This README file provides detailed information about the two data files present for the dissertation “*Floral complexity of alien plants in the Maltese islands*” by Melanie Briffa (2024).

Files included:

1. **BIO3110\_Melanie\_Briffa\_2024.XLSX**

2.**BIO3110\_Floral\_measurements\_\_Melanie\_Briffa**.

**1. BIO3110\_Melanie\_Briffa\_2024.XLSX file**

The data present in **BIO3110\_Melanie\_Briffa\_2024.XLSX** consists of the raw data and calculations for the results presented in the dissertation “*Floral complexity of alien plants in the Maltese islands*” (Briffa, 2024).

The file is a Microsoft Excel spreadsheets file (.XLSX) and is readable through Google Sheets (.gsheet) and compatible versions of Microsoft Excel (.XLSX).

Below are the sections present in the file along with a representation of what each section represents:

**Start here-FCI Formula**

Provides the Floral Complexity Index Formula through which the FCI value of each listed species was obtained in each habitat and site. The mean and weight values used in the FCI formula are provided. A worked example for invasive species *Agave americana* L. is also provided.

**Key explanations for trait classification:**

**Floral shape**

**Bell:** Bell-shaped flower that is facing downwards.

**Brush:** A flower or cluster of flowers with extended, protruding anthers.

**Disk:** Flat, circular flower that is shallow in depth.

**Tube:** Flowers with an elongated perianth that form a tube structure.

**Disk-Tube:** A flower with a tubular perianth that forms a flattened circular shape at the flower surface.

**Funnel:** Tubular-shaped flower with a broad opening.

**Flag:** “Butterfly-shaped” flowers of the Fabaceae and Polygalaceae plant families.

**Gullet:** Zygomorphic flowers that possess a lower lip as a landing platform for pollinators.

**Head**: A dense flower aggregation that has a flat or spherical shape.

**Lip:** Flowers possessing an extended lip that acts as a landing platform for pollinators. This shape is characteristic of flowers from the Orchidaceae family.

**Trap:** A bowl or tubular structure with a smooth steep surface that traps pollinators for a period of time before release.

**Floral depth**

**Low-depth:** Corolla tube 4mm or less deep.

**Medium-depth:** Corolla tube depth ranging from 4mm-10mm in depth.

**High-depth:** Corolla tube being deeper than 10mm.

**Floral symmetry**

**Radial:** Flower surface could be divided through several planes of symmetry.

**Bilateral:** Flower surface could be divided through a single plane of symmetry.

**Corolla segmentation**

**Sympetaly:** Petals or perianth segments that are fused at their entire sides.

**Choripetaly:** Petals or perianth segments which are individually separate.

**Semichoripetaly:** Petals or perianth segments which are partly fused together and form a continuous corolla tube with free petal or perianth segments.

**FCI Traits August**

This is a species list of the sampled habitats and sites for Summer (August) season with the classified five intrinsic traits for each species used in the FCI formula calculation.

**FCI Traits November**

This is a species list of the sampled habitats and sites for Autumn (November) season with the classified five intrinsic traits for each species used in the FCI formula calculation.

**FCI Traits February**

This is a species list of the sampled habitats and sites for Winter (February) season with the classified five intrinsic traits for each species used in the FCI formula calculation.

**FCI Calculations August**

This is a list for each habitat and site for Summer (August) season with the qualitative and their respective quantitative values for the intrinsic floral traits of each species along with the calculated FCI value. Each original list from the previous sections is separated into two lists. One list for species with chorological status as Invasive Alien, Undetermined origin and Casual Alien. While the other list contains the species having the chorological status of Native, Archaeophyte and Endemic. In order to obtain overall grouped values for the chorological status types as present in each habitat and site.

**FCI Calculations November**

This is a list for each habitat and site for Autumn (November) season with the qualitative and their respective quantitative values for the intrinsic floral traits of each species along with the calculated FCI value. Each original list from the previous sections is separated into two lists. One list for species with chorological status as Invasive Alien, Undetermined origin and Casual Alien. While the other list contains the species having the chorological status of Natives, Archaeophyte and Endemic. In order to obtain overall grouped values for the chorological status types as present in each habitat and site.

**FCI Calculations February**

This is a list for each habitat and site for Winter (February) season with the qualitative and their respective quantitative values for the intrinsic floral traits of each species along with the calculated FCI value. Each original list from the previous sections is separated into two lists. One list for species with chorological status as Invasive Alien, Undetermined origin and Casual Alien. While the other list contains the species having the chorological status of Natives, Archaeophyte and Endemic. In order to obtain overall grouped values for the chorological status types as present in each habitat and site.

**Data Matrix**

The data matrix contains the complete list of species present at each site with each entry having its corresponding Chorological status (Chorology), Season, Habitat and FCI value calculated through the FCI formula from the listed traits in the FCI Traits and calculations section. The data present in the data matrix was used in the final statistical analysis and graphical presentation of the results.

**Key explanations:**

**Site:** Each sampled site for which a list of insect-pollinated flowering plant species was compiled. 24 sites for each habitat in total.

**Species:** Species list in scientific nomenclature up to genus/species level for each site and habitat.

**Chorology:** Chorological status for each species classified as N= Native, E= Endemic, NA = Invasive Alien, Ar= Archaeophyte, N?= Undetermined origin and CA = Casual Alien.

**Habitat:** Habitat type as listed for each site. 12 habitat types in total.

**Season:** aug = August (Summer), nov = November (Autumn), feb = February (Winter)

**FCI:** Lower value (closer to 0) means less complex floral traits are exhibited by the flower of this species, higher value (higher value further from 0) means more complex floral traits are exhibited.

**2. Folder BIO3110\_Floral\_measurements\_\_Melanie\_Briffa**

The folder BIO3110\_Floral\_measurements\_\_Melanie\_Briffa contains a digital copy of the images of a representative flower of each species encountered that was currently in flower and measured (in centimetres) from the sampled habitats. Each species image is listed and classified to genus/species level by scientific nomenclature along with a centimetre scale ruler through which it was measured. Further images of the same species are present in horizontal and longitudinal view in some cases.

The images contained within the folder are saved as Joint Photographic Experts Group (.JPEG) files and are readable through compatible photo applications such as Microsoft Photos.

**References**

Briffa, M. (2024). *Floral complexity of alien plants in the Maltese islands* [Bachelor’s thesis]. Department of Biology, University of Malta, Msida.

Stefanaki, A., Kantsa, A., Tscheulin, T., Charitonidou, M. & Petanidou, T. (2015). Lessons from red data books: plant vulnerability increases with floral complexity. *PloS one, 10(9), e0138414*. doi: <https://doi.org/10.1371/journal.pone.0138414>