

Checklist of Flowering Plants (Magnoliophyta) of Mount Nglanggeran, Gunungkidul: Confirmation and Update of Flora of Java and APG III

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Abstract

This study aimed to collect data on the species plants in Mount Nglanggeran, to confirm and update the existence of these plants from Flora of Java book by Backer & Bakhuizen, and to showing the visual data of plant species in Nglanggeran Mountain. This research used survey method through *in-situ* visit and specimen collection. Monitoring and visits were conducted based on prediction of flowering period and fruit-bearing season. Eighty plant families of flowering plants were found in the mount Nglanggeran. Based on the phylogenetic arrangement of flowering plants it was found that all the main groups (clades) of flowering plants were found at this location.

Keywords: checklist; magnoliophyta; update plant list; Mount Nglanggeran; local plant.

INTRODUCTION

Non-cultivated plants in Java, especially in Yogyakarta tends to be neglected by young generations. The plants left as ornamental plants, wild plant on waste lands or protected places such as in protected forests, cemeteries, etc. More often unknown plant identified only by its scientific name and preserved in herbarium centers in Europe and discussed in old books in the past but the current distribution is almost no longer updated.

Mount Nglanggeran area is now an attractive tourist destination. Mount Nglanggeran is the remnant of ancient volcano with almost parallel magmatic rock area. This area is uninhabited and is a protected area. The status of such area cause the protection of different types of local and wild plants that are no longer in residential areas. In previous research, the author has found plant species that can only be traced from old herbaria and old manuscript sources. Publications and data of such plants are very rare.

Flora of Java (Backer & Bakhuizen, 1962-70) and Flora of British India (Hooker, 1885) are important manuscripts as guidance for plant identification in Java, Indonesia, and Southeast Asia in general. Not all local plants can be identified and listed in this book, but through comparison based on the description of the family and genus levels can lead identification to other books and herbaria-herbarium that have been published. The greatest disadvantage of these books is that they are filled with verbal descriptions with no illustrations, making it very difficult to identify even though the plant data is relatively complete.

The identification process of plants in mount Nglanggeran is relatively difficult and requires a lot of data. Often the identity of plant species is known for many years after the observation done. Preliminary data from author showed that the mount Nglanggeran plant represents nearly 230 flowering plant families in the Flora of Java (1962-70) from about 560 flowering plant families in the world (Takhtajan, 2008) .

Based on the above description, it is important to document the Nglanggeran plants and systematically arranged the hierarchy of plant families. This systematic visual documentation is useful to help the use of Flora of Java book, to explore and introducing the richness of plants in mount Nglanggeran, and revealing the vegetation data that is no longer recognized by people.

This paper aimed to show the data of families of plant species in mount Nglanggeran, to confirm the existence of the plants in Flora of Java by Backer & Bakhuizen, and showing visual photograph data of plant species in mount Nglanggeran Mountain.

MATERIALS AND METHODS

This researchs were field and literature research. Field research was survey method (Singh, 2010. Collection was done by sampling specimen for herbaria and photograping herbarium sampling with attention on the sustainability of plant population. Monitoring and visits are conducted with consideration of the prediction of the period inflorescence and fruit formation.

Equipments and materials

Equipments for observation and collection consist of: Sony Nex F3 digital camera, Sony Cyber-Shot DSC-W180 digital camera, Canon DSLR digital camera, glass slide, micrometer, slide length, small roll meter, plastic collection, scissors, cutter, GPS (Global Positioning System), dry herbarium collection kit, flakon bottle, Nikon SMZ 1500 stereo microscope equipped with camera, Nikon Eclipse 50 light microscope equipped with Nikon DSF1 camera. Materials for observation and collection consist of: Aquadest, Alcohol 70%, FAA solution (Formalin Acetic Alcohol).

Work procedure

The working procedures were as follows: photographing and observing of specimen in situ, herbarium, and flower/fruit. The data were compared to Flora of Java (Backer & Bakhuizen, 1963-70) and other existing literature, checking and matching with herbarium types and illustrations/drawings in the literature to identify the specimen.

RESULTS AND DISCUSSION

Flora of Java book by Backer & Bakhuizen (1963-1968) describes Spermatophyta found in Java. Description is an explanation of important character of plants or groups of plants in the category of family, genus, and species. The pattern of explanation of the characteristics of the plant begins with the description of the characteristics of flowers followed by vegetative characteristics.

Flora of Java book by Backer & Bakhuizen (1963-1968) consists of volumes 1, 2, 3. Volumes 1 and 2 contain descriptions of dicotyle plants consisting of 190 families. Volume 3 contains descriptions of monocotyle containing 48 families. So the total family of plants in Flora of Java is 238 families. This book contains 2885

genera on Volume 1, 2199 genera on Volume 2 and 2018 genera on Volume 3, or a total of 7112 genera.

This book is very useful for the identification of plants found in yards, gardens, fields, and forests. The main obstacles to the use and limitations of this book are the absence of visual illustrations and requirement of flower as main character for identification discovery of interest and its characteristics in the identification process. Wild and unknown vegetation in forest areas which is rarely blooming at observation, could be very difficult to identify without the appearance of flowers and fruit.

From this study it is found that the diversity of plant species in the mount Nglanggeran are 80 families of seed plants from 238 families in the book Flora of Java (Backer and Bakhuizen, 1963-1968) or around 33, 19%. Details of the percentage of family are 32 out of 110 families in the book Volume 1 (29.09%); 33 of the 80 families in the book Volume 2 (41.25%); 15 families of 48 families in the book Volume 3 (31.25%).

The existence of flowering plants genera in Mount Nglanggeran are 265 genera of 7112 genera in Flora of Java (Backer and Bakhuizen, 1963-1965) or 3.73% range. Detail of genera percentage are 108 genera of 2885 genera Volume 1 (3.74%); 105 of 2199 genera in Volume 2 (4, 74%) and 51 of 2018 genera in volume 3 (2.51%).

Flowering plant is a group of plants that dominate the earth today. Seed plants in old taxonomic terms are manifestations of the Spermatophyta class, consisting of subclass Gymnospermae and Angiospermae (flowering plant). In the book Backer & Bakhuizen (1963-1968), Gymnospermae consist of 7 families whereas flowering plants consist of 231 families.

Table 1. Percentage of representation of each category of plant classification in mount Nglanggeran.

No.	Clade	Number of Orders	Order representation in mount Nglanggeran	Number of family	Family representation in Mount Nglanggeran
1	Unrank	4	0	7	0
2	Magnoliids	4	3 or 75 %	20	4 or 20 %
3	Monocot Commeliniids	5	4 or 80 %	31	7 or 22,58%
4	Monocot Non Commeliniids	7	5 or 71,42 %	46	9 or 19,56 %
5	Eudicot Unrank	6	1 or 16,67 %	15	2 or 13,33 %
6	Core Eudicot Rosids Fabids	8	7 or 87,5 %	71	14 or 19,71 %
7	Core Eudicot Rosids Malvids	6	4 or 66,67 %	59	13 or 22,03 %
8	Core Eudicot Unrank	7	6 or 85,71 %	87	15 or 13,21 %
9	Core Eudicot Asterids Lamids	5	4 or 80 %	40	14 or 35 %
10	Core Eudicot Asterids campanulids	7	2 or 28,57 %	27	4 or 14,81 %

According to Singh (2010), gymnospermae plants consist of 11 families covering 80 genera, whereas flowering plants consist of 485 families covering 13,372 genera including 253,000 species (10,760 genera, 196,990 species dikotil, 2,612 genera, 56,310 monocots species).

Currently the reform of the categories of angiospermae plant classification (flowering plants) is carried out by the APG association (Angiospermae Phylogeny Group) (APG III, 2009). Flowering plants comprised about 62 orders that included about 410 families. Table 2 shows the checklist of the existence of plant species in mount Nglanggeran following the family order based on APG III (2009). Table 1 shows the proportions of each category.

From Table 1 it is found that all the major flowering plant clusters are in Nglanggeran Mountain, except for basal groups of Mangnoliids which are present only in certain regions of the world. Based on the percentage of representation of the order, it is found that the plants in Nglanggeran Mountain were mainly clade Core eudicot Rosiid Fabids group followed by Core Eudicot unrank, Core Eudicot Asterids Lamids, Monocot Commeliniids. Based on the percentage of representation of existing families, it is found that the composition of plants in mount Nglanggeran is mainly from Cie Eudicot unrank clade, Core Eudicot Rosiid Fabids, Eudicot Asterids Lamiids, Core Eudicot Rosids Malvids.

The representation of all the major clusters of flowering plants in mount Nglanggeran shows that this location is an important site for continuous researches. Visual data in the form of specimens, photographs, or living plants in situ can be utilized to introduce more easily to the people about the diversity of flowering plants. Detailed photographs or plant images need to be prepared for this step.

Description of plant character of Flora of Java should be supported by visual data and real specimens in relation to the importance of identifying species for various purposes. The visual data of plants in mount Nglanggeran obtained in this study should be arranged systematically to complement and facilitate the use of the book. Preparation of hierarchy of clade, order, family of flowering plants according to APG III is done to update how to study plant diversity and its identification.

CONCLUSION

It was found 80 families of flowering plants in the mount Nglanggeran. Based on the phylogenetic arrangement of flowering plants it was found that all the main groups (clades) of flowering plants were found at this location.

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Table Family plant list (Backer & Bakhuizen, 1962) and list of seed plants in mount Nglanggeran.

No.	Family	Availability in location	Estimation of number	Species Name	Availability in location	Estimation of number	Species Name
1	Magnoliaceae				Available	1	Magnolia alba
2	Schisandraceae						
3	Annonaceae	Available	6	Uvaria rufa Anomianthus dulcis Meiogyne sp Polyaulax sp Annona muricata Annona squamosa	Available	2	Stelechocarpus burahol Polyaltia sp
4	Lauraceae	Available	2	Litsea chinensis	Available	1	Persea americana
5	Hernandiaceae						
6	Myristicaceae				Available	1	Myristica sp
7	Ranunculaceae	Available	1	Clematis javana			
8	Ceratophyllaceae						
9	Nymphaeaceae						
10	Berberidaceae						
11	Menispermaceae	Available	6	Pycnarhena montana Arcangelisia sp Tinospora coriacea Stephania hernandifolia Cissampelos sp Pericampylus glaucus Cyclea barbata	Available	1	Tinospora crispa
12	Aristolochiaceae	Available	1	Aristolochia indica			
13	Raflesiaceae						
14	Nepenthaceae						
15	Piperaceae	Available	7	Piper bettle Piper retrofractum Piper nigrum Piper aduncum Peperomia pelucida Peperomia sp Piper sp			
24	Saururaceae						
25	Chloranthaceae						
26	Papaveraceae						
27	Fumariaceae						
28	Turneraceae						Piriqueta racemosa Turnera ulmifolia
29	Loasaceae						
30	Capparaceae	Available	5	Capparis micracantha Capparis pyrifolia Capparis sepiaria Cleome rutidosperma Gynandropsis gynandara			Cleome sp Gynandropsis sp
31	Moringaceae						Moringa oleifera
32	Brassicaceae						
33	Violaceae						
34	Resedaceae						
35	Polygalaceae		2	Polygala paniculata Polygala glomerata			
36	Crassulaceae						Kalanchoe pinnata
37	Saxifragaceae						
38	Droseraceae						
39	Podostemataceae						
40	Elatinaceae						
41	Caryophyllaceae						
42	Molluginaceae		1				Mollugo pentaphylla Glinus lotoides (bawukan berbulu) Glinus oppositifolius (bawukan licin)
43	Ficoidaceae						Trianthema portulacastrum
44	Portulacaceae		1				Portulaca oleracea

				Talinum paniculatum Talinum fruticosum Famili baru: Talinaceae
45	Polygonaceae			Polygonum orientale Polygonum chinense Polygonum barbatum Antigonon leptopus Muehlenbeckia platyclada
46	Phytolaccaceae			Rivinia humilis
47	Chenopodiaceae			
48	Amaranthaceae			Celosia argentea Amaranthus hybridus Amaranthus gracilis Amaranthus spinosus Cyathula prostrata Aerva sanguinolenta Achyranthea aspera Alternanthera sessilis Alternanthera phyloxeroides Gomphrena celosioides
49	Basellaceae			Basella rubra Anredera cordifolia
50	Linaceae			
51	Zygophyllaceae			
52	Geraniaceae			
53	Oxalidaceae	3	Oxalis barrelieri Oxalis corniculata Biophytum reinwardtii	Averrhoa carambola Averrhoa bilimbi
54	Tropaeolaceae			
55	Balsaminaceae	1	Impatien platypetala	
56	Lythraceae	1	Lawsonia inermis	Lagerstroemia indica Lagerstroemia speciosa Cuphea hyssopifolia
57	Crypteroniaceae			
58	Sonneratiaceae			
59	Punicaceae			Punica granatum (Famili Lythraceae)
60	Onagraceae			
61	Trapaceae			
62	Haloragaceae			
63	Callitrichaceae			
64	Thymelaeaceae	1	Phaleria octandra	Phaleria macrocarpa
65	Nyctaginaceae	3	Mirabilis jalapa Boerhavia erecta Bougainvillea spectabili	
66	Proteaceae			
67	Dilleniaceae	1	Tetracera scandens	
68	Pittosporaceae			
69	Bixaceae			Bixa orellana
70	Cochlospermaceae			
71	Flacourtiaceae (Salicaceae)	1	Flacourtia indica	
72	Tamaricaceae			
73	Passifloraceae	2	Passiflora foetida Passiflora edulis	Passiflora suberosa Passiflora vitifolia Passiflora quadrangularis
74	Cucurbitaceae	3	Momordica charantia Trichosanthes villosa Trichosanthes tricuspidata	Citrus vulgaris Cucumis sativus Luffa acutangula Cucurbita moschata Coccinia grandis Sechium edule Benincasa hispida
75	Begoniaceae			
76	Datiscaceae			
77	Caricaceae			Carica papaya
78	Cactaceae			Pereskia sp Nopalea sp

Opuntia sp
Cereus sp
Hylocereus sp (Buah
Naga)
Epyphyllum sp
(Wijayakusuma)

79	Theaceae			
80	Actinidaceae			
81	Saurauiceae			
82	Ocnaceae			
83	Dipterocarpaceae			
84	Myrtaceae	4	Psidium guajava Zyzygium cumini Zyzygium polyanthum Zyzygium javanicum	Zyzygium aromaticum Zyzygium malaccensis Melaleuca leucadendron Callistemon sp
85	Lecythidaceae	1	Barringtonia asiatica	Barringtonia racemosa Barringtonia asiatica
86	Melastomataceae	3	Melastoma malabathricum Osbeckia chinensis Memecylon caeruleum	
87	Combretaceae	1	Terminalia catappa	Quisqualis indica (Srigading)
88	Rhizophoraceae			
89	Hyericaceae			
90	Clusiaceae	2	Calophyllum inophyllum Garcinia mangostana	
91	Tiliaceae		Triumfetta indica Schoutenia ovata Mutingia calabura	Corchorus acutangulus
92	Elaeocarpaceae	1	Mutingia calabura	
93	Gonystylaceae			
94	Sterculiaceae	1	Helicteres hirsuta	Helicteres isora
95	Bombacaceae		Ceiba petandra	Durio zibethinus Bombax ceiba
96	Malvaceae	8	Sida cordata Triumfetta indica Abutilon crispum Abutilon hirtum Wissadula periplocifolia Sida rhombifolia Sida acuta Hisbiscus surattensis Abelmoschus moschatus	Corchorus acutangulus Melochia corchorifolia Waltheria americana Hisbiscus rosa-sinensia Hisbiscus tiliaceus Malvaviscus arboreus
97	Malpighiaceae			
98	Erythroxylaceae			
99	Euphorbiaceae	20	Glochidion eriocarpum Glochidion puberum Glochidion rubrum Breynia oblongifolia Phyllanthus muriculatus Phyllanthus reticulatus Phyllanthus emblica Phyllanthus niruri Sauropus androgynus Bridelia micrantha Bridelia stipularis Croton hyrtus Acalypha indica Acalypha boehmerioides Jatropha gossypifolia Jatropha multifida Euphorbia hirta Euphorbia prostrata Euphorbia heterophylla Manihot esculenta Manihot glaziovii Hevea brasiliensis	Croton variegatus Acalypha wilkesiana Ricinus communis Jatropha curcas Codiaeum variegatum Pedilanthus variegatus
100	Daphniphyllaceae			
101	Cunoniaceae			
102	Escalloniaceae			
103	Hydrangeaceae			

104	Rosaceae	Available	1	<i>Rubus moluccanus</i>
105	Dichapetalaceae			
106	Caesalpiniaceae	Available	3	<i>Cassia siamea</i> <i>Cassia occidentalis</i> <i>Cassia obtusifolia</i>
107	Mimosaceae	Available	8	<i>Albizia montana</i> <i>Albizia lebbeck</i> <i>Albizia procera</i> <i>Leucaena glauca</i> <i>Mimosa pdica</i> <i>Mimosa invisa</i> <i>Acacia auriculiformis</i> <i>Parkia speciosa</i>
108	Papilionaceae	Available	15	<i>Crotalaria usaramoensis</i> <i>Crotalaria striata</i> <i>Indiofera sumatrana</i> <i>Desmodium pulchellum</i> <i>Desmodium gangeticum</i> <i>Desmodium triflorum</i> <i>Alysicarpus nummularifolius</i> <i>Uraria crinita</i> <i>Uraria logopoides</i> <i>Abrus precatorius</i> <i>Centrosema pubescens</i> <i>Mucuna pruriens</i> <i>Flemingia strobilifera</i> <i>Alysicarpus sp</i> <i>Gliricidia sepium</i>
109	Hamamelidaceae			
110	Buxaceae			
111	Salicaceae			<i>Flacuortia indica</i>
112	Myricaceae			
113	Betulaceae			
114	Fagaceae			
115	Casuarinaceae			<i>Casuarina junghuhnia</i> <i>Casuarina equisetifolia</i>
116	Ulmaceae			
117	Moraceae	Available	16	<i>Fatoua sp</i> <i>Morus sp</i> <i>Malaisa scandens</i> <i>Streblus asper</i> <i>Streblus taxoides</i> <i>Maclura cochinchinensis</i> <i>Ficus benyamina</i> <i>Ficus septica</i> <i>Ficus montana</i> <i>Artocarpus integra</i> <i>Poikilospermum suaveolens</i>
118	Urticaceae	Available		<i>Laportea sp</i> <i>Fleurya sp</i> <i>Pilea microphylla</i> <i>Pouzolzia zeylanica</i> <i>Boehmeria sp</i>
119	Cannabaceae			
120	Aquifoliaceae			
121	Celastraceae	Available	1	<i>Celastrus scandens</i>
122	Hippocrateaceae			
123	Icacinaceae			
124	Salvadoraceae			
125	Olacaceae	Available	1	<i>Olx scandes</i>
126	Opiliaceae			
127	Loranthaceae	Available	1	<i>Elythranthe sp</i>
128	Santalaceae	Available	1	<i>Santalum album</i>
129	Balanophoraceae			
130	Rhamnaceae	Available	2	<i>Zizyphus oenoplia</i>
131	Elaeagnaceae			
132	Vitaceae	Available	7	<i>Vitis discolor</i> <i>Tetrastigma</i>

				leucostaphylum Cissus repens Cayratia trifolia Leea aequata Leea rubra	
133	Rutaceae		5	Glycosmis petaphylla Murraya paniculata Clausena excavata Aegle marmelos Zanthoxylum sp	
134	Simarubaceae	Available	1	Brucea javanica	
135	Burseraceae				
136	Meliaceae	Available	2	Swietenia mahagoni Chisocheton sp	Lansium domesticum Melia azedarach Dysoxylum sp.
137	Sapindaceae	Available	3	Cardiospermum halicacabum Allophylus cobbe Erioglossum rubiginosum	Shcleicera oleosa Euphoria longana Nephelium lappaceum Pometia pinnata Filicium decipiens
138	Aceraceae				
139	Sabiaceae				
140	Staphyleaceae				
141	Anacardiaceae	Available	4	Anacardium occidentale Mangifera indica Mangifera odorata Gluta renghas	Spondias dulcis Lannea coromandeca
142	Connaraceae				
143	Juglandaceae				
144	Cornaceae				
145	Alangiaceae				
146	Nyssaceae				
147	Araliaceae	Available	1	Schefflera sp	Nothopanax scutellarium Polyscias sp Arthrophyllum sp
148	Apiaceae	Available	2	Centela asiatica Eringium foetidum	Hydrocotyle sp
149	Clethraceae				
150	Ericaceae				
151	Vacciniaceae				
152	Epacridaceae				
153	Ebenaceae	Available	1	Diospyros truncata	
154	Sapotaceae				Cryosophyllum cainito Mimusops elingi Manilkara kauki Manilkara achras
155	Myrsinaceae	Available	2	Ardisia humilis Ardisia crenata	
156	Styracaceae				
157	Symplocaceae				
158	Loganiaceae	Available	2	Spigelia althemia Fagraea ceilanica	
159	Oleaceae	Available	1	Jasminum pubescens	
160	Apocynaceae	Available	8	Alstonia sholaris Alstonia angustiloba Rauvolfia verticilata Anodendron paniculatum Chonemorpha fragran Ichnocarpus frutescens Tabernaemontana macrocarpa Wrightia pubescens	
161	Asclepiadaceae	Available	6	Cryptolepis sinensis Calotropis gigantea Hoya sp Marsdenia brunoniana Telosma puberula Cosmostigma racemosum	Cynanchum sp Marsdenia tenacissima Gymnema sylvestris Asterostemma repandum
162	Rubiaceae	Available	8	Hedyotis corymbosa	

				Ophiorrhiza mungos Nauclea orientalis Musaenda frondosa Pavetta indica Psychotria sp Paederia scandens Vangueria spinosa-Meyna grisea
163	Caprioliaceae			
164	Valerianaceae			
165	Dipsaceae			
166	Asteraceae	Available	14	Vernonia cinerea Elephantopus scaber Pseudoelephantopus spicatus Ageratum conyzoides Eupatorium inulifolium Erigeron sumatrensis Eclipta prostrata Wedelia montana Wedelia biflora Synedrella nodiflora Bidens biternata Tridax procumbens Emilia sonchifolia
167	Gentianaceae	Available	1	Isotoma longiflora
168	Primulaceae			
169	Plumbaginaceae	Available	1	Plumbago zeylanica
170	Plantaginaceae			
171	Campanulaceae			
172	Sphenocleaceae			
173	Lobeliaceae			
174	Goodeniaceae			
175	Stylidiaceae			
176	Polemoniaceae			
177	Hydrophyllaceae			
178	Boraginaceae	Available	2	Ehretia microphylla Heliotropium indicum
179	Solanaceae		4	Physalis minima Solanum torvum Solanum comitis Solanum nigrum
180	Convolvulaceae	Available	5	Merremia hastata Argyreia mollis
181	Scrophulariaceae	Available	3	Lingdermia crustacea Scoparia dulcis
182	Orobanchaceae			
183	Lentibulariaceae			
184	Gesneriaceae	Available	1	Epithema horsfieldii
185	Bignoniaceae	Available	2	Oroxylum indicum Crescentia cujete
186	Pedaliaceae			
187	Acanthaceae	Available	6	Thunbergia fragrans Andrographis paniculata Ruelia napifera Strobilanthes crispus Asystasia gangetica
188	Myoporaceae			
189	Verbenaceae	Available	9	Tectona grandis Lantana camara Stachytarpetta jamaicensis Vitex sp Cleroderdrum serratum Clerodendrum inerme Vitex sp Duranta erecta Premna odorata
190	Lamiaceae	Available	4	Leucas lavandulifolia Salvia riparia

				Hyptis rhomboides
				Hyptis suaveolens
191	Butomaceae			
192	Hydrocharitaceae			
193	Alismataceae			
194	Triuridaceae			
195	Aponogetonaceae			
196	Potamogetonaceae			
197	Ruppiaceae			
198	Zannichelliaceae			
199	Najadaceae			
200	Commelinaceae			
201	Flagellariaceae	Available	1	Fragellaria indica
201	Xyridaceae			
203	Eriocaulaceae			
204	Bromelliaceae			
205	Musaceae			
206	Strelitziaceae			
207	Zingiberaceae	Available	5	Zingiber cassumunar Zingiber zerumber Costus speciosus Curcuma sp
208	Cannaceae			
209	Marantaceae			
210	Liliaceae	Available	1	Gloriosa superba
211	Tecophilaeacea			
212	Pontederiaceae			
213	Smilacaceae	Available	1	Smilax sp
214	Philesiaceae			
215	Araceae	Available	7	Pothos scandens Amorphophalullus variabilis Alocasia crassifolia Typhonium trilobatum
216	Lemnaceae			
217	Typhaceae			
218	Amaryllidaceae			
219	Iridaceae			
220	Roxburghiaceae			
221	Dioscoreaceae	Available	6	Dioscorea alata Dioscorea bulbifera Dioscorea aculeata Dioscorea pentaphylla Dioscorea oppositifolia Dioscorea hispida
222	Xanthorrhoeaceae			
223	Agavaceae	Available	1	Agave cantala
224	Arecaceae	Available	1	Arenga pinnata
225	Pandanaceae	Available	1	Pandanus houlletii
226	Cyclanthaceae			
227	Haemodoraceae			
228	Hypoxidaceae	Available	2	Curculigo latifolia Hypoxis aurea
229	Velloziaceae			
230	Apostasiaceae			
331	Taccaceae	Available	1	Tacca palmata
332	Philydraceae			
233	Burmaniaceae			
234	Thismiaceae			
235	Orchidaceae	Available	6	Pecteilis susannae Liparis sp
236	Juncaceae			
237	Cyperaceae	Available	4	Scleria laevis

238	Poaceae	Available	14	<i>Imperata cylindrica</i> (Alang-alang) <i>Pollinia ciliata</i> <i>Polytrias amaura</i> (Rumput Lamuran) <i>Pogonatherum paniceum</i> (Rumput Wesen) <i>Andropogon aciculatus</i> (Rumput Jarum) <i>Themeda arguens</i> (Rumput Merak) <i>Oplismenus compositus</i> <i>Setaria</i> sp <i>Axonopphus compressus</i> <i>Anastrophus compressus</i>
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Table Checklist of exist plant species in mount Nglanggeran by Clade, Order, Family as suggested by APG III (2009).

CLADE		ORDER	FAMILY	EXISTENCE IN MOUNT NGLANGGERAN
		Amborellales	Amborellaceae	
		Nymphaeales	Cabombaceae Hydatellaceae Nymphaeaceae	
		Austrobaileyales	Austrobaileyaceae Schisandraceae+Illiciaceae Trimeniaceae	
		Cloranthales	Chloranthaceae	
MAGNOLIIDS	Piperales		Aristolochiaceae	v
			Hydnoraceae	
			Lactoridaceae	
			Piperaceae	v
			Saururaceae	
	Canellales		Canellaceae	
			Winteraceae	
	Magnoliales		Annonaceae	v
			Deneriaceae	
			Eupomatiaceae	
			Himantandraceae	
			Magnoliaceae	
	Laurales		Myrticaceae	
			Atherospermataceae	
			Calycanthaceae	
			Gomortegaceae	
			Hernandiaceae	
Lauraceae			v	
Monimiaceae				
Siparunaceae				
MONOCOT	Commelinids	Commelinales	Commelinaceae	v
			Haemodoraceae	
			Hanguanaceae	
			Philydraceae	
			Pontederiaceae	
		Zingiberales	Cannaceae	
			Costaceae	v
			Heliconiaceae	
			Lowiaceae	
			Marantaceae	
			Musaceae	

Poales	Sterlitziaceae		
	Zingiberaceae	v	
	Anarthriaceae		
	Bromeliaceae		
	Centrolepidaceae		
	Cyperaceae	v	
	Ecdeiocaulaceae		
	Eriocaulaceae		
	Flagellariaceae	v	
	Joinvilleaceae		
	Juncaceae		
	Mayacaceae		
	Poaceae	v	
	Rapateaceae		
	Restionaceae		
	Thurniaceae		
	Typhaceae+Sparganiaceae		
Xyridaceae			
Arecales	Arecaceae	v	
Dasygongonaceae	Dasygongonaceae		
Asparagales	Amaryllidaceae++Alliaceae		
	Asparagaceae+Agaveaceae	v	
	Asteliaceae		
	Blandfordiaceae		
	Boryaceae		
	Doryanthaceae		
	Hypoxidaceae	v	
	iridaceae		
	Ixioliriaceae		
	Lanariaceae		
	Orchidaceae	v	
	Tecophilaeaceae		
	Xanthorrhoeaceae		
	Xeronemataceae		
	Liliales	Alstroemeriaceae	
		Campynemataceae	
		Colchicaceae	v
Corsiaceae			
Liliaceae		v	
Melanthiaceae			
Petermanniaceae			
Philesiaceae			
Ripogonaceae			
Smilacaceae		v	
Pandanales	Cyclanthaceae		
	Pandanaceae	v	
	Stemonaceae		
	Triuridaceae		
	Velloziaceae		
Dioscoreales	Burmanniaceae		
	Dioscoreaceae	v	
Petrosaviales	Nartheceaceae		
	Petrosaviaceae		
Alismatales	Alismataceae+Limnocharitaceae		
	Aponogetonaceae		
	Araceae	v	
	Butomaceae		

				Cymodoceaceae Hydrocharitaceae Juncaginaceae Posidoniaceae Potamogetonaceae Ruppiaceae Scheuchzeriaceae Tofieldiaceae Zosteraceae Acorales Acoraceae		
EUDICOT			Ceratophyllales Ranunculales Sabiales Proteales Buxales Trochodendrales	Ceratophyllaceae Berberidaceae Circaeasteraceae Eupteleaceae Lazirdabalaceae Menispermaceae Papaveraceae+Fumariaceae Ranunculaceae Sabiaceae Nelumbonaceae Platanaceae Proteaceae Buxaceae Haptanthaceae Trochodendraceae	v v	
			CORE EUDICOT	Gunnerales	Guneraceae Myrothamnaceae	
	RODIDS	Fabids		Cucurbitales Fagales Rosales Fabales Celastrales Oxoidales	Anisophyllaceae Begoniaceae Coriariaceae Corynocarpaceae Cucurbitaceae Datisceae Tetramelaceae Betulaceae Casuarinaceae Fagaceae Juglandaceae Myricaceae Nothofagaceae Ticodendraceae Berbeyaceae Cannabaceae Dirachmaceae Elaeagnaceae Moraceae Rhamnaceae Rosaceae Ulmaceae Urticaceae Fabaceae Polygalaceae Quillajaceae Surianaceae Celastraceae Lepidobotriaceae Brunelliaceae	v v v v v v v

				Cephalotaceae	
				Conaraceae	
				Cunoniaceae	
				Elaeocarpaceae	
				Huaceae	
				Oxalidaceae	v
		Malpighiales		Achariaceae	
				Balanoporaceae	
				Bonnetiaceae	
				Calophyllaceae	
				Caryocaraceae	
				Centroplocaceae	
				Chrysobalanaceae	
				Clusiaceae	
				Ctenolophonaceae	
				Dichapetalaceae	
				Erythrocyllaceae	
				Euphorbiaceae	v
				Goupiaceae	
				Humiriaceae	
				Hypericaceae	
				Irvingiaceae	
				Ixonanthaceae	
				Lacistemataceae	
				Linaceae	
				Lophopixidaceae	
				Malphigiaceae	
				Ochnaceae+Medusaginaceae	
				Pandaceae	
				Passifloraceae+Turneraceae	v
				Phyllantaceae	v
				Picrodendraceae	
				Podostemaceae	
				Putranjvaceae	
				Rafflesiaceae	
				Rhiosporaceae	
				Salicaceae	v
				Trigoniaceae	
				Violaceae	
		Zygophyllales		Krameriaceae	
				Zygophyllaceae	v
Malvids	Malvales			Bixaceae	
				Cistaceae	
				Cytinaceae	
				Dipterocarpaceae	
				Malvaceae	v
				Mutingiaceae	v
				Neuradaceae	
				Sarcocaulaceae	
				Thymelaeaceae	v
				Sphaerosepalaceae	
	Brassicales			Akanaceae	
				Bataceae	
				Brassicaceae	
				Capparaceae	v
				Caricaceae	
				Cleomaceae	

			Emblingiaceae	
			Gyrostemonaceae	
			Koeberliniaceae	
			Limnanthaceae	
			Moringaceae	
			Pentadiplandraceae	
			Resedaceae	
			Salvadoraceae	
			Setchelanthaceae	
			Tovariaceae	
			Tropaeolaceae	
		Huerteales	Dipentodontaceae	
			Gerrardinaceae	
			Tapisceaeae	
		Sapindales	Anacardiaceae	v
			Bierbersteiniaceae	
			Burseraceae	
			Kirkiaceae	
			Meliaceae	v
			Nitrariaceae	
			Rutaceae	v
			Sapindaceae	v
			Simaroubaceae	v
		Picramniales	Paramniaceae	
		Crossosomatales	Aphloiaceae	
			Crossomataceae	
			Geissolomataceae	
			Guamatelataceae	
			Stachyuracaceae	
			Staphyleaceae	
			Strasburgeriaceae	
		Myrtales	Alzateaceae	
			Combretaceae	v
			Crypteroniaceae	
			Lythraceae	v
			Melastomataceae	v
			Myrtaceae	v
			Penaeaceae	
			Vochysiaceae	
			Onagraceae	
		Geraniales	Geraniaceae	
			Melanthaceae	
			Vivianiaceae	
		Vitales	Vitaceae	v
		Saxifragales	Altingiaceae	
			Aphanopetalaceae	
			Cercidiphyllaceae	
			Crassulaceae	v
			Daphniphyllaceae	
			Cercidiphyllaceae	
			Haloragaceae	
			Hamamelidaceae	
			Iteaceae	
			Pterostemonaceae	
			Paeoniaceae	
			Penthoraceae	
			Peridiscaceae	

	Saxifragaceae	
	Tetracarpaceae	
Dilleniaceae	Dilleniaceae	v
Berberidopsidales	Aextoxicaceae	
	Berberidopsidaceae	
Santalales	Balanophoraceae	
	Loranthaceae	v
	Misodendraceae	
	Santalaceae	v
	Olaceae	v
	Opiaceae	
	Shcoepfiaceae	
Caryophyllales	Achatocarpaceae	
	Aizoaceae	
	Amaranthaceae	v
	Anacampserotaceae	
	Ancistrocladaceae	
	Asteropeiaceae	
	Barbeuiaceae	
	Basellaceae	
	Cactaceae	
	Caryophyllaceae	
	Didiereaceae	
	Dioncophyllaceae	
	Droseraceae	
	Drossophyllaceae	
	Frankeniaceae	
	Gisekiaceae	
	Halophytaceae	
	Limeaceae	
	Lophiocarpaceae	
	Molluginaceae	v
	Montiaceae	
	Nepenthaceae	
	Nyctagynaceae	v
	Physenaceae	
	Phytolaccaceae	
	Plumbaginaceae	v
	Polygonaceae	
	Portulacaceae	
	Rhabdodendraceae	
	Sarcobataceae	
	Simonsiaceae	
	Stegnospermataceae	
	Talinaceae	v
	Tamaricaceae	
Cornales	Cornaceae	
	Curtisiaceae	
	Grubbiaceae	
	Hydrangeaceae	
	Hydrostachyaceae	
	Loasaceae	
Ericales	Actinidiaceae	
	Balsaminaceae	v
	Clethraceae	
	Cyrtillaceae	
	Diapensiaceae	

			Ebenaceae	v
			Ericaceae	
			Fouquieriaceae	
			Lecythidaceae	v
			Maregravuaceae	
			Mitrastemnaceae	
			Pentaphragmaceae	
			Polemoniaceae	
			Primulaceae	
			Roridulaceae	
			Sapotaceae	v
			Sarraceniaceae	
			Sladeniaceae	
			Styracaceae	
			Symplocaceae	
			Tetrameristaceae	
			Theaceae	
ASTERIDS	Lamiids	Garryales	Eucommiaceae	
			Garryaceae	
		Gentianales	Apocynaceae	v
			Gelsemiaceae	
			Gentianaceae	v
			Loganiaceae	v
			Rubiaceae	v
		Lamiales	Acanthaceae	v
			Bignoniaceae	v
			Byblidaceae	
			Calceolariaceae	
			Carlemanniaceae	
			Gesneriaceae	v
			Lamiaceae	v
			Linderniaceae	
			Lentibulariaceae	
			Martyniaceae	
			Oleaceae	v
			Orobanchaceae	
			Paulowniaceae	
			Pedaliaceae	
			Phrymaceae	
			Plantaginaceae	
			Plocospermataceae	
			Schlegeliaceae	
			Scrophulariaceae	v
			Stilbaceae	
			Tetrachondraceae	
			Thomandersiaceae	
			Verbenaceae	v
		Solanales	Convolvulaceae	v
			Hydroleaceae	
			Montiniaceae	
			Solanaceae	v
			Sphenocleaceae	
		Boraginaceae	Boraginaceae	v
			Vahliaceae	
			Icacinaceae	
			Metteniusaceae	
			Oncotheaceae	

Campanulids	Aquifoliales	Aquifoliaceae		
		Cardiopteridaceae		
		Helwingiaceae		
		Phyllonomaceae		
		Stemonuraceae		
	Escalloniales	Escalloniaceae		
	Aterales	Alseuosmiaceae		
		Argophyllaceae		
		Asteraceae	v	
		Calyceraceae		
		Campanulaceae+Lobeliaceae	v	
		Goodeniaceae		
		Menyanthaceae		
		Pentaphragmaceae		
		Phellinaceae		
		Rousseaceae		
		Stylidiaceae		
		Dipsacales	Adoxaceae	
			Capriofoliaceae+Dipsacaceae+Linnaeaceae+Morinaceae+Valerianaceae	
		Paracryphiales	Paracryphiaceae+Quintiniaceae+Sphenostemonaceae	
		Apiales	Apiaceae	v
	Araliaceae		v	
		Griselniaceae		
		Myodocarpaceae		
		Pennatiaceae		
		Pittosporaceae		
	Toricelliaceae+Aralidiaceae+Melanophyllaceae			
Bruniales	Bruniaceae			