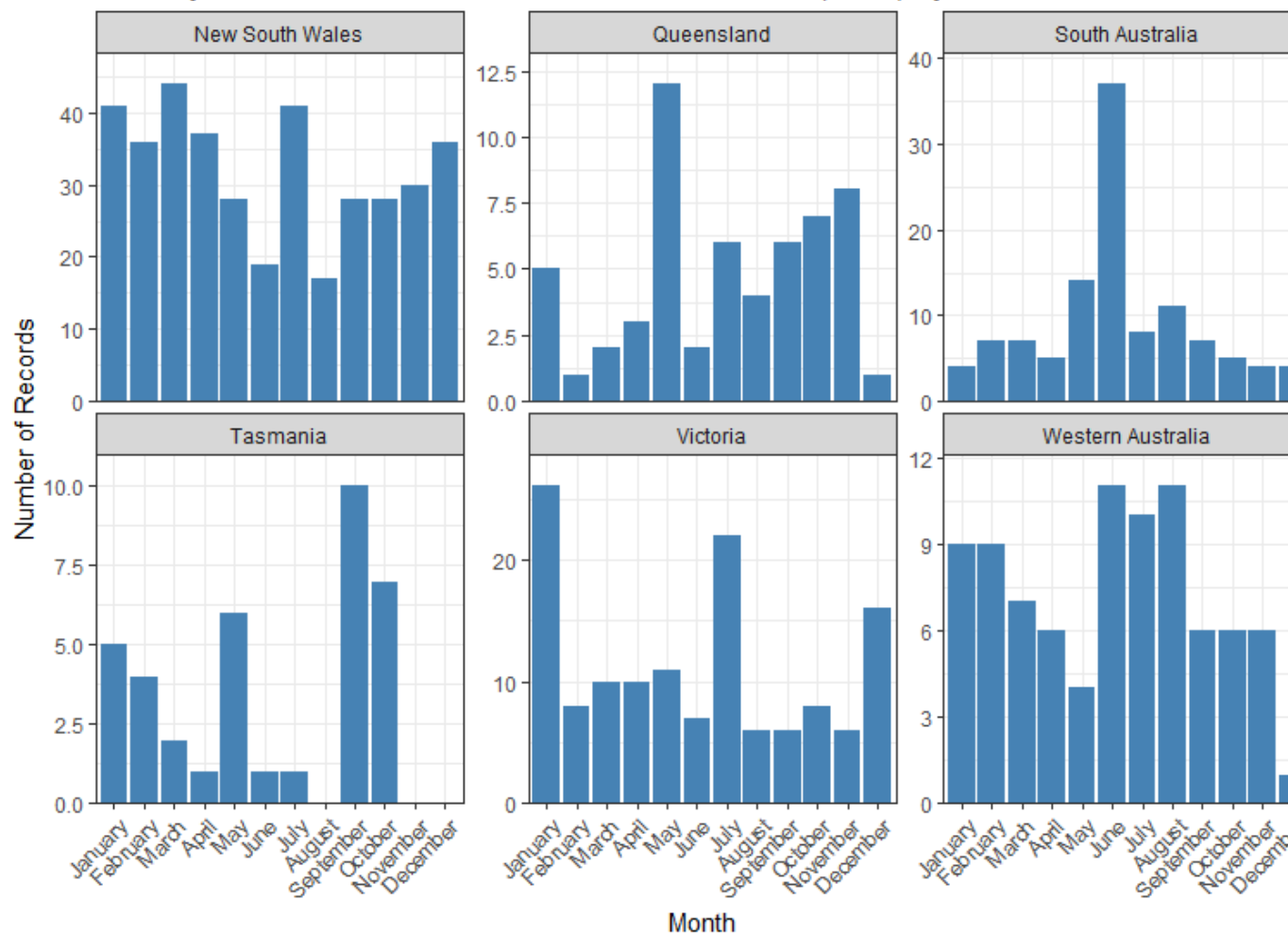## Nearest Weather Station Mapping

```
#> # A tibble: 3 × 12
#>   lat.x lon.x  year eventDate           scientificName weather_station_id stname
#>   <dbl> <dbl> <dbl> <dttm>              <chr>          <chr>              <chr>
#> 1 -43.2  147.  2024 2024-03-24 12:47:00 Sepia          949610-99999       DOVER
#> 2 -43.2  148.  2024 2024-06-08 13:40:00 Sepia          959860-99999       TASMA…
#> 3 -43.2  148.  2024 2024-02-03 15:04:55 Sepia          959860-99999       TASMA…
#> # i 5 more variables: lat.y <dbl>, lon.y <dbl>, address <chr>, city <chr>,
#> #   state <chr>
```

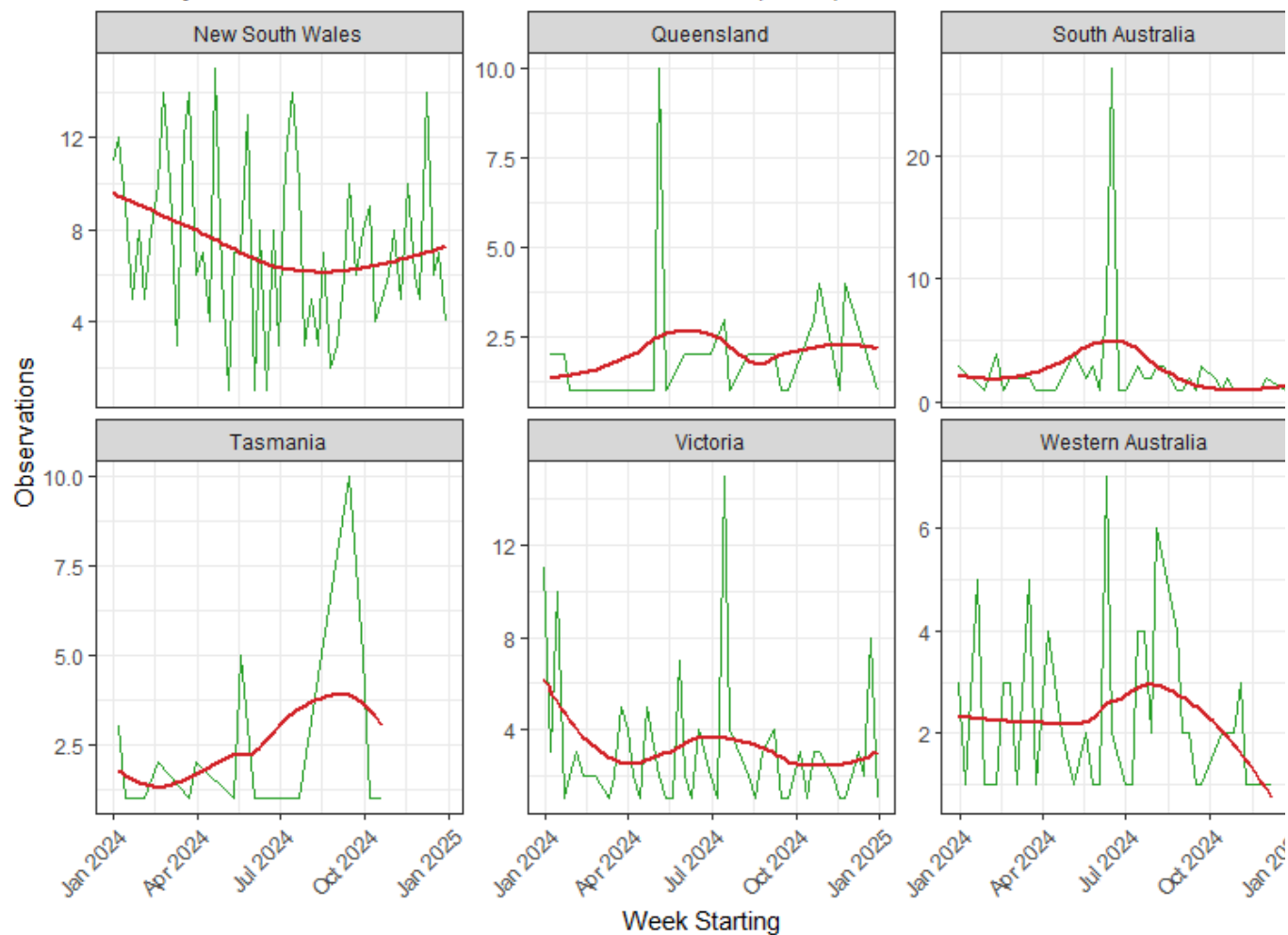```
#>   State Frequency
#> 1   New South Wales   385
#> 2   Victoria   136
#> 3   South Australia   113
#> 4 Western Australia   86
#> 5   Queensland   57
#> 6   Tasmania   37
```
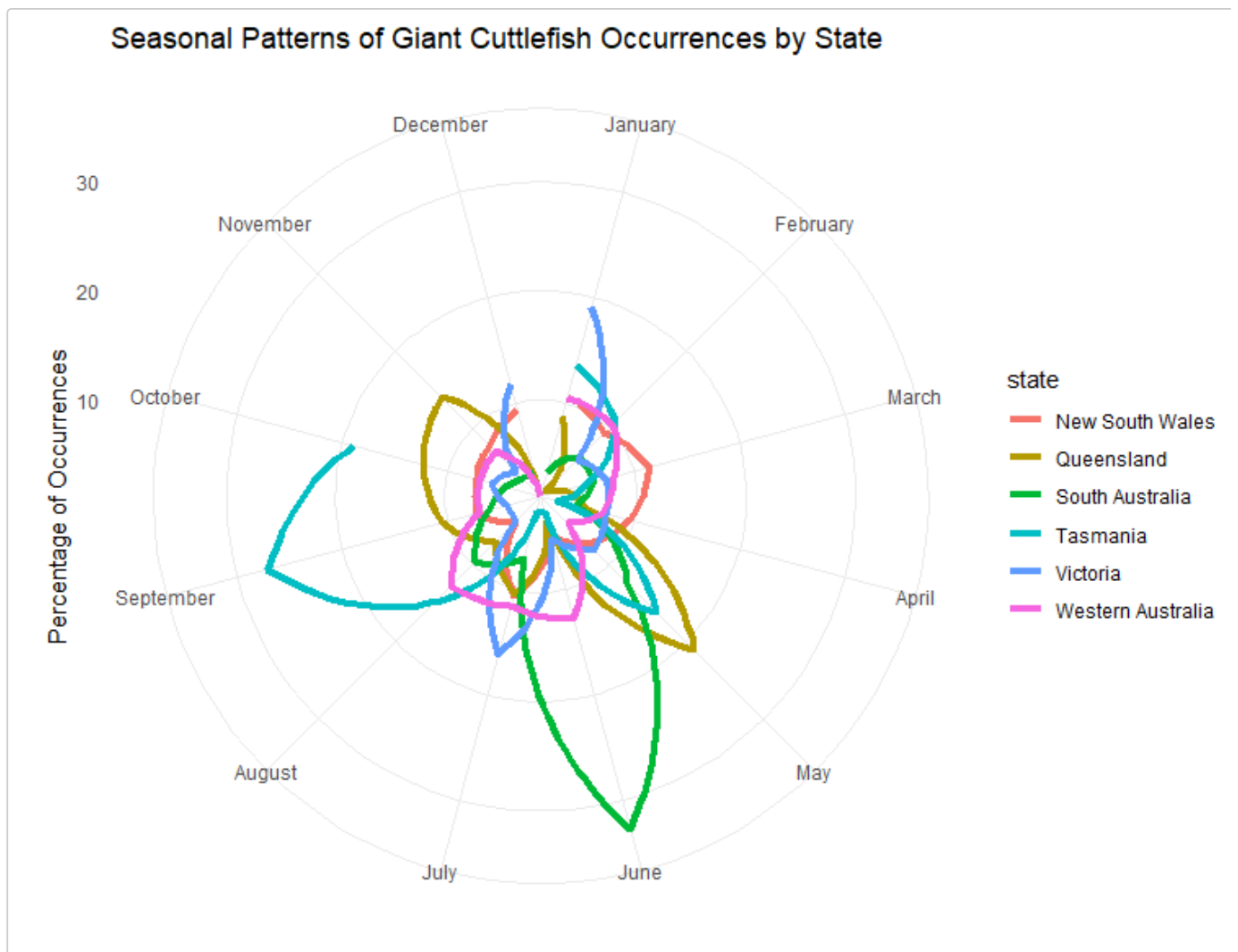
## Pattern Analysis

Monthly Distribution of Giant Cuttlefish Occurrences (2024) by State

Weekly Occurrence Patterns of Giant Cuttlefish (2024) with Trend Lines

Seasonal Patterns of Giant Cuttlefish Occurrences by State

## Datasets Overview

We have organized the giant cuttlefish occurrence and weather station data into the following structured datasets, stored in the `data/` directory:

- `giant_cuttlefish_2024.rda`
  Contains giant cuttlefish occurrence records across all states in Australia.

- `giant_cuttlefish_2024_ws.rda`
  An enhanced version of the occurrence data, merged with the nearest weather station information, including:

  ```
  --Station ID (weather_station_id)
  --Station name (stname)
  --Geographic details (lat.y, lon.y, address, city, state)
  ```

- `giant_cuttlefish_top_weather.rda`
  Focuses on weather data from the top 3 most frequently recorded stations associated with giant cuttlefish occurrences.

- `weather_stations.rda`
  A standalone dataset of all unique weather stations in Australia, providing reference metadata for cross-referencing.