Maltawildplants.com

Document Contents

1. Aims of the Project

The main aim of this project was to produce an interactive, illustrative and highly detailed digital encyclopaedia about the Maltese flora that is both understood and enjoyed by the general public as well as useful for professionals and researchers. At present, all available publications about Maltese flora are either i) books with one or two photos per plant and a very little descriptive information, or on the other hand, ii) specialized thesis which falls beyond the readability of the general public. When the interesting information (rarely revealed) and several beautiful detailed photos about our diverse flora is given to the public, the chances are likely to be that the awareness of the public (especially the young generation) increases to a point that they will appreciate the heritage of our flora and as a result inspired to protect it. The project also serves as an educational tool to make the study of this subject more fun, and so, more sought by young students. This was my vision when I got inspired to create this huge website back in 2001.

The project covers the following purposes:

a) Public Education: Important source of information to various sectors and levels of education using latest IT media. Nowadays, the internet and PC are the ultimate common means of education and so they should be exploited.

b) Research: The detailed information, observations, and numerous photos can be applied in scientific research work regarding Maltese flora

c) Increase Awareness to our local flora and environment.

d) Source of Photography: Any of the numerous photos can be used for those seeking high quality photographs of Maltese plants for their publications, projects or other media purposes that they cannot obtain due to distance or time.

e) A permanent record of the flora of Malta in time.

f) Attraction for tourists to visit Malta in winter and spring: Tourists who have plants as their main hobby would observe the beauty of the Maltese flora by internet and possibly get attracted to spend a holiday in Malta for observing the plants.

g) A seed (and pollen?) image library.

h) Exposure of our Biodiversity to the world: Reaching hundreds of millions of people using internet, the floral biodiversity of Malta on a website is the ideal and modern means of exposure.

Most states of America and Australia and several countries in Europe (Spain, France, and Germany in particular) have their own official websites about their local flora. Similarly, this project can qualify as a Maltese National Project which is done once over a period of years and remains valid for several decades. Digital constructions remain forever! Malta has a diverse and extensive plant community and it is righteous that our country will also possess such a digital encyclopaedia. With all modesty, this website so far outcomes all websites with regards to details, photos, and educative information for the public.

2. Description of the Project

This section will explain in more detail what the project consists of. The website can be viewed by typing www.maltawildplants.com on a web browser on a PC connected to the internet.

2.1) Indexes:

In any database, there is a large collection of archived items (data) which are grouped and categorised in various ways so that they can be easily accessed according to criteria searched by the user. Similarly this project contains a numerous plant profiles that are grouped or sorted into 3 types of indexes:

i) Plants sorted by their botanical family (← **Click on any blue links for life-preview)**
ii) Plants sorted A-Z by their names (Scientific, English and Maltese names)
iii) Plants sorted by the colour of their flowers. (for amateurs)
iv) Website search engine – Searches any free text on Maltawildplants.com only.

Additionally, there is a free-text search-engine which scans throughout any text in the whole website. Hence experts, amateurs, students and field researchers can make use of this database with great ease.

2.2) The Plant Profile:

Each plant is described in its own page referred to as a plant profile. Below are some online examples of existing plant profiles - click on the links below: (must be connected to the internet):

Smilax aspera	*Urginea maritima*	*Chiliadenus bocconei*	*Muscari commutatum*
Narcissus tazetta	*Delphinium halteratum*	*Ophrys melitensis*	*Linaria pseudolaxiflora*

Each plant profile is subdivided into the following sections:

a) Title Introduction
b) Nomenclature
c) Botanical Data
d) Plant Specifications and Description
e) Detailed Information
f) Photo Gallery
g) Other references
h) User interactivity and participation

a) Introduction (← Click on title to preview)

This is simply the general name of the plant accompanied by a typical picture of the flower/plant and several navigational links leading to the other parts of the profile.

b) Nomenclature

This part deals with the name of the plant where it contains the following parameters:

- **Botanical name:** Latin name of Genus & species of plant and its author(s)
- **Author:** Full name, country and lifespan of author(s) who described the plant
- **English names**
- **Maltese names**
- **Family:** Botanical Family of the plant, with a link describing in large botanical detail the corresponding family
- **Etymology:** Explanation of how the Genus and species name has been derived from
- **Synonyms**

c) Botanical Data

This consists of a tabular layout of about 24 parameters dealing with general botanical details of the plant. Each parameter consists of the botanical term, its explanation, and where applicable, a small descriptive illustration to aid amateurs and students understand better. Parameters are divided as follows:

STEM:	Structure, Branching, Outgrowing Projections
LEAVES:	Arrangement, Attachment to stem, Venation, Leaf shape, Leaf outline
FLOWERS:	Colour, Flower Type, No. of Petals, No. of Sepals, Inflorescences, General Description, Ovary, No. of Stamen, Scent, Flower size, Pollen colour, Pollen shape
SEEDS:	No. of seeds per fruit, Shape, Size, Colour
FRUIT:	Type, Colour
MISC:	Subterranean parts, Other notes

d) Plant Specifications and Description

This part deals with describing in detail the morphology of the plant in its habitat.

+ The first part consists of 6 standard parameters being

Life Cycle: (annual, biennial, perennial)

Habitat: (which type of territory the plant prefers to grow)

Source in Malta: (examples where this plant can be found in Malta)

Plant Height: (average height the plant reaches)

Flowering Time: (which period of the year the plant forms its flowers)

Poison: (toxicity hazards)

+ The second part is a free text paragraph written in simple English (without using much difficult jargon) describing the plant and its main parts in its finest detail.

e) Detailed Information

This part contains comprehensive and interesting information about the particular plant. All information is gathered after research from several documents, books and internet resources. This part is not just a few remarks, but numerous paragraphs of information according to what is found about the particular plant. Information may consist of any of the following:

Nativity and distribution, cultivation and propagation details, toxic properties, awareness notes, medicinal properties, traditional uses, edible uses, history, legends and myths, active constituent chemicals, research abstracts, curiosities and interesting facts. Additionally, some personal observations are always given. All sources of information are referenced and each reference abbreviation is linkable to a reference list.

f) Photo gallery

This is the most eye-catching part of the plant profile. It is probably the part that made the website so popular and excels from other sites or books. Photos are of high quality partly because of my skills in photography (studied photography and my passion interest) and partly due to my expensive and dedicated photographic equipment that I owe.

It is called a "photo gallery", because each plant profile contains a set of about 30-40 photos. Photos are grouped in a table of thumbnails and upon clicking on any of them; a corresponding large/high resolution photo is displayed on its own resizable window. Being on a separate window, users may view the photo and read the plant profile simultaneously. Each single photo has accompanying text (caption) describing in detail the photo accordingly.

Photos include those of the whole plant, its habitat, stem, leaves, flowers, fruit and seeds. Occasionally, pollen and insects which are common habitants or visitors of the plant are also photographed. Macro photography is applied to bring close up images of smaller parts of the plant. Additionally some plant parts (e.g. flowers or fruit) are dissected and scanned at high resolution to reveal more interesting details that are difficult to observe by the naked eye. Normally, dissected images are further annotated to help students in learning botanical parts.

g) Other References

Additionally to all this, there is a list of links to other documents and websites which are connected to the described plant and usually goes into deep details for experts in particular scientific fields such as in agriculture, taxonomy, chemistry, pharmacology, genetics, etc.

h) User interactivity and participation

Finally there is an online form at the end of each plant profile so as individuals and visitors who have additional information about the particular plant can easily submit it at the comfort of their home. Such knowledge is hence recorded and not lost. The form also includes input/feedback for any corrections of mistakes found on the profile and a section where the visitor can write where she/he has encountered the plant -helpful for mapping purposes. Such data will be verified and the visitor is referenced in case the additional data is included in the profile.

Each plant profile has several navigational bars to make it easier to read and jump to several sections of the profile or access several pages of the database. Navigation of the entire site is well planned and designed.

2.3 Other pages apart from the plant profiles

Apart from the 3 main indexes and the plant profiles, the project features other interesting pages which many are listed below:

1) Bibliography and references.
2) Glossary of botanical terms.
3) Visitor comments page.
4) An old herbal medicinal encyclopaedia.
5) Introduction about the Maltese habitat.
6) Notes about endemism and endangered species in Malta.
7) News and website updates (history of events).
8) An interactive live forum (see chapter 10).
9) Other wild fauna.
10) Flowering time of the plants (for the profiles on the site).
11) List of all species recorded in Malta. (coming soon...)
12) Supplementary documents (legal notices, red data book, etc).
13) Instructions about the plant profile (to be updated).
14) WebSite requirements.
15) Detailed description of the plant families. (click here for an example)
16) Identification keys of the Genera of a plant families.

3. Presentation of the Project

1) A website:

The data is currently available online and free of charge on the website: www.maltawildplants.com reachable by the entire internet world, which is today's most popular and used means of information disseminating medium. Ideal for students and wide exposure internationally.

2) Digital encyclopaedia on DVD:

All the material can be compiled on a DVD and the user would need to install a supplied core program so that everything can be watched on a PC or laptop without the need of internet connection. The benefits of external links, live interaction on the forum and other external sources are lost since these require an internet connection. If the PC is connected to the internet, these may then be available.

3) Printed encyclopaedia:

Although it is possible to print the project as volume encyclopaedia, it would require many pages and expenses to print the thousands of pages and photos. Furthermore, the benefits of linking, easy navigation, and text searching are lost.

4. Time allocation

Since of the vast information, research, photography, scanning, html coding, and website management required, the project takes lot of working time. It is estimated that a detailed full plant profile, including all its photos, research and coding, takes an average of 36-48 hours each. A detailed task description and time requirement per section of a plant profile is available online on the website - (http://www.maltawildplants.com/JobDescription.html)

Apart from the plant profiles, additional time is allocated to update the 3 indexes (botanical, A-Z, flower colour), news & updates page, visitor comments, reply to emails, participation and management of the forum, backups, revise/improve the general design and presentation of the website, improvisation of the html code, inclusion of new material (images or info) to existent profiles, and such other site management tasks.

All this has been so far done in my free time available during these 4-5 years. After a long estimation process, the sum of 100-110 plant profiles can be achieved in one year if full-time dedication is available.

5. Recurrent Expenses.

1) Website running costs

This is a yearly cost required to host the site and its domain. This cost may increase periodically when the site grows larger and so it would require more web space.

2) Photography

Photos are taken by digital high resolution cameras with a number of indispensable accessories such as macro lenses, macro trays, tripods, tripod heads, and filters just to mention the most important. Unfortunately, technology in optical digital technology develops and changes rapidly, and after a period of about 12-18 months, a professional photographer have to update to a better camera and accessories, which for example would have better auto-focusing, image quality, ISO sensitivity, image stability and zooming extensions.

3) PC hardware, Peripherals and software

Other costs go for computer peripherals like graphic cards, scanner and software programs concerned with web design and photo editing. This is usually a purchase that lasts for a couple of years (3 years approx). Software up-dates usually also comes at a cost.

4) Other expenses

Other expenses involved include reference books, internet subscriptions to botanical sites, payment to contributors or consultants, transport, accommodation during expeditions in Gozo and other new equipment such as a stereomicroscope for photographing tiny plant features like minute flowers, seeds, pollen and other characteristic morphological parts.

5) Labour work

The most expensive part of the project is without doubt the labour it involves. To achieve the aim of 100 plants per year and the rest of the web management and updates, at least 50hrs per week are required, including working during weekdays and public holidays if necessary.

6. Project Size

It is estimated that more or less 100 plants (40-50 full detail profiles, 50-70 shorter version profiles) per year can be added in the website assuming a full time dedication. The target size (in terms of number of plants) depends on how much time (years) is available. Currently there are already 100+ plants featured in the website and a 3 year period will result about a total of 400-450 plants. This covers many of the common and important plant species that one can encounter in Malta and Gozo. One can keep working on a further few years (1-2) to cover other aliens/rare/naturalised species.

7. Other secondary services.

Since a major part of the project is involved in searching and photographing plants in their habitat during the whole year, this project could be helpful to the environment in:

+ Aid in the Mapping process of our biodiversity.
+ Reporting new locations of endangered or very rare floral species. (Click for reference)
+ Reporting of suspected illegal buildings or activities (e.g. trap sites). (Click here to preview)
+ Discovering new threats to the environment. (Click here to preview)

8. Implementation with other projects

Here is a list of other tasks that can be implemented in the project.
- Translation of the project into Maltese by an EU funded scheme or Maltese Heritage Foundation.
- Inclusion of results of any other research done on the Maltese flora.
- Construct graphical identification keys to the Maltese flora.
- Mini Photo CD for tourists to promote tourism.
- Aid in the mapping of the Maltese flora (eg by MEPA)

9. Professional validity and Popularity

I am graduated with distinction in Medical Lab Science (1999), Digital Technology (2000), and Agriculture (2005). I have also undergone several smaller online courses such as html web design and photography. Furthermore, the professional validity of the project can be assessed by the following:

1) Content validity:

The work was currently evaluated by:

Chief local botanist and University Lecturer – Mr. Edwin Lanfranco. - (Click to preview)

Professor of Botany of Marburg – Prof. Chris Hans Weber. - (Click to preview)

Head of biology, Junior College – Mr. Joseph Degiovanni. - (Click to preview)

In the latter endorsement, Mr. Degiovanni, explains the educative importance of the site to the students of Biology of the Junior College.

MWP is the only Maltese website included in European Plants Datasheets official website (click to preview)

I have been recently appointed by Professor of Botany of Trieste – Prof. P. L. Nimis who selected my site with other 10-15 such projects around EU members states into a common consortium for getting grants from EU via the E-Content Plus funding scheme. (click to preview). Unfortunately at that time I was not eligible since I did not have an official institution to represent me up.

2) Website management, construction and prestige:

The website has won an international award by Actualidad in Oct 2005. The award is called the Actualidad 21st Century international award "Leader in Prestige and Quality 2005". This award concerns mainly the general management of the site and its layout, ease of use, functionality, etc. (click to preview)

3) Popularity

Most popular search engines - Google and Yahoo – put this site in the first results when one searches keywords like "Flora of Malta", "Maltese wild plants", "Mediterranean wild plants","wild flowers of Malta" and in many cases even if one types names of plants like "Crown Daisy", "Haxixa Ingliza" or "Papaver rhoeas" to give examples. This is another clear indication showing the importance and popularity of the site worldwide. Web statistics show 20,000 c. of page visits per month (Click here to preview)

4) Visitors' Comments

The visitors' comments page reveals some comments received about my website from visitors coming from all corners of the world. Here are some of these comments which are grouped by the different type of visitors, namely comments by students, general public, Maltese citizens, botanists, professionals and tourists. These comments show clearly the professional quality and the need of such project by people involved in various sectors worldwide. All comments can be read by visiting the comments page (Click here to visit page)

10. Online forum about Maltese flora and environment

The website also hosts another important tool much used in today's digital information technology – an interactive, message-posting online forum. This is the first, and so far, the only online forum of its kind in Malta regarding the Maltese environment with special attention to its flora. The forum was launched on September 2005. Several Maltese and foreign members that participate in the forum, includes botanists, mycologists, environmentalists, foresters, students, green fingered and all nature-lovers.

The forum exhibits the following tasks and topics:

(when prompted, enter the following login details - username: **Guest2006** / password: **malta**)

- Identification of rather rare plants by experts.
- Reporting discoveries of rare to endangered species (restricted to members only).
- Open discussion (sharing of opinions) about Maltese flora and environment.
- Ideas of how the Maltese environment can be improved.
- Reporting of 'illegal' activities, building or waste-dump.
- Online publishing of articles, thesis or other academic literature.
- Educational info and questions about plants.
- Topics about insects, birds, reptiles, fish, molluscs, marine biology, fungi, and mammals.
- Outings for forum members to explore the beauty of Maltese flora and environment.
- Photo competition to implement the idea that nature should be 'hunted' on a camera not taken alive.
- Educational quiz.

11. Conclusion

The MaltaWildPlants.com project will surely increase the awareness to the Maltese environment, especially to its flora. By disseminating interesting information and education about our local species, the result is likely to be that the environment is more appreciated and cared for by the public, so as a result, we pass to our children a better environment than we inherited.

The project also fit well with the Government Policy with regards to:

- Environment,
- Exposure of our biodiversity,
- Education,
- Promote Tourism,
- IT development,
- Promoting the skills of Maltese

MaltaWildPlants.com is a project that should be invested in for the benefit of the country's environment and for its future generations because the Maltese flora is a national heritage and should be promoted. It is a project that does not require large amounts of money, and once completed, its valuable results remain in time for ever – "Digital data is the only matter that the elements of time do not have effect upon". On completion, the project will definitely become the most comprehensive and important source of information about flora, not only on a national scale, but also on a larger scale, serving as an important source of information and photo-gallery about the Mediterranean flora, since neighbouring countries share a large number floral species that are present in Malta