

CDFP Manual v. 1.0



A manual to using Co's Digital Flora of the Philippines

[www.philippineplants.org](http://www.philippineplants.org)

Pieter B. Pelsner & Julie F. Barcelona, 5 July 2015

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# 1. What is CDFP?

[Co's Digital Flora of the Philippines](#) (CDFP; Pelsner et al. 2011 onwards;) is a digital checklist of Philippine vascular plants that aims to present a continuously updated account of all native and naturalized species of vascular plants in the Philippines with diagnostic photographs for each taxon.

## Editors and Contributors

CDFP was developed by **Pieter Pelsner**, **Julie Barcelona** and **Daniel Nickrent** from an unpublished checklist of Philippine flowering plants compiled by the late Leonardo L. Co from Merrill's *Enumeration of Philippine Flowering Plants* (1923-1926) and more recent literature. It is continuously updated with taxonomic data from recent publications and information provided by taxonomic experts. Users of the CDFP website (e.g., biology students, government and NGO employees, teachers, amateur botanists, taxonomic specialists, conservationists, and hobbyists) play an extremely important role in further developing the website by contributing plant photos and helping with plant identifications through the [CDFP Facebook Group](#).

## Goals

The Philippines is one of the world's 25 biodiversity hotspots (Myers et al. 2000, Brooks et al. 2006, Webb et al. 2010). Unfortunately, the forests that harbour its remarkable biodiversity are in decline and this endangers the livelihoods of many Filipinos who depend on it for, amongst other things, food, water and protection against climatic extremes. Efforts to mitigate this trend rely on knowledge of the organisms that compose these ecosystems. However, a modern overview of the over 10,000 Philippine plant species was, until recently, lacking, because the Philippines has yet to produce a comprehensive written Flora. The absence of such an overview of botanical biodiversity has hampered interest in many Filipino students to pursue Botany as a career path.

Leonardo L. Co, a world-renowned Philippine plant taxonomist, devoted much of his life to studying the plant diversity of his country. His *magnum opus* was an updated version of Merrill's enumeration of Philippine plants (1923-1926). Sadly, on 15 November 2010 Co's life was tragically ended before he could complete and publish his checklist.

In November 2011, Pelsner, Barcelona and Nickrent launched the CDFP website to host and further develop Co's unpublished checklist. The aim of this website is to present a continuously updated account of all native and naturalized species of vascular plants in the Philippines with multiple diagnostic photographs for each taxon. In this way, we would like to honor Co's contributions to Philippine botany and conservation and hope to continue his legacy of generating and freely sharing botanical knowledge to stimulate biological education, research, and conservation.

## Content

The CDFP website is composed of separate pages for pterophytes and lycophytes (pteridophytes), and gymnosperms, and one page each for the angiosperm families. Species-rich families such as the Fabaceae and Orchidaceae, however, occupy three pages each. For a growing number of species, *in-situ* photos are available to put 'faces' to the plants in the checklist, to show diagnostic characters and to display intra-specific morphological diversity. Additional pages provide background information

and include a biography of Leonardo Co, an overview of Philippine biogeography, and an account of the history of botanical exploration in the Philippines.

The plant photographs taken by the CDFP team, and those generously contributed by many others, are deposited in [PhytoImages](#) (Nickrent et al. 2006 onwards) and linked from the CDFP website. PhytoImages is a web interface that provides free access to scientific-quality plant photographs from all over the world with their associated meta-data (e.g., locality information, voucher data, latitude/longitude coordinates, captions, Google and VE maps and taxonomic data).

In addition to the checklist and the plant photographs that are linked to it from PhytoImages, CDFP has a [Facebook Group](#). This Group was created to be a forum for discussions on Philippine botany and an interactive outpost for the checklist website. Membership is open and members post plant photographs for identification and/or provide identifications for photos of unknown plants uploaded by others. Group members include professional botanists from all over the world, amateur plant enthusiasts, students, teachers, staff of non-governmental organizations and conservation groups, scientific, academic, and Philippine government institutions, members of horticultural societies, and private plant collectors. The CDFB Facebook group provides an electronic infrastructure for remote training and mentorship for botany students from different parts of the Philippines by more experienced members who share their time and knowledge, and is therefore a useful learning and teaching tool. Topics of discussion include diagnostic characters used to identify plants, distributional, ecological, cultural, ethnobotanical and economic uses of Philippine plants, taxonomic status of names, threat status and endemism, and recent publications in the scientific literature. The discussions also serve as a way to introduce the users of the Facebook group to free online botanical resources, such as open access journals, the Biodiversity Heritage Library, and online photos of type specimens.

### **Future Developments**

As can be expected for a prematurely published manuscript, the CDFP checklist is far from a polished document. There are numerous misspellings, parsing errors resulting from the conversion from Word files to html, and style and formatting inconsistencies. In addition, treatments of some taxonomic groups are current, whereas others still need to be revised. Type information is provided for many species, although it is still lacking for others and the synonymy is incomplete. In addition, some relevant literature might be absent in the literature lists. Naturalized and cultivated species are not treated consistently. Sometimes they are included in the checklist, sometimes they are not. Sometimes they are presented under a separate heading, sometimes they are included with the native species. Editing priorities presently include updating taxonomic treatments, amending distributional data, more explicitly highlighting Philippine endemics, and consistently reporting whether a taxon is native or introduced.

The editors greatly appreciate suggestions to improve the website, additions, corrections, and, especially identifications for plant photos and photos of taxa for which these are not yet available (please email [pieter.pelser@canterbury.ac.nz](mailto:pieter.pelser@canterbury.ac.nz)).

## Literature

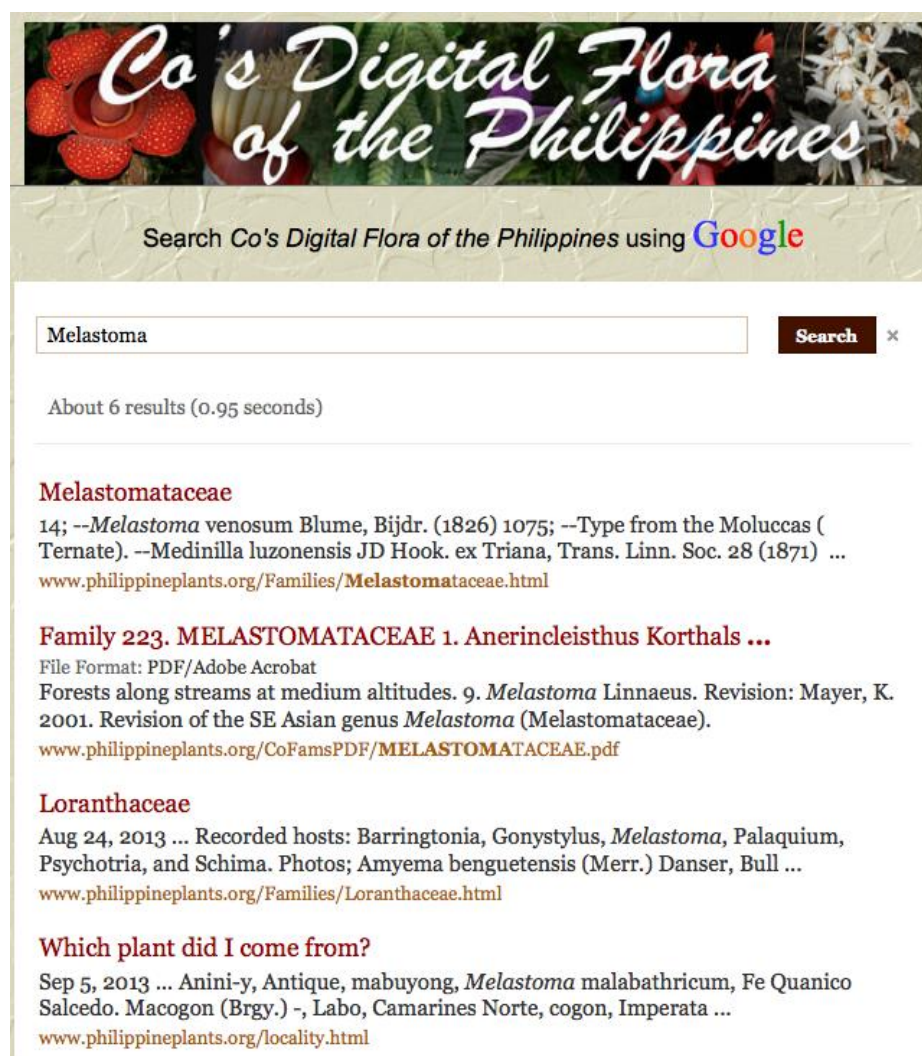
- Brooks, T.M., R.A. Mittermeier, G.A.B. da Fonseca, J. Gerlach, M. Hoffmann, J.F. Lamoreux, C.G. Mittermeier, J.D. Pilgrim and A.S.L. Rodrigues. 2006. Global biodiversity conservation priorities. *Science* 313: 58-61.
- Merrill, E.D. 1923-1926. *An enumeration of Philippine flowering plants*, 4 Vols. Manila: Bureau of printing
- Myers, N., R.A. Mittermeier, C.G. Mittermeier, G.A.B. da Fonseca and J. Kent. 2000. Biodiversity hotspots for conservation priorities. *Nature* 403: 853-858.
- Nickrent, D.L., P.B. Pelser, M. Costea, J.F. Barcelona and K.C. Nixon KC (eds.). 2006 onwards. PhytoImages: [www.phytoimages.siu.edu](http://www.phytoimages.siu.edu).
- Pelser, P.B., J.F. Barcelona and D.L. Nickrent (eds.). 2011 onwards. *Co's Digital Flora of the Philippines*. [www.philippineplants.org](http://www.philippineplants.org)
- Webb, C.O., J.W.F. Slik, T. Triono. 2010. Biodiversity inventory and informatics in Southeast Asia. *Biodiversity Conservation* 19: 955-972.

## 2. How to Navigate CDFP

There are several ways in which you can find information about the taxa (e.g., families, genera, species) that you are interested in:

### 1. Searching:

You can use the [search function](#) that is linked from the [index page of CDFP](#) to enter a taxon name or any other keyword of interest. The results of these searches will give you a list of CDFP pages and PDFs in which your keyword is mentioned. For example, if you would search for 'Melastoma', the search results would look something like this:



The screenshot shows the search interface of the Co's Digital Flora of the Philippines website. At the top, there is a banner with the text "Co's Digital Flora of the Philippines" and a search bar containing the text "Melastoma". Below the search bar, it indicates "About 6 results (0.95 seconds)". The search results are listed as follows:

- Melastomataceae**  
14; --*Melastoma venosum* Blume, Bijdr. (1826) 1075; --Type from the Moluccas ( Ternate). --*Medinilla luzonensis* JD Hook. ex Triana, Trans. Linn. Soc. 28 (1871) ...  
[www.philippineplants.org/Families/Melastomataceae.html](http://www.philippineplants.org/Families/Melastomataceae.html)
- Family 223. MELASTOMATACEAE 1. Anerinleisthus Korthals ...**  
File Format: PDF/Adobe Acrobat  
Forests along streams at medium altitudes. 9. *Melastoma* Linnaeus. Revision: Mayer, K. 2001. Revision of the SE Asian genus *Melastoma* (Melastomataceae).  
[www.philippineplants.org/CoFamsPDF/MELASTOMATACEAE.pdf](http://www.philippineplants.org/CoFamsPDF/MELASTOMATACEAE.pdf)
- Loranthaceae**  
Aug 24, 2013 ... Recorded hosts: *Barringtonia*, *Gonystylus*, *Melastoma*, *Palaquium*, *Psychotria*, and *Schima*. Photos; *Amyema benguetensis* (Merr.) Danser, Bull ...  
[www.philippineplants.org/Families/Loranthaceae.html](http://www.philippineplants.org/Families/Loranthaceae.html)
- Which plant did I come from?**  
Sep 5, 2013 ... Anini-y, Antique, mabuyong, *Melastoma malabathricum*, *Fe Quanico* Salcedo. *Macogon* (Brgy.) -, Labo, Camarines Norte, cogon, *Imperata* ...  
[www.philippineplants.org/locality.html](http://www.philippineplants.org/locality.html)

Note that there are three types of search results:

1) The web page of the family in which your species of interest is placed. In this example, you see that the first search result brings you to the CDFP web page for the family Melastomataceae in which *Melastoma* is placed. This is usually the page that you are looking for.



2) One of Leonardo L. Co's original PDF files in which the keyword is found. These PDF files formed the foundation of the CDFP website. Usually, you would probably not be interested in accessing these files, because the CDFP web pages present more recent information about Philippine plant species.

3) Other CDFP web pages on which your keyword is mentioned. For instance, the example shows that 'Melastoma' is also mentioned on the Loranthaceae family page and on the 'Which plant did I come from?' page.

## 2. Browsing:

a. Most users of the CDFP website already have some level of taxonomic knowledge about the species that they want to find information for. For example, they might already know if the plant of interest is a fern or lycophyte, a gymnosperm, or an angiosperm. These users might prefer to browse to these plant groups by clicking on one of the four green buttons at the top of the [CDFP index page](#):



- 1) The '[Pteridophyte Families](#)' button brings you to the web page on which all native and naturalized ferns and lycophytes are listed.
- 2) The '[Gymnosperm Families](#)' button links to the web page on which you can find all gymnosperm records.
- 3) The '[Angiosperm Families Alphabetical List](#)' presents a list of all families of flowering plants in alphabetical order.
- 4) The '[Angiosperm Families APG List](#)' presents a list of all families of flowering plants in a taxonomical order, which roughly aligns with the Angiosperm Phylogeny Group classification. This is a useful list if you are familiar with or interested in plant diversity in the Philippines at the level of species and orders. I expect that most of our users will prefer to browse using the alphabetical angiosperm list, though.

b. Because there are so many species of flowering plants in the Philippines, we organized the information about them on separate family pages, which you can access from the '[Angiosperm Families Alphabetical List](#)' and '[Angiosperm Families APG List](#)' pages. Families Fabaceae and Orchidaceae are, however, so species rich, that we divided the information about them over three webpages each.

For the Fabaceae, we did this by subfamily:

[Escanoniaceae](#)  
[Euphorbiaceae](#)  
[Fabaceae](#) - Caesalpinioideae (= Leguminosae)  
[Fabaceae](#) - Faboideae (= Leguminosae)  
[Fabaceae](#) - Mimosoideae (= Leguminosae)  
[Fabaceae](#)

For the Orchidaceae, we did this alphabetically by genus:

[Opinaceae](#)  
[Orchidaceae A-C](#)  
[Orchidaceae D-M](#)  
[Orchidaceae N-Z](#)  
[Orobanchaceae](#)

c. You will also note that the two family index pages list some commonly used synonyms and alternative family names (e.g., Palmae and Arecaceae). This helps users who are used to working with a different angiosperm classification system.

d. On the angiosperm family pages, genera and their species are presented in alphabetical order. See for example the [Icacinaceae](#) page:



**Icacinaceae**

Edited by Pieter B. Pelsner, 31 August 2012

***Apodytes* E.Mey. ex Arn.**

Edited by Pieter B. Pelsner, 26 April 2015

[Photos](#)

1. *Apodytes dimidiata* E Meyer, ex Arn. in Hook., J. Bot. 3 (1840) 155; --Sleum., Fl. Males. ser. 1, 7 (1971) 48, Fig. 17. --*Mappia philippinensis* Merr., PJS 26 (1925) 467; EPPF 4 (1926) 249; --Type: BS 24941 Fenix (L, iso), Mindanao: Bukidnon prov., near Tangkulan, steep slopes near streams. Tropical and subtropical Africa, Madagascar, Comores, Réunion, Mauritius, Sri Lanka, S India, SW China (Yunnan), Myanmar, Thailand, Indochina, Hainan, Sumatra, Peninsular Malaysia, Java (extreme W part), Lesser Sunda Isles (E Sumba; Flores; W Timor), Borneo (Sabah), Philippines, Moluccas (Bacan). PANAY: Antique (photos by Pelsner & Barcelona), MINDANAO: Bukidnon. [Photos](#)

***Freeria* Merr. = *Pyrenacantha***

***Iodes* Blume**

[Photos](#)

1. *Iodes cirrhosa* Turcz., Bull. Soc. Nat. Moscou 27, 2 (1854) 281; -- Sleum., Fl. Males. ser. 1, 7 (1971) 70, Fig. 36a-d. India (Khasya), Myanmar, Thailand, Indochina, Sumatra (E & W coast, Padang), Peninsular Malaysia, W & E Java, Borneo (Sarawak; Sabah; W Borneo), WC Philippines, Sulawesi, possibly in the Moluccas. PALAWAN.  
2. *Iodes philippinensis* Merr., PJS 3 c (1908) 241; EPPF 2 (1923) 492; --Sleum., Fl. Males. ser. 1, 7 (1971) 71, Fig. 36e-e'. Borneo (Sabah), Philippines, CE Sulawesi, Moluccas (Talaud; Morotai; Halmahera; Ternate; Ambon). Throughout the Philippines. Lowland thickets, edge of forests, also secondary growth.

***Merrilliodendron* Koenig**

Note that links are provided to photos of each genus (if available) and that generic synonyms that are relevant to the Philippines are listed. For instance, “*Freeria* Merr. = *Pyrenacantha*” on the Icacinaceae family page means that the Philippine species of *Freeria* are listed as under their names in the genus *Pyrenacantha*.

See the following chapter of this manual for information about how to read the information that is presented for each species record in the lists.



### 3. Understanding CDFP Species Records

For each vascular plant genus present in the Philippines, CDFP aims to provide a numbered list of the currently accepted species. For each species, taxonomic and distribution information is provided. Sometimes there are also ecological notes and photos. To present this information in a concise way, species records follow a standardized format. Using examples, I aim to explain this format. Keep in mind, though, that not all species records are complete. Some are lacking taxonomic or distribution information and this information is incomplete for others. For many species, photographs are still needed.

#### Example 1:

*Astronia quadrangulata* Maxw., Blumea 35 (1990) 111; --Type: Jacobs 7353 (SING, holo; A, L, MO, iso), Luzon: Benguet prov., Mt Pulag, mossy forest bordering open grassland, on sandy loamy soil, 2500-2700m, 6-Feb-1968. Endemic to the Philippines. LUZON: Benguet (Mt Pulag). Primary forest, mossy areas, 2250-2700m. Known only from the type collection. [Photos](#)

#### **1. Accepted names and authorities:**

a. The currently accepted name of each species is written in italics. In Example 1, this is *Astronia quadrangulata*.

b. Each taxonomic name in a species record is followed by the abbreviation of the person(s) who first validly published that name\*. *Astronia quadrangulata* was first described by J.F. Maxwell and the full name of this species is therefore written as *Astronia quadrangulata* Maxw.

#### **2. Literature references:**

a. A comma symbol (,) is used to separate taxonomic names from the literature references in which this name is used. The first of these is the literature reference to the protologue. The protologue is the publication in which a taxonomic name was first published. So, Example 1 shows that Maxwell described *Astronia quadrangulata* in “Blumea 35 (1990) 111”.

b. CDFP uses the following format for literature references in species records:

[Full journal/book name or abbreviation] [Volume number] ([Year of publication]) [First page on which the taxon is described]

Therefore, Example 1 shows that *Astronia quadrangulata* was described by Maxwell on page 111 in volume 35 of the journal Blumea in 1990.

c. Often, also additional literature references than that to the protologue are mentioned. These are separated from each other by a semi-colon symbol (;). These are usually literature references to especially important literature on Philippine plants, such as E.D. Merrill’s Enumeration of Philippine Flowering Plants (abbreviated as EPFP). In Example 2, you can see that Blume first described *Ochthocharis javanica* on page 523 of volume 14 of the journal Flora in 1831 and that Merrill mentions this name on page

189 in volume 3 of his Enumeration of Philippine Flowering Plants, which was published in 1923.

Example 2:

*Ochthocharis javanica* Blume, Flora 14 (1831) 523; --Merr., EPFP 3 (1923) 189.

**3. Type specimens:**

a. Following the literature references for a taxonomic name, information about the type specimens for that name is provided. This information is, however, only presented for type specimens that were collected in the Philippines. A type specimen is usually a pressed and dried fragment of a plant such as a twig with leaves and flowers and/or fruits that is mounted on a sheet of paper. It, however, can also be a specimen preserved on alcohol or in a different way. Before 1 January 2007, it could even be an illustration! Type specimens of plants are typically kept in herbarium collections. In CDFP, information about type specimens is separated from the literature references by a semi-colon (;) and follows a standardized format. In Example 1, this is:

; --Type: Jacobs 7353 (SING, holo; A, L, MO, iso), Luzon: Benguet prov., Mt Pulag, mossy forest bordering open grassland, on sandy loamy soil, 2500-2700m, 6-Feb-1968.

b. The type specimens themselves are referred to by the combination of the name(s) of the collector(s) and the collecting number. This is international best practice and preferred over citations by herbarium accession number. Example 1 shows that the type specimens of *Astronia quadrangulata* were collected by Jacobs under collecting number 7353. Type specimens are very important, because they are the specimens that represent the plant that *by definition* needs to be included in a taxon for which the associated taxonomic name is used. So, Example 1 tells you that if you want to use the name *Astronia quadrangulata* for a plant group, the plant represented by collections filed as Jacobs 7353 *must* be included in that plant group.

c. Parentheses are used to indicate in which herbarium the type specimens can be found. This is very important information, because it allows you to locate type specimens in herbarium collections or online photos of these collections. Standard abbreviations are used to refer to herbaria\*\*. For example, SING is the abbreviation for the herbarium of the Singapore Botanic Gardens and L is the abbreviation of the National Herbarium of the Netherlands.

d. The abbreviations ‘holo’, ‘iso’, ‘lecto’, etc. within the parentheses indicate where the different kind of types are deposited. Example 1 shows that the holotype of *Astronia quadrangulata* is preserved in SING and that isotypes are kept in A, L, and MO. The holotype is the most important type. If there is any doubt that the other types might represent a different taxon than the holotype, then the holotype is the specimen that remains linked to the taxonomic name. Isotypes are duplicate collections of the holotype. This means that these specimens were typically fragments of the same plant or, in case of small plants, part of the same gathering. If the holotype of a taxonomic name is missing or has been destroyed (as happened to the type specimens that were

kept in the Philippine National Herbarium (PNH) when it was bombed in World War II), then one of the isotypes can be selected to replace the holotype. This specimen is then called the lectotype. If there are no existing holotypes or isotypes, a neotype is designated\*\*\*.

e. After the information about the location of type specimens and following a comma (,), details of the type specimens is provided. This usually includes information about where and when the type specimens were collected. Sometimes there are also other notes. Example 1 shows that Jacobs collected the type specimens of *Astronia quadrangulata* on Mt. Pulag on the 6<sup>th</sup> of February 1968.

#### **4. Synonymy:**

a. Homotypic synonyms are different names for the same taxon (e.g., species) that are based on *the same* type specimens. They are separated from each other in the CDFP species records by semi-colons (;). Example 3 informs you that *Everettia octodonta* is a homotypic synonym of *Beccarianthus octodontus*. It provides literature references to both names.

##### Example 3:

*Beccarianthus octodontus* (Merr.) Maxw., Blumea 35 (1990) 155; --*Everettia octodonta* Merr., PJS 13 (1918) Bot. 315; EPFP 3 (1923) 212; --Type: BS 30556 Ramos (PNH, holo, lost; US, iso), Catanduanes: Sto. Domingo River, low elevation, 3-Dec-1917. CATANDUANES. Lowland forest.

b. A basionym is a previously published name on which a new name is based and is therefore often included among homotypic synonyms in the CDFP species records. For instance, Example 3 tells you that *Beccarianthus octodontus* was first described by Merrill as *Everettia octodonta* in 1918. *Everettia octodonta* is therefore the basionym of this species. Maxwell subsequently transferred this species to the genus *Beccarianthus* in 1990. Following the rules of nomenclature, this new combination was named *Beccarianthus octodontus* (Merr.) Maxw. Note that the authority of the basionym is placed within parentheses as part of the name of the new name.

c. Heterotypic synonyms are different names for the same taxon (e.g., species) that are based on *different* type specimens. They are separated from each other in the CDFP species records by period symbols (.). Example 4 shows that *Astronia mearnsii* is a heterotypic synonym of *Astronia benguetensis*. Note that both names have different type specimens associated with them. The type specimens of *Astronia benguetensis* were collected by Celestino and received the collecting number 4381, whereas the type specimens of *Astronia mearnsii* were collected by Mearns and Hutchinson and were given collecting number FB 4699.

##### Example 4:

*Astronia benguetensis* Maxw., Blumea 35 (1990) 106; --Type: Celestino 4381 (L, holo; A, iso), Luzon: Benguet prov., Mt Pulag, Bokod, 2000m. --*Astronia mearnsii* Merr., PJS 8 c (1913) Bot. 340; --Type: FB 4699 Mearns & Hutchinson (PNH, holo, lost; US, iso), Mindanao: Misamis Occidental prov.,

Mt Malindang, 1800m, May-1906. LUZON, MINDANAO. Forest near creek, c. 2000m.

### **5. Distribution information:**

a. Most CDFP species records provide an indication of the distribution area of the species. Keep in mind that this information is only indicative and difficult to verify. In other words, it could well be that the distribution information is incomplete or partially incorrect. For *Astronia quadrangulata* (Example 1), the distribution information reads:

Endemic to the Philippines. LUZON: Benguet (Mt Pulag).

b. The description of the distribution each species starts with its worldwide distribution. *Astronia quadrangulata* has only been found in the Philippines and is therefore considered endemic to this country. Example 5 shows the distribution information of a more widespread species.

#### Example 5:

Thailand, Peninsular Malaysia, Sumatra, Borneo, Java, Sulawesi, Moluccas, New Guinea and Philippines. LUZON: Cagayan, Isabela, Aurora, Quezon, Laguna, Camarines, Sorsogon, MINDORO, SAMAR, LEYTE, NEGROS, PANAY, DINAGAT, MINDANAO, BASILAN, JOLO.

c. Following the general distribution data, more detailed information about the distribution of the species in the Philippines is presented.

### **6. Ecological and other notes:**

At the end of a species record, miscellaneous information is provided. These are usually ecological notes, but might also be notes on common names, taxonomy, conservation status, or flowering/fruitletting times.

### **7. Photos:**

If available, a link to photos are provided at the end of a species record. These photos have usually been taken of living plants in the field. All CDFP plant photos are stored in the [PhytoImages](#) database, which holds photos from all over the world. See the separate chapter of this manual about PhytoImages for more information about how to use this resource.

\*You can look up abbreviations of author names in the International Plant Names Index ([IPNI](#)).

\*\*You can look up abbreviations of herbaria in the [Index Herbariorum](#).

\*\*\*See Article 9 of the [International Code of Nomenclature](#) for more information about the different kinds of types.

## 4. How to use PhytoImages

[PhytoImages](#) is a website that stores plant illustrations (photos and drawings) from all over the world. The CDFP website uses PhytoImages as the depository for Philippine plant photos. It does this by linking genera and species names in the CDFP checklist pages to collections of photos that are filed under these names. The example below shows a links (in blue and pink, and labeled ‘Photos’) to photos for the genus [Balanophora](#) and its four species in the Philippines.

### Balanophoraceae

***Balanophora* J.R.Forst. & G.Forst.**

Edited by Pieter B. Pelsner, 10 August 2012

[Photos](#)

- Balanophora abbreviata* Blume, Enum. Pl. Jav. 1 (1827) 87; --Hansen, Fl. Males. ser. 1, 7 (1976) 801, f. 21. --*Balanophora micrantha* Warb. in Perkins, Fragm. Fl. Philipp. (1905) 169; --Merr., EPFP 2 (1923) 118. --*Balanophora subglobosa* Elmer, LPB 5 (1913) 1660 --Merr., EPFP 2 (1923) 118. --*Balanophora fawcettii* Elmer, LPB 5 (1913) 1659. Africa (Congo), Comores, Madagascar, India, SW China, Hainan, Indochina, Andaman Isls, throughout Malasia (but very scattered and not yet known from Borneo and the Moluccas), Tahiti, Marquesas. LUZON: Quezon, Laguna, LEYTE, MINDANAO: Lanao del Sur. Low to medium altitude forests. [Photos](#)
- Balanophora coralliformis* Barcelona, Tandang & Pelsner, Phytotaxa 170 (2014) 291; --Type: Barcelona 3895 with Pelsner & Tandang (PNH, holo; CHR, K, PUH, US, iso), Luzon: Aurora Province, San Luis Municipality, Mt. Mingan, 23-Feb-2014. Endemic to Philippines. LUZON: Aurora (Mt. Mingan). [Photos](#)
- Balanophora fungosa* JR & G Forst., Char. Gen. Pl., ed. 1 (1775) 50; --Hansen, Fl. Males. ser. 1, 7 (1976) 794, f. 8a-c.
  - ssp. *fungosa*. N Myanmar (Manipur), Ryukyu Isls (Iriomote), Philippines, E Java, Sulawesi, E New Guinea, Solomon Isls, N Queensland (Cape York Peninsula), New Caledonia, New Hebrides, Micronesia (Marianas). LUZON: Bulacan, Rizal, PALAWAN. Medium altitude forests.
  - ssp. *indica* (Arn.) Hansen, Dansk. Bot. Ark. 28 (1972) 100, f. 20, 21; --Hansen, Fl. Males. ser. 1, 7 (1976) 794, f. 10. var. *indica*. --*Balanophora decurrens* Fawcett, Trans. Linn. Soc. Bot. 2 (1886) 234, t. 33, f. 1-4; --Merr., EPFP 2 (1923) 118. India, Indochina, SW China (Yunnan), Hainan, Sumatra, Peninsular Malaysia, Philippines, Micronesia (Carolines, Marianas), N Queensland (Cape York Peninsula). LUZON: without definite locality, based on Azaola s.n. (BM, cited by Merrill). [Photos](#)
- Balanophora papuana* Schltr., Bot. Jahrb. 50 (15 Apr. 1913) 68, f. 1; --Hansen, Fl. Males. ser. 1, 7 (1976) 798, f. 12h-j, 17. --*Balanophora incarnata* Elmer, LPB 5 (1913) 1661; --Merr., EPFP 2 (1923) 118. Peninsular Malaysia, N Borneo, Philippines, New Guinea. LUZON: Benguet, Pampanga, Bataan, MINDORO, CAMIGUIN, MINDANAO. Tree root parasite at medium and higher altitudes, ascending to 2100m. [Photos](#).

Clicking on these ‘Photos’ links brings you to the relevant PhytoImages web pages. For example, if you click on the [‘Photos’ link under the genus name](#), you will be taken to the PhytoImages page that shows thumbnails of all available photos of the genus *Balanophora* on PhytoImages. Note that these might also be photos of that genus that are taken in other countries than the Philippines or of species that do not occur in the Philippines.

### ***Balanophora* (Balanophoraceae)**

91 species names (IPNI) found:

---SELECT A SPECIES NAME---


[GOOGLE](#)





Similarly, if you click on the ‘Photos’ link for a particular species (e.g., [Balanophora coralliformis](#)) on the CDFP website, you will see the thumbnail photos of that species.

Clicking on one of the thumbnails shows you the full-sized version of the photo. See the screenshot below of an [example of a photo of Balanophora coralliformis](#).

<a href="#">Balanophoraceae : Balanophora coralliformis</a> Image at <a href="#">PhytoImages.siu.edu</a>	
<a href="#">LINK TO THIS IMAGE</a>	
PHILIPPINES: Luzon:: Aurora prov. San Luis Municipality, Mt. Mingan; coordinates of general area 15 27 48.8 N, 121 23 43.3 E <a href="#">GOOmap</a> <a href="#">Vimeo</a> , 22-Feb-14. Specimen voucher: <i>Barcelona 3890 with Pelsler &amp; Tandang</i>	Young inflorescences of pistillate plant Copyright © 2014 by P.B. Pelsler & J.F. Barcelona (contact: <a href="mailto:pieter.pelsler@canterbury.ac.nz">pieter.pelsler@canterbury.ac.nz</a> ) [ref. DOL83090]
	
<small>IMAGES VIEWED AT FULL SIZE: 269608 (0)</small>	

In addition to the photo itself, associated information is displayed:

### 1. Taxonomic names:

You can find the taxonomic name assigned to the photo and the family in which this species is placed in the top left corner of the web page. In some cases, you will see more than one taxonomic name. This can have several meanings, for example:

1) Alternative classifications: The [example below](#) shows the data label belonging to a photo of a species that is by some taxonomists regarded as a species of the genus *Aporum*, but by others as a *Dendrobium* species. Providing two taxonomic names in cases like this helps both user groups to find the photos that they are looking for.

<a href="#">Orchidaceae : Aporum albayense</a> <a href="#">Orchidaceae : Dendrobium albayense</a> Image at <a href="#">PhytoImages.siu.edu</a>	
<a href="#">LINK TO THIS IMAGE</a>	
PHILIPPINES:, 7-Feb-11.	Flower Copyright © 2013 by Ravan Schneider (contact: <a href="mailto:pieter.pelsler@canterbury.ac.nz">pieter.pelsler@canterbury.ac.nz</a> ) [ref. DOL72183]



2) Different identifications: In some cases, taxonomists disagree about the identification of the plant species in the photo. In the [example below](#), Leonardo Co identified the plant as *Ceriops decandra*, but Pieter Pelser disagrees and thinks that it is *Bruguiera cylindrica* instead. In this case, “det. P.B. Pelser 4-Sep-14” indicates that this second identification took place on September 4, 2014.

<a href="#">Rhizophoraceae : <i>Ceriops decandra</i></a> <a href="#">Rhizophoraceae : <i>Bruguiera cylindrica</i></a> det. P.B. Pelser 4-Sep-14		Image at <a href="#">PhytoImages.siu.edu</a>
<a href="#">LINK TO THIS IMAGE</a>		
PHILIPPINES: Luzon:: Pangasinan prov. Hundred Islands, Alaminos municipality; coordinates of general area 16 12 22.78 N, 120 2 28.14 E <a href="#">GOOmap</a> <a href="#">VEmap</a> , 4-Nov-07.	Flowering twig Copyright © 2011 by Leonardo L. Co (contact: <a href="mailto:benctan@berkeley.edu">benctan@berkeley.edu</a> ) [ref. DOL31313]	

3) More than one plant species in the photo: Sometimes a photo shows more than a single plant species (see the [example below](#)). By assigning two taxonomic names to the photo, users can find it by searching for the name of either species.

<a href="#">Balsaminaceae : <i>Impatiens capensis</i></a> <a href="#">Balsaminaceae : <i>Impatiens pallida</i></a>		Image at <a href="#">PhytoImages.siu.edu</a>
<a href="#">LINK TO THIS IMAGE</a>		
USA: Illinois: Bell Smith Springs 37 31 10.89 N, 88 39 25.30 W <a href="#">GOOmap</a> <a href="#">VEmap</a> , 6 August 2005.	Comparison of flowers of <i>I. capensis</i> (orange) and <i>I. pallida</i> (yellow) Copyright © 2006 by Dan Nickrent (contact: <a href="mailto:nickrent@plant.siu.edu">nickrent@plant.siu.edu</a> ) [ref. DOL1544]	
<a href="#">Fit to Window Naked Image</a> - Image of Balsaminaceae <i>Impatiens pallida</i> <a href="#">TERMS OF USE</a>		

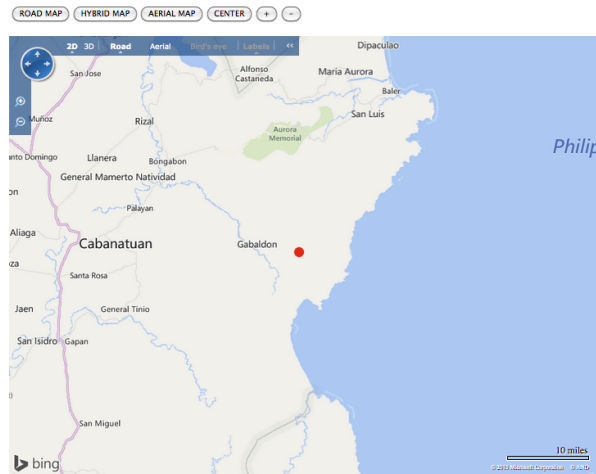


## 2. Locality information:

Locality information is provided for most photos. For instance, the photo in the example above was taken at Bell Smith Springs, which is in Illinois in the USA. The majority of photos also have GPS coordinates associated with them. The ‘GOOmap’ and ‘VEmap’ links will plot the photo locality on a map for you. For example, the screenshot below shows a [map that indicates where the previously mentioned \*Balanophora coralliformis\* photo was taken](#). For commercially important species that are prone to poaching (e.g., epiphytic orchids), detailed locality information is suppressed to protect these plants from being over-harvested.

processing latitude and longitude: , decimal: 15.463555555556 lon: 121.395361111111  
THIS SERVICE IS GENERATED BY A DOL WEBSITE. MAPS AND MAPPING API BY MICROSOFT

IMAGE ID: 83090. Balanophoraceae: Balanophora coralliformis  
Philippines : Luzon : Aurora prov. County : San Luis Municipality, Mt. Mingan; coordinates of general area  
LATITUDE: 15.463555555556 LONGITUDE: 121.395361111111



### 3. Date:

The date mentioned with each photo tells you when the photo was taken.

### 4. Specimen voucher:

Some photos have been taken of plants from which herbarium specimens were also collected. For example, the plant in the photo below was collected by Julie Barcelona with Pieter Pelsler and was assigned collecting number 3853.

<a href="#">Loranthaceae : <i>Amyema nickrentii</i></a> Image at <a href="http://PhytoImages.siu.edu">PhytoImages.siu.edu</a>	
<a href="#">LINK TO THIS IMAGE</a>	
PHILIPPINES: Luzon:: Aurora prov. Baler Mun., Brgy. Zabali, Dicasalarin Cove, in coastal forest along road from Sitio Cemento to Dicasalarin beach resort 140-160m. 15 44 40 N, 121 37 50 E <a href="#">GOOMAP</a> <a href="#">YEMAN</a> , 7-May-11. Specimen voucher: <i>Barcelona 3853 with Pelsler</i>	Young inflorescence; photo of type plant Copyright © 2013 by P.B. Pelsler & J.F. Barcelona (contact: <a href="mailto:pieter.pelsler@canterbury.ac.nz">pieter.pelsler@canterbury.ac.nz</a> ) [ref. DOL75112]
<a href="#">Fit to Window</a> <a href="#">Naked Image</a> - Image of Loranthaceae <i>Amyema nickrentii</i> <a href="#">TERMS OF USE</a>	

### 5. Descriptive caption:

A caption allows the photographer to list some keywords, provide a description of what is visible in the photo, or add any other notes. The caption in the photo above, for example, informs the user that it shows a young inflorescence.

## 6. Copyright information:

Photographers retain copyright over their photos and decide if a third party can use these photos and under which conditions. The [Terms of Use](#) for photos of some of the most prolific contributors are provided on a separate web page.

## 7. Curator contact details:

Photos on PhytoImages are uploaded by PhytoImages curators. Each photo shows the email address of the responsible curator so that a user can seek contact about the use of a photo or regarding the identification of the plant in the photo.

## 8. DOL number:

Each individual photo has a unique DOL accession number just like each herbarium specimen has its own herbarium accession number. This makes it easy to communicate with others about a particular photo.

In addition to accessing photos of Philippine plants through the CDFP website, you can search for them by going to PhytoImages directly at [www.phytoimages.siu.edu](http://www.phytoimages.siu.edu). This will bring you to an index page with six search fields:

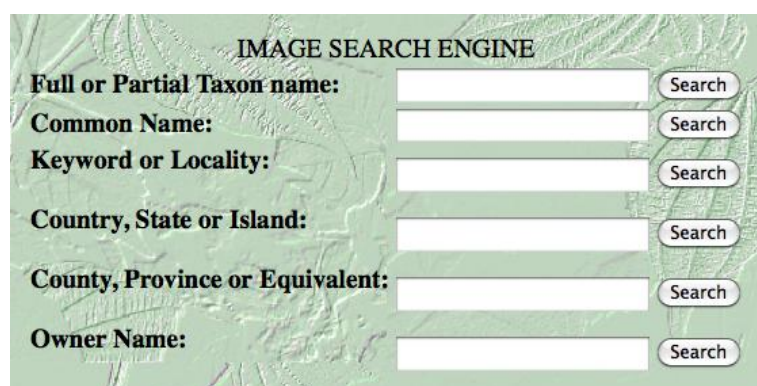


IMAGE SEARCH ENGINE

Full or Partial Taxon name:  Search

Common Name:  Search

Keyword or Locality:  Search

Country, State or Island:  Search

County, Province or Equivalent:  Search

Owner Name:  Search

### 1. Full or Partial Taxon name:

This search field is used for looking for photos by taxonomic name. [If you would enter 'Fabaceae'](#), for instance, it would bring you to the web page with all Fabaceae photos.

### 2. Common Name:

Unfortunately, this search field doesn't work yet. Work in progress!

### 3. Keyword or Locality:

a. This field allows you to search for photos taken from a locality name below the geographical level of province (for the Philippines). For example, [searching for 'Mingan'](#) will result in all plant photos taken on Mt. Mingan.

b. You can also use this field to search for text that is included in the captions of photos. For example, [entering 'stipule'](#) will give you all photos that use this keyword in the caption.

### 4. Country, State or Island:

If you are looking for all plant photos taken in a particular country (e.g., [Philippines](#)) or island (e.g., [Panay](#)), you should use this search field.

**5. County, Province or Equivalent:**

If you are looking for all plant photos taken in a particular province (e.g., [Aurora](#)), you should use this search field.

**6. Owner name:**

This field enables you to search for photos by owner. For example, [entering 'Leonardo L. Co'](#) will result in all plant photos that were taken by him.

## 5. Finding taxonomic literature and other identification resources

### 1. Literature references on family pages:

The pteridophyte and gymnosperm pages, as well as every angiosperm family page lists literature references that are important for the relevant plant group in the Philippines. You can find these references at the bottom of each page. A lot of scientific literature is freely available online (i.e. open access), for instance through the [Biodiversity Heritage Library](#) or the [Naturalis Repository](#). Links to free online literature are provided on each CDFP page.

### 2. CDFP literature web page:

[A separate CDFP web page](#) lists a wide range of literature and other resources that are relevant to tropical Asian plant taxonomy and particularly the Philippines. This is a short list of some of the general free online resources that we most frequently use ourselves when identifying Philippine plants (in no particular order):

1. The Flora Malesiana taxonomic revisions for [pteridophytes](#) and [seedplants](#)
2. Ferry Slik's [Plants of Southeast Asia](#) website
3. [The Kew Record of Taxonomic Literature](#)
4. [The Interactive Key to Seed Plants of Malesia and Indo-China](#)
5. Digital Herbarium websites, such as those of [K](#), [L](#), [P](#), and [US](#)
6. [Max van Balgooy's Malesian Seed Plants books](#)