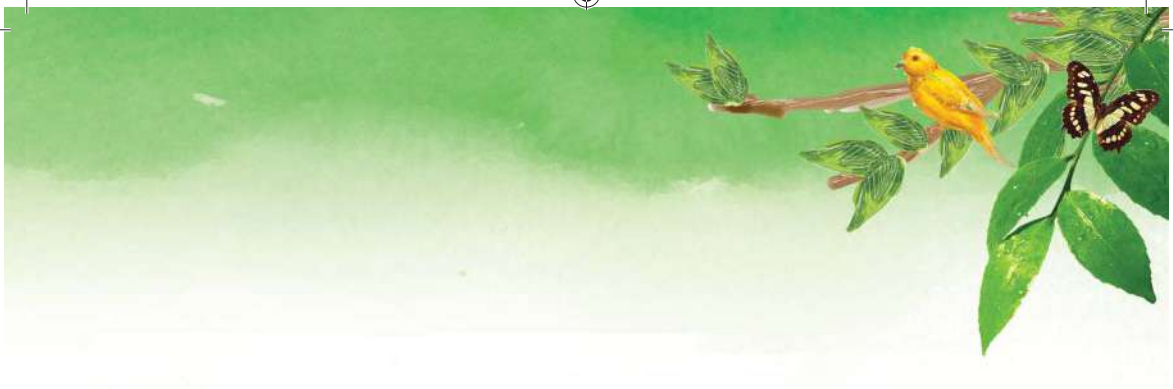


Cibodas to Cibeureum

A journey on one of the oldest and most famous tropical forest reserves on earth

Guide Book Cibodas – Cibeureum

ISBN : 978-979-8698-16-3

Supervisor : Ir. Herry Subagiadi M.Sc. (Park Manager of Gunung Gede Pangrango National Park),
Steering : Head Of Administration
Head of Technical Conservation

Text written by: Sondang R, Situmorang, ANdie Martien K, Iwan Ridwantara, Didin Syarifudin, Dadang Iskandar
Data collection: Sondang R, Situmorang, Andie Martien K, Iwan Ridwantara, Sopian
Design and layout: Andie Martien K, M. Fadjri, Ristianto Pribadi
Text in Indonesia edited by: Siti Chadijah, K
Text in English edited by: Agus Mulyana, Neville J. Kemp, Ratna Widuri, Didin Syarifudin, Widya Kridaningsih

1st Edition, November 1996
2nd Edition, Novemeber 2007
3rd Edition, Desember 2012
4th Edition, Desember 2013
5th Edition, Desember 2015

Tamam Nasional Gunung Gede Pangrango
Jl. raya Cibodas, Po Box 3 SDL, Cipanas – Cianjur 43253, Indonesia
Telp/Fax: +62-263-512776/513415
Web: www.gedepangrango.org
Email: info@gedepangrango.org

Funding:
DIPA Bagian Anggaran 29 Tahun Anggaran 2015

Foreword

One of the missions of Gunung Gede Pangrango National Park Management is charged with dissemination information and interpretation to promote and awareness for conservation efforts to community, in particular for visitors. Providing information and interpretation can improve visitors' experience and enjoyment while doing a walk in Cibodas to Cibeureum pathways.

This book is a revision of Cibodas to Cibeureum – Information Book series volume 1, which was made by Mt. Gede National Park in 1996. After more tha 19 years, many changes have occurred on Cibodas to Cibeuerum pathways, starting from Cibodas gate to the Cibeureum Waterfalls. Therefore, some adjustments need to be done in order to provide a better information for visitors. Several accurate information from the previous guide book are still maintained in this new guide book, while pictures and graphic details are renewed according to present conditions of the area.

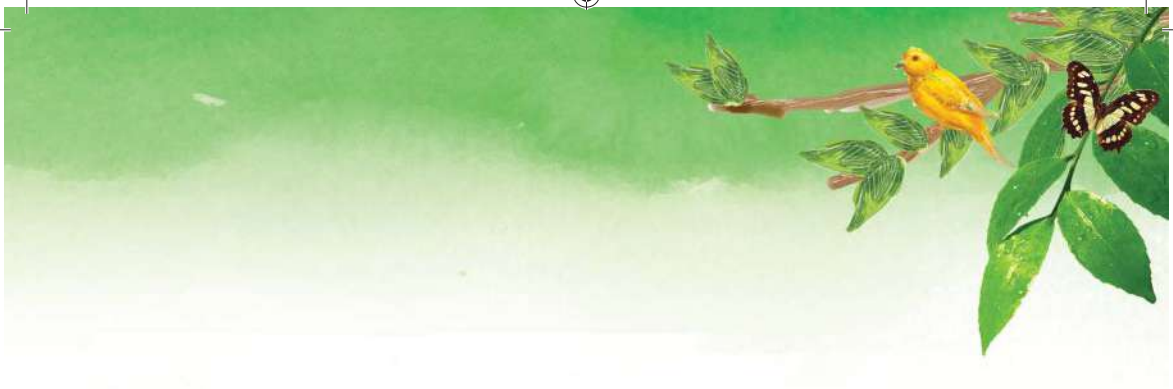
This book illustrates the rich biological diversity that visitors can discover along the pathways of Cibodas to Cibeureum Waterfalls.

I would like to express special thanks to team who put efforts to wrote the text and provided photographs and made this guide book possible. I wish, this book will be able to provide good information for everyone.

Cibodas, Desember 2015
Park Manager,

Ir. Herry Subagiadi M.Sc.
NIP. 196111151987031001

Table of Content



Cibodas to Cibeureum

A journey on one of the oldest and most famous tropical forest reserves on earth

Introduction

Visitors of the gunung Gede National Park will notice and interpret things in different ways. The guide book aims to help you enrich your experience during your visit.

We invite you to become surround by the 'feel' of the forest and to become aware of all your senses. A slow walk in the forest and careful observation will reveal many secrets.

Whilist in the forest ask yourself…for example, when a wasp chases you off, ask yourself why: is it territorial? Or, why do young forest leaves red or light green? Why do many fungi glow after dark? Why are rattan known as climber and covered with spines? Do the spines point up or down? Why some plants are stranglers and some are climbers? At first is may seem a great mystery. You might not come up with all the answers but you will, literally, be following in the footsteps of Wallace, van Steenis, Jacobs and many other eminent biologists. All were awe inspired by the wealth and beauty of this area. Read on and this book will help you to enlighten you.

About The Walk

Trail to Cibeureum waterfall is a well-laid stone path and wooden bridge in some parts of trail. It is recommended to use sturdy shoes or trainers for your comfort. The uphill trail, 2.7 km, one way, non-stop, takes about an hour. However, it could take three hours or more if you stop to look around. It will start to get dark at five, after which you will be in trouble without flashlight. Rain and strong wind is most likely mid-to late afternoon, especially between November and March.

The trail is equipped with hectometer marker stone, lays every 100 meters, 28 in all. The guide book uses these stones to direct you to particular point of interest.

Picture 1. Marker Stone

Picture 2. Cibodas – Cibeureum Trail

How to see things in A Forest:

- Keep as quiet as possible;
- Wer dull-coloured clothing;
- Listen carefully;
- Look very carefully;
- Investigate smells;
- Investigate to see where fallen flowers and fruits have come from.

Forest is a habitat for insets, reptiles, amphibians, birds, and mammals; but the do not usually jump out of you. It is vert easy to walk under a tree full of leaf and monkeys hiding behind the leaves. In the quiet conditions of forest listen to the sound of insect, sound of water, and look at any leaves that move and even at those that don't!

There is no need to be frightened of the animals, but do not annoy wasps or scorpions; their sting is painful. Leeches are common in the forest but very rare on the path. Snakes and wild pigs are generally not a worry but it is best not to interfere with them if encounter (rarely). Plants are far more dangerous! Many are poisonous, or are covered with stinging hairs. Carefully, tree branches can fall in strong winds.

With many varieties of plant species, manu of which are tree. It will not be possible to identify everything. Therefore, the guide focoses on a few important, common or noticeable plants in order to indicate the are's remarkable botanical diversity.

Plants and trees have not been labeled in this trail. Labels are intrusive and tend to fall of. Hunt around for yourself, we hope this will be more rewarding and exciting.

How to use this book

The story is started from each marker stone 

which direct you "Where to Look".

As guidance, we have provided a list of "THINGS TO LOOK FOR". These items are in colur-coded boxes which mean the following:

- Always present/visible
- Usually present/usually not difficult to find
- Occasional/Seasonal

REMEMBER: if you can't find the objects at the location indicated in the text, try to search elsewhere.

Unless you are very keen and have a lot of time, we suggested that not all the information is read while in the forest – which will leave some discoveries to be made upon your return visit.

Plants' name are made in ***Sundanesse, Indonesian, English,*** and ***Scientific***

Before Entering The Forest

Observe the general view of the area as you walk towards the park enterance:

- Mt. Gede, ahead and to your left
- Mt. Pangrango, directly ahead
- Mt. Mandalawangi: the mountain ridge close-by on the right of golf
- Cikundul river, running form the valley head down to the right of the golf course
- Pancuran Mas waterfall on the Cibodas River, half way along golf course on left.

Picture 3. Gunung Gede Crater

Picture 4. TNGGP as Indonesia Tropical Rainforest

Gede Crater area: a seven-hour walk to the summit. Mt. Gede has now been quiet for around 50 years! Records say that the longer the mountain "sleep" the greater the chance of a violent eruption.

Eruption History

Mt. Gede first recorded eruption was in 1747. The most violent, however, spanned the months November 1840 – March 1841. In December of 1840 flames over 200 m high flared out of the crater. Showers of rocks and clouds of ash accompanied the event.

The last eruption was in 1948, with several very small events up to 1957. Fumaroles still gibe out sulphurous gases which its acidity stunts vegetation growth. A relatively recent eruption, created a big hole at the rim of ancient Mandalawangi crater. In the case of a large eruption it is likely the lava would flow straight towards Cibodas. Meanwhile, Mt. Pangrango is inactive, and older and wider than Mt. Gede.

Mt. Gede and Pangrango are both "YOUNG", Quaternary volcanoes, built up in the last three million years. Mt. Gede rises to 2,958 m above sea level, (a.s.l), and in clear conditions the crater wall can be seen. The older and now extinct cone of Mt. Pangrango reaches up to a height of 3019 m a.s.l.

The ridge or saddle connecting to the two peaks is at height of 2,400 m a.s.l. As you look at the volcanic complex your eye is ranging across three types of forest:

1. Sub-Montana (1.200 – 1.500 m a.s.l): Park Boundary to Telaga Biru
2. Montane (1.500 – 2.400 m a.s.l): Lake up to the saddle
3. Sub-Alpine (2.400 – 3.019 m a.s.l): Saddle to summit

ERUPTION: Good or Bad? It is an open case

Picture 5. Mount Pangrango's peak and mount Gede's crater wall

Past eruotion of Gede have devastated huge areas of vegetation, but on the other hand have enriched the soil by adding needed mineral. Lowland forests are generally closed systems: soil washed away by rain and the weathering of volcanic ash. Soils on lower slopes gain in the fertility due to weathering and biological activity. These soils are, therefore, much richer in clays and humus than the soils of higher areas.

Enterance Gate

Before entering the gate area, you pass gravel path with golf course at your right side and to the left is Botanical Garden. You will see the Enterance gate fo Gunung Gede Pangrango National Park. On your right is a place to buy ticket and insurance for visitors. Only visitors with ticket will be allowed to enter the park!!!

Picture 6. Enterance gate

Resort Cibodas Complex

In this complex you will find several buildings: offices of section of Cibodas and Resort of Cibodas, information centre, canteen, the Montana voluntary house, a research station, and an education centre. Take your time to enter the information centre before continuing your walk.

Picture 7. Resort Cibodas

Picture 8. Information Centre in Resort Cibodas

It is good to know several information about the park, such as: the richness of Gunung Gede Pangrango's plants and animals, display garbage from visitors (!Please do not follow their example!), the time takes for each kind of garbage to decompose, and the effect of the garbage on the environment.

HM 01

Look at the Forest!
On the right side of the path, about 2 m before the marker stone, there's Kitembaga tree.

- Red Kitembaga (Syzigium antisepticum) has reddish bark and its bark also get peeled off slightly.
- This tree species is often as a bonsai tree (ornamental plant).

On the right side of the Marker Stone 1, look for:

- Garbage colleting place
- Check packing place for hikers.
- 10 paces pas the information centre, there is Strobilanthus, a shrub; it is called as "7 year flowering plant".

Picture 10. Kitembaga Tree (Syzigium antisepticum)

15 paces past the information centre on the left side

- There is Suren tree (Toona suren), at a height of 30 m. A plant called bird's nest fern, Asplenidum nidus, which is growing on the Suren tree. This is an epiphyte. (See pages for HM 9).

The bird's nest fern (Asplenidum nidus) is an important habitat for the Giant Blue Earthworm (M***etaphire longa***). The worm has adapted to living in the bird's nest fern. This worm is digests organic matter and releases minerals which the plant utilizes. The local name is 'cacing sonari', means the 'singing worm' and refers to the whistle-like call the animal makes at night.

You are about to enter the best upland forest in Java. The area has species rich nets and relatively little disturbance has been caused by people.

The walk will take you through the sub-montane zone to the lower edge of the montane forest. Sub-montane forest contains more spcies than the park's higher, cooler areas. Two families of plants dominate:

- Large oaks/chestnuts (***FAGACEAE***), which make up much more canopy.
- Laurels (***LAURACEAE***), which often constitute the majority of medium-sized trees of the sub-storey.

Picture 11. Saninten Tree/Large Oaks (Castanopsis argentea)

5 paces before marker stone 2 (HM 2) on the left-hand side of the path, you can see a 'walen' tree *(Ficus ribes)*.

HM 02

- Walen tree (***Ficus ribes***), usually called small Ficus.
- A small tree often with small fig fruits.
- Walen fruit is the favourite foods for birds and squirrels.

Picture 12. Walen Tree/Fig Tree (Ficus)

PIsese observe: if any of the small, spherical figs have fallen, carefully break one open. The hollow cup (receptacle) houses many little flowers. Examine the small enterance hole used by wasps. The very small plates around the hole allow wasps into the fig but prevent escaping.

The wasps is essential to the pollination of the fig. Each species of fig trees has its own species of 'fig wasps'. This is a mutually beneficial (symbiotic) arrangement – the fig benefits from having its flowers inside the fig pollinated. The wasps benefits by laying its eggs in the fig – on which the wasps larvae will feed and eventually eat themselves out off.

HM 02

On the right side of the HM 2, there is Saninten tree,

- Yo see a large tree called "Saninten" ***(Castanopsis argentea).*** A Silver Chestnut tree.
- They have spiny fruits with 2 – 3 bitter tasting nut inside (if not available here, try to find for fallen fruits later on along the path).

Picture 13. Saninten tree (Castanopsis argentea)

Picture 14. Saninten fruit (Castanopsis argentea)

The silver chestnut, Saninten ***(Castanopsis argentea)*** here, may be around 70 year old or more. Its name refers to the silvery underside of the leaves. Mountain specimens have thicker leaves and more spines on their fruits. In the park, the form an important par of sub-montane community, but do not reach into the true montane forest zone.

HM 03

Walks on about 3 meters beyond the market stone HM 3 on the right side of the path.

Picture 15. Cangkuang/Pandan Sekrup/ Pandan Pohon

- Look for Muncang trees *(Ostodes paniculata).*
- The fruit is favourite food of Squirrel.

After about 17 paces after the stone marker, you will Pandan or screw pine.

- Pandan *(Pandanus furcatus)* is actually a palm tree with very long, narrow, belt-like leaves.
- Teeth on the leaf-edge and mid-rib.
- Spiral growth pattern pf leaves which give them their name, screw pine.
- Finger-like prop roots.

The belt-like leaves of Pandan palms are unmistakable: tough, veryd ark green, narrow, and reaching 2 – 5.5 m in length. The name of "pandan" derives from Malay word meaning "Fragrance" and refers to the scented flowers. Pandan's other name, screw pine, is derived from the way of the rows of leaves spiral out from the stem.

The teeth on the leaves provide a defense against browsing animals. Why the teeth on the mid-rib tend to point backwards while those on the leaf edge point forwards is a puzzle. The mid-rib teeth probably help support the weight of the large leaves as they climb over other vegetation

Pandan leaves make a storing fiber and are extensively used for matting and sail cloth. The leaves and flowers of some species are used in cooking and a source of a perfume. ***Pandanus furcatus*** is an eduble species. Juice extracted from its leaves is used as a flavoring in a cuisine. Traditionally in Indonesia Pandan was one of a number claimed to have value as antidote to poison.

HM 03

26 paces after marker stone

- On the left side you will see Selang Rattan ***(Daemorap rubra),***
- It is a rattan species which has unregular spines with black surface.

While the right side

- You will see Rhino Rattan ***(Plectocomia elongate)*** called in Indonesia "rotan badak".
- It is often very tall, with a stem as thick as your arm! ***Plectocomia*** means plaited hair: the flowers from long, plait-like chains.
- After fruiting the plants die and fall, often becoming major obstacles to visitor using the path.

- Rattans are actually climbing plants armed with vicious spines.
- They have palm-like leaves
- Long spines at the base of the plant
- Claws on leaves
- Clawed whips from the top of some leaves
- Snake sin fruits

Several species of rattans are found in this park, such as rotan badak or rhino rattan, the devi's bush, reed rattan, and selang rattan.

Picture 16. Rattan fruit

Salak *(Salaca edulis),* with brown snake-like skin is an edible fruit related to the rattans and commonly sold in the markets.

Picture 18. Salak

Picture 17. Devil's bushes (Daemonorops rubra)

Between Marker HM 3 and HM 4, look around the forest on your left and right side.

- You will see 'Devil's bushes' or *Daemonorops rubra,* which is famous known as **"Dragon Blood".**
- Climbing palms covered by heavily sharp spines.

This rattan produces a very high quality dye for varnishes, and it has medicinal value too, for stomach complaints. The active compounds namely benzoic and ***benzolatictic acids*** and an alcohol ***(draco-resinotannol).*** Dry 'blood' is obtained from the fruits which contain the crystallized resin.

HM 04

4 meter before the marker stone, on the right-hand side of the path

- A Beleketebe tree (***Sloanea sigun***).
- The sore/red-eye-tree the star sharped fruits break open to reveal a red inside.
- The fruit is a favourite food for squirrel, surili and lutung.

20 m after the marker stone on the left-hand side of the path

- The vegetation of Passion fruit (***Passiflora suberosa)***.
- Passion fruit plants: large, heart-shapped leaves covering trees and bushes.
- The very attractive passion flowers.
- Green/orange passion fuits (markisa/***Passiflora suberosa).***

Picture 19. Passion plant (Passiflora suberosa)

Picture 20. Passion fruit leaf and flowers (Passiflora suberosa)

Picture 21. Passion fruits

The passion fruit creeper plant is a foreign (exotic) plant to the Park and was introduced from Brazil.

Its distinctive purple and white flower can often be seen lying on the path. The Park's other species is ***Passiflora edulis,*** the yellow-flowered plant, which is also an introduction. Passion flower's profuse, dense growth can frequently kill trees.

HM 05

5 paces from the marker stone on the right side of the path

- You can see a group of Red Poh-pohan shrubs.
- The leaves of the plant are edible, especially for Sundanese, as well as for medicine.
- The taste of the young leaves is a little bit sour but delicious, and the smell is good.

Walk about 30 m after the marker stone, on the left hand side of the path

HM 05

- You will see a very tall tree with an orange-white trunk: Rasamala **(Altingia excels)**.
- This tree is called as the "King of mountain forest".
- Rasamala trees rise above the general canopy (emergent trees).

Rasamala means 'excrement' –not exactly appropriate for such a noble tree with a scented resin! The resin is collected for use in drugs and perfumes. Young leaves are edible in chewing them help ease coughing.

Picture 22. Rasamala tree (Altingia excelsa)

Picture 23. Rasamala leaves (Altingia excelsa)

6 paces before the marker stone on the left hand side of the path

HM 06

- You can see a group of small fern-like plants: ***Selaginella opaca.***
- Small plants and it is undergrowth shrubs
- Selaginella is always grown in a crowd and used for traditional medicines.
- Small, spines-like leaves, covered its pole.
- The surface layers of the leaves reflect harmful ultraviolet light away from plant tissues, often giving a blue sheen to the surfaces.

3 meter after the marker stone

HM 06

- On the left, you see ***Toona sureni*** tree.
- On the night, you can see a big Saninten tree ***(Castanopsis argentea).***
- You can see ***Amomum cicineum*** plants (a kind of ginger plants) near the path. (See note on HM 9).

The genus of S***elaginella*** is found all over the world and belongs to a very ancient type of plant. However, the ***Selaginella opaca,*** the species you see here, is only found in Java.

Piciture 24. Bird Watching Sign (Jalur Pengamatan Burung)

Picture 25. Selaginella opaca

Keep walking, 2 paces along the path on the left hand side of the path, you can see wild banana plants. The stem is made up very long leaf stalks. (See notes HM 21).

Here the Bird watching trail entres the forest to the left. Beng less often visited than the main trail, many of Gunung Gede bird species can be seen here if you walk quietly. Many of these species are endemic to Java, but you will need patience and a pair of binoculars to observe them well.

Close to the marker stone, on the left hand side of

HM 07

- Tree-ferns or see Paku Siur (*Cyathea lateborsa).*
- This is a small to moderately sized species with curled-up leaf buds covered with black/dark brownish purple hairs.
- Usually with shoots growing from the base of the trunk.
- Young leaves are edible.

Picture 26. Paku Siur (Cyathea lateborsi)

HM 07

25 m beyond HM 7, an open space on the right hand of the path.

Picture 27. Pulus leaves (Dendrocnide stimulans)

- Two Manglid trees (*Maglietia glauca).*
- The trunk is straight with white young-brownish color of skin.
- Fragrant Yellow flowers
- Fine-rained woond and strong, and use for craving and building.

Walk 7 meter from the Manglid tree, on the left hand side, on yhe fallen tree

- The 'Jelatang' (also known as pulus or renghas) (*Dendrocnide stimulans).*
- The plants belong to the same family as the well-known European stinging nettle ***(Uricaceae).***
- Its leaves are hairy and poisonous. The itch can be very painful and may last for several days!!!
- The group as a whole mainly tropical and ranges from Thailand to Java.
- It is a lowland plant, reaching only into sub-montane forest.

Around the marker stone

HM 08

- See a group of Dirty Thoroughworts ***Eupatorium sordidum***: Large velvet leaves (in pairs).
- An exotic plant: introduced from Central America.
- Purple daisy-like flower heads.
- How well can other plants grows in the dark conditions under these leaves?

Picture 28. Babakoan (Eupatorium sordium)

Walk 30 meter beyond the Pal HM 8, on the right hand side of the path, on the stone

HM 08

- A Janitri or Bead Treee ***(Elaeocarpus sphaericus):*** a small tree, with a white / grey bark.
- Yellow-white flowers.
- Large, dark-blue fruits containing seeds.

Janitiri is very attractive, the bark is being a mixture of mottled greys, browns and whites. The flowers are small but beautiful, with white-yellow petals, often tinged red at the base. ***Elaoecarpus*** means "oil-fruits". The fruits provide important food source for birds and mammals.

Picture 29. Janitri (Elaeocarpus sphaericus)

Picture 30. Janitri fruit (Elaeocarpus sphaericus)

HM 09

On the right hand side of the path, directly on the HM 9

- Panggang cucuk tree (***Trevesia sundaica***).
- Small trees/shrubs with many short spines on the stem.
- Leaves coming from a central point (palmate).
- Leaves held horizontally to gain maximum sunlight.

Try to make a very small scratch on the bark with your finger nail, you will see a green photosynthetic layer under the bark. The spines stop animals such as deer eating this living tissue. Spines might also be useful in other ways: to increase the surface area of the stem, helping photosynthesis, helping deter plant-eating insects from climbing to the leaves and buds, and in preventing creepers from growing over the tree.

Picture 31. Panggang Cucuk (Trevesia sundaica)

5 meter walks beyond the marker stone, on the left hand-side of the path

HM 09

Picture 32. Mareme tree

- Mareme tree, also known as survival plants.
- Mareme tree (***Glochidion ctrtostylum***) tall tree, 15 – 25 m height.
- Rounded, quite long leaves.
- Capsule-like fruit, with small hairy edge

32 m after HM 9 marker, on the right hand-side of the path, and strangler on a tree

HM 09

- The 'rhino' rattan (***Plectocomia elongata***): the very large mountain rattan.
- Pften very tall, stem as thick as your arm!
- End of leaf stalk very long extended into a whip (cirrus).
- Spines on stem spirally arranged and comb-like.
- Flowers forming long, plaited chains.

Called as rotan badak, Badak translates as 'rhino', 'thick skinned', or 'giant'. The plant is tough and reaching over 40 m in height. ***Plectocomia*** means plaited hair: the flowers from long, plait-like chains which the Balinese used to wear it as skirt. After fruiting the plants die and fall, often becoming major obstacles to visitor using the path.

Picture 33. Rotan Badak (Plectocomia elongata)

- On this parth path, you can see a lot of the Bird;s Nest Ferns Kadaka/Pakis Sarang Burung (***Asplenium nidus***): a large fern with belt-like leaves growing on trees.
- Thick covering to the leaves of the Bird's Nest Fern.
- Dead leaves and organic matter building up around the bases of Bird's Nest Ferns.
- Many at the Telaga biru.
- See Note on HM 1.

Picture 34. Kadaka (Asplenium nidus)

HM 10

15 m form HM 10 on the right hand-side of the path.

- 2 Jamuju trees (***Dacrycarpus imbricatus***).
- The plant is easy to identify as Jamuju is the tallest tree in the forest.
- It is a conifer species belonging the Podocarpaceae family.
- It has very attractive grayish-brown to light-yellow timber.
- Sometimes known as Malayan yellow wood.
- The Jamuju trees start to replace lowland species as the main emergent at this altitude.
- Starts on this Marker Stone, these conifer becomes more frequent, favoring the cooler, cloudy conditions of the montane forest.

Jamuju has kinds of leaf: the tree's small needle-like leaves and the boarder leaves provide flexibility in changing climatic conditions. The broader type of leaf is efficient in the ever-wet tropics.

Walk 5 paces from the location of ***Jamuju*** trees, or 20 m from HM 10 marker, and look on the right hand-side of the path

HM 10

- Sirih areuy (***Piper sp***) is a kind of liana (climbing plant) that is used, as traditional medicine.
- If you squeeze the leaves, it discharges sweet-smelling.
- This plant can be used as treatment for mouth ulcer.

Picture 35. Jamuju tree (Dacrycarpus imbricatus)

Picture 36. Sirih Areuy (Piper sp)

HM 11

8 paces from HM 11 on the right hand-side, close to 2 big stones.

- Darangdan tree (*Ficus cuspidata)* with long point leaves, called a **dip trip.**

Leaves, including those of many figs, are frequently drawn out to long point called a drip tip. This is a common 'adaptation' of tropical forest plants, and is an indicative of tropical climate. Drip tips speed up the drying leaves after the rain, so that the leaves can be more rapidly resume photosynthetic sugar prpduction. Rapid drying also limits the amount of nutrients that wash out a leaf. By drying the leaf quickly, drip tips may also help prevent the harmful growth of mosses and algae on the leaf.

Gambar 37. Darangdan (Ficus cuspidata)

60 m from the marker stone HM 11 (on the high up), on the left hand-side of the path

HM 11

- Many walen tree (***Ficus ribes***)
- See Note on HM 2 marker about Walen tree (***Ficus ribes***)

HM 12

Along the path on the left and the right hand side

- Babakoan (***Eupatorium sordidum***): large velvet leaves (in pairs).
- Pacar tere atau Pacar air (***Impatiens platypetala***); Large green pods.
- Its leaves can be used as traditional medicine.

Large pink/purple flower (2 – 3,5 cm), with five large petals and a long tail-like spur, commonly grown in garden all over the world. Leaves have strong veins edged with small teeth. ***Impatiens platypetala*** does not compete well in the dark conditions of the forest, preffering the lighter conditions of the path. You may see this plant all along the path.

Picture 38. Trail path along Pal HM 12

Picture 39. Pacar Tere (Impatiens platypetala)

HM 13

Along the path, on the left and right hand side of the path.

- Tepus (***Amomum coccineum***); tall plants with two rows of leaves.
- The plants belong to a family ZINGIBERACEAE closely related to the bananas. Both groups are light-loving, not growing well in deep forest
- Tepus (***Amomum coccineum***) is one of the park's nine species of ginger.
- Search the soil for 'earth flames': the plant's bright rend and yellow flowers
- The flesh surrounding the seed is sweet-tasting
- The juice from the leaves is used externally to treat fevers

Picture 40. Tepus (Amomum coccineum)

Gingers are typical of disturbed areas. They 'get in quick' after storm damage, or grow at the forest edge and along paths. Their leaves are very effective at shading out tree seedlings and neighboring vegetation. In such highly competitive conditions many plants produce poisons to inhibit the growth of other species. Gingers are thought to use this ploy.

The leaves of gingers often appear as two rows along a 'stem'. This pseudo or false stem is made up of leaf stalks (petioles) concentrically wrapped around each other, rather like a cross-section of an onion. Leaves that emerge from the top, therefore, have stalks several meters long!!

Besides ***Amomum coccineum***, other gingers species are Honjewarak (***Nicolai solaris***), Belaktoa (Zingiber ***inflexum***) and tongtak (***Zingiber ordoriferum***).

Hojenwarak (***Nicolai solaris***) can be seen along the path. The leaves are used for food flavouring. The sap from the stem is an alagesic and is applied to ease Jelatang stings.

Gandali (***Heychium roxburghii***) is the most noticeable ginger flowers. They look like a mass of cream and white ribbons. (See the picture on HM 25).

7 meters before HM 14 marker on the left and right hand sides of the path.

HM 14

- You can see the seedling of ***Hariang hijau (Begonia isoptera),*** which is belongs to the Begoniaceae family.
- This plant can be used as ornamental flowers.
- The leave is used for medicine.
- Its stem is edible by peeling its skins.
- This is small plants, height of 1 meters.
- Its fruits look similar to Belimbing wuluh.
- This plant has been grown outside the park by community.
- Another species in the park is Begonia robusta, which has different colour in flower and fruits to *Begonia isopteran*.

Picture 42. Hariang Hijau (Begonia isopteran)

Picture 43. Hariang Beureum (Begonia robusta)

HM 14

Directly at the marker stone HM 14

A large Jamuju tree (***Dacrycarpus imbricatus***), a dominant tree in this area. See notes on HM 10 marker.

HM 15

On the right hand-side of HM 15 marker

- A large Jamuju tree (***Dacrycarpus imbricatus***)

20 m beyond HM 15 marker on the left hand-side of the path

- You can see ***Lobelia angulata***: a small creeping plant.
- Heart-shapped leaves with a toothead (serrated) edge.
- Small mauve flowers.
- Very large purple fruits.

This plant ranges over South America, Australia, through Indonesia and Southers China righ up to Himalayas, however, the plant is missing from Borneo and the Moluccas.

Picture 43. Cacabean (Lobelia angulata)

Gambar 44. Telaga Biru stream

Along the path to HM 16 marker stone, you can hear the sound of Telaga Biru Stream.

You are now in the Blue Lake Area, on the left hand side of the path.

HM 16

- The change in vegetation from the lake-edge to the top of the ridge.
- The colour of the lake: blue, green or brown.
- The colour of the lake undergoes dramatic changes which appear to relate to the wet and dry season and nutrient supply-both factors affect algae cycles.

The area is the beginning of the transition from sub-montane to the montane vegetation. The mass and diversity of the sub-montane forest near the edge of the lake gives way to twisted podocarp conifers of the ridge top. The area is rich in the bird's nest fern ***Asplenidum nidus,*** and many epiphytic orchids grow on the trees around.

The lake water is rich in nutrients (***eutopic***). The area's volcanic rocks and soils are sources of many soluble minerals.

Picture 45. Telaga Biru

Please watch around Telaga biru area, you can see a lot of the Bird's Nest Ferns.

HM 16

On the right hand side of HM 16 marker.

- There are 2 large Puspa trees (***Schima wallichii***): at height of tree (30 m and 25 m).
- Often with white flowers.

Puspa ***(Schima wallichili)*** belongs to the tea family (Theaceae), with young leaves are reddish; a distinctive colour bloom to the forest. You may have seen the fleshy, white flowers with orange centres lying on the path.

In this area, you may see the trumpet-shaped flowers/***Datura/Kecubung*** (***Brugmansia suaveolens).***

- The species has large pale green leaves.
- Belongs to ***Solonaceae*** family.
- The Spiral scars occur on stems where leaves have fallen off.
- It has large, white, trumpet-shaped flowers.
- This species is fast growing and slightly poisonous.
- It is exotic species and introduced from Central/South America.
- This plant attracts Kuhl's sunbird. A small colourful bird with long bill investigating the flowers.

People in South America called this plant as Evil Eagle trees. The bird's spirit is believed to cause the unpleasant hallucinations-biochemists claim scopolamine as the cause.

Dantura belongs to the ***Solanaceae***, well known for many medicinal and poisonous plants. Traditionally, this plant has been utilized as treatment for nervous complaints, and a pain killer, and to refresh tired eyes. Datura is effective in getting rid of parasites (e.g. ringworm), too. Datura also has a more sinister value: as a source for alkaloids for use as poisons. However, ***Brugmansia suaveolens*** in Gunung Gede Pangrango is quite low in toxin. Therefore, the leaves are sometimes used as fodder.

Picture 46. Datura (Brugmansia suaveolens)

10 paces before HM 17 marker, right on the hill, on the left hand-side of the path.

HM 17

- There is a large Jamuju tree.
- You also can see ***Walek-adep/Kingkilaban (Mussaenda frodosa)*** or Paper-chase plant.
- It has small, yellow, trumpet-shaped flowers. Please notice along the path on the ground, you may find the flowers!!!
- White 'decoy-leaves'.
- It has unique shaped, typical butterfly-pollinated flowers, the long thin tube being designated for the long tongues of these insects.

Walek adep (***Mussaenda frodonsa***) is a lowland species; it finds in the secondary and open spaces area, such as the forest edge and at the Telaga Biru. Related species are found in Africa and are grown as ornamental plant. Walek-adep (Javanese) means behind-before, and refers to the white 'decoy leaves'. These are actually formed from part of the flower base (the speals) and may serve to attract insects.

Picture 47. Walek Adep/Kingkilaban (Mussaenda frodonsa)

- Strart on HM 18 marker, you see a group of wild banana.
- When starting to enter this path, you will feel the weather is getting cooler.

HM 18

5 m beyond the marker on the left hand side of the path

- You can see Curuculigo plant (***Curculigo capitulate***).
- It has large, corrugated leaves.
- The long V-shaped leaf stalks.
- It has small yellow flowers at the base of the leaves.
- It has pinky-white fruits.

Curculigo plant (***Curculigo capitulate***) does not attract much attention but a little searching at the base of the plant may reveal a clustered mass of attractive, bright-yellow flowers and pale, pinky-white berries.

The long V-shaped leaf stalks cause the large leaves to tremble with the slightest air disturbance. **The botanist van Steenis** called in the Dutch name "***rusteloze zieltje***" or "***retless soul***". The sundanes name is daun congkok, which is thought to derive from daun (leaf) and bongkok (to bow).

Curculigo plants grow throughout the tropics. They are small in number, but are important source of traditional fibre, string and wrapping. There is local Myth that if you cut the plant you maybe attacked by a leopard cat. So, Please DON'T CUT THE PLANT.

Picture 48. Congkok (Curculigo capitulate)

Picture 49. Curculigo flower(Curculigo capitulate)

HM 19

Close to the marker, on the left hand and right hand sides of the path

- You can see Kirinyuh, nampong (***Eupatorium riparium***).
- This is a small dark green plant with pointed leaves.
- It has white and daisy-like flowers.
- The plants are similar to ***Eupatorium sordidum***, which has purple daisy-like heads.
- Both are introduced from tropical/Central America.

Picture 50. Kirinyuh/Nampong (Eupatorium riparium)

HM 19

Notice!!! On the left and right hand sides of the path

- You can see several kinds of Ferns.
- Patterns of the stems indicating leaf scars where old leaves have fallen off.
- Young brown of the hairy leaf buds.
- Orchids like to grow on the tree ferns stems.
- Worm-like threads showing the inside structure of the trunk,

The ferns buds can be eaten. Those of C***yathea lateborsa*** taste good but the buds of ***Cyathea contaminans*** are rather sharp.

Picture 51. Tunas Cyathea lateborsa

Key to Tree Ferns Species in Gunung Gede Pangrango:

Cyathea lateborsa
Small species, curled-up leaf buds covered with balck/dark brownish-purple hairs; usually with shoots growing from the trank base of the trunk.

Cyathea contaminans
Often tall and elegant, curled-up leaf buds covered with straw-coloured hairs.

Cyathea tomentosa
High altitude species; tall and elegant; bud hairs dark browny-purple. Similar to C. lateborsa but taller and not readily producing shoots from the base.

Dicksonia blumei
High altitude tree fern. Bud hairs are a rich oranfe-brown colour. Not along Cibeureum path but can be encountered higher up.

Picture 52. Dicksonia blumei

Left side of the bridge, around HM 19 marker, there is

HM 19

Picture 53. Gayonggong bridge

- An old tree with strangler/creeper KITERONG (***Fragraea blumei***) growing up Manglid/baros (***Manglietia glauca***) trunk.

Manglietia glauca is a relative of the Magnolias ***(Magnoliaceae),*** and therefore, a member of perhaps the most ancient family of living flowering plants.

The round green fruits of the climber Kiterong ***(Fragraea blumei)*** are eaten by monkeys and gibbons.

Picture 54. Manglid with its climber

Picture 55. Manglid fruit

You are now entering a small swamp area, called Rawa Gayonggong. In a clear condition, you can see the view of Mt. Pangrango. The bridge paths are made of Wood.

HM 20

Left and Right hand side of the wood bridge:

- You can see that most of the area along this path is covered by large, white, trumpet-shaped flowers (***Brugmansia suaveolens***). See Notes on HM 16.
- A tall grass growing on the swamp: Rumput Gayonggong/Jukut Gayonggong (***Phragmites karka***).

Picture 56. Gayonggong swamp

Rumput/Jukut Gayonggong (***Phragmites karka***) may well be known as a form of the common reed (***Phragmites communis***), which is found all over the temperate world. The leaves make excellent paper and matting.

HM 21

You are still in Rawa Gayonggong area, 1 meter before the HM 21 marker.

- You see a group of growing wild banana plants (***Musa acuminata***), Family ***Musaceae***.
- The stem is made up of very long leaf stalks.
- Banana flowers and fruits.

Banana plants supply many traditional medicines: Young banana leaves have been employed for relief chest pains and sore of blistered skin; the sap as the cure for gonorrhea, dysentery and diarrhea; the root against hair loss and anemia; the fruit is a laxative and banana flour is used to counter dyspepsia, flatulence and acidity.

DO YOU KNOW That BANANS DON'T GROW ON TREES!!!

Picture 57. Pisang Kole (Musa Acuminata)

The false stem (***pseudostem***) of a banana plant consists of several long leaf stalks wrapped around each other; internally the structure is not that of a tree trunk or even that of a plant stem. Being large but non-woody creates problems; it is impossible to produce lots of small leaves on twigs. Instead, a few huge leaves emerge from a central 'stalks'.

Notice in HM 21 marker!!!

- A plant similar to wild sugar cane: a tall grass.
- It has a white central line (mid-rib) running from the base of the leaf towards the tip.
- It is a wild relative of the cultivated sugar cane (***Saccharum***).
- The taste not very sweet.
- They are valuable to the cane grower as a source of diseases resistant genes.

Picture 58. Wild sugar cane

HM 22

1 meter beyond HM 22 marker in the right hand side of the path, 5 meter beyond the HM 22 on the right hand side of the path, and 5 meter into the forest.

- You can see Palm trees (***Pinanga coronata***).
- This plant looks like small trees.
- Circular scars where the old leaves have dropped off.
- Large, red leaf bases surrounding the stems.
- The flower grows in a red, leaf-like sheath called a spathe.
- Clumps of petal-less flowers.
- The creamy-coloured flower spikes are left spread out and base of the stem.
- Circular of rounded fruits.

Picture 59. Bingbin (Pinanga coronata)

Two kinds of a large palm in the park: rattans and tree palms.

Pinanga coronata is a tree palm you will discover along the path. Tree palms have an ornamental role, whereas rattans are commercially important

50 m beyond HM 22 marker, across the path

HM 22

- You can see the epiphytes which are ferns and the bird's nest ferms growing out of the bark.
- You also see Ki leho canting: a tree can be seen arching over the path.

Kileho canting (***Saurauja pendula***), has the pinky-white petals which are thick and waxy. Flowers grow directly from the woody trunk and branches. This common feature of many lowland rain forest trees is uncommon in the true montane zone. ***Sauraja pendula*** is another example of a lowland rain forest species living near its upper altitudinal limit.

KI LEHO CANTING, in the sundanese language, KI means tree, LEHO is mucus and CANTING is scoop. The name "MUCUS SCOOP Tree" derives from the thick liquid in the fruit.

Picture 60. Kileho Canting (Saurauja pendula)

Upwards along the path into the Montane forest

HM 23

A change vegetation from Sub Montane to Montane Forest.

12 paces beyond HM 23 marker, on the right hand side, you see Ki Leho Tree, and on the left hand side you see Saninten tree.

- You can see Pandan Areuy (***Freycinetia insignis***): a climber with long, dark green leaves growing on trees.
- This plant has spiral growth pattern of the leaves.

The plant is frequent in hill and sub-montane forest. The Sundanese, ***Panda Areuy***, translates a climbing pandan. On Java the tough roots were used to make rope.

NOTICE!!! The flower heads of the climbing pandan, F. ***insignis*** are large, club-like and usually three in number. The pink structures at the base are not true petals but coloured leaves called bracts. When in bud the bracts protect the developing flower heads. The actual flowers are tiny and cover the clubs. Climbing pandans in any one area tend to flower at the same time. Its flowers are eaten by mammals such as surili, lutung and bats, though the flowers are very bitter-tasting.

Picture 61. Upwards trail

Picture 62. Pandan Areuy (Freycinetia insignis)

NOTICE – Bitten of pink and green leaves, found scattered at the base of the plants, often indicate that leaf monkeys have been feeding on flowet stalks.

30 meter beyond the HM 23 marker

HM 23

- You can see a shelter Panyangcangan, a triangle path to the hiking trail.
- The shelter has been used by hikers as a rest place before continuing the walk to the peak.
- From Panyangcangan, this area can be called as ecotone or transitional boundary between two ecosystems: sub-montane and montane.
- Cloud often hangs over the cool, dim, montane forest.
- Growth on plants is consequently much slower, resulting in much smaller trees.
- The conditions favor mosses.

Picture 63. Panyangcangan and its surroundings

20 m beyond HM 24 marker, directly on the concrete bridge

HM 24

- You see Ki leho Merah (***Saurauia cauliflora***).
- Flowers growing out the bark, similar to Ki leho Canting (See notes on HM 22).
- Long shaped Leaves, brown on the top, and white-grey on the bottom of leaves.

Picture 64. Kileho Merah (Saurauia cauliflora)

30 m beyond the marker on the left hand side toward the waterfall.

HM 24

Picture 65. Tongtak (Zingiber ordoriferum)

- You see a group of gingers: the white and purple-flowered gingers/tongtak (***Zingiber ordoriferum***) and the bright red and yellow flowers ginger (***Amomum coccineum***).
- See Notes on HM 13.

10 m beyond the marker, on the right hand side of the concrete bridge, along the bridge on HM 25

HM 25

- You see Horse-tails (***Equisetum***): round leaf-less stems about 1 m in heights
- Small brown, spore producing clubs

Horse-tails (***Equisetum***) are well known as troublesome weeds. They represent one of the oldest groups of land plants on earth. Closely related to the ferns, the produce spores, not seed. You should be able to find the dark, club-shaped structures which contain the spores. These plants were around long before modern tropical forest developed. Species in this park is ***Equisetum*** debile.

Picture 66. Horse-tails(Equisetum debile)

HM 25

Corner of the bridge in HM 25 on the right

- See Tongtak (***Zingiber ordoriferum***) and Gandasoli (i). (See Notes on HM 13).
- You may see animals such as the very brave stink badger (Mydaus javanensis) when walking along this path. Don't try to get close to this animals, it can eject a fool smelling liquid from glands near its tail.

Picture 67. Skunk (Mydaus javanesis)

Picture 68. Gandasoli (Hedychium roxburghii)

Starting from concrete bridge, 2 m beyond marker on the left hand side of the path

HM 26

- See Kiterong Areuy (***Fragraea blumei***): a stranger grows on Puspa tree (***Schima wallichi***).
- Family ***Loganiaceae***.
- ***Fragraea blumei*** lives as both climber and strangler.
- No spines on both trunk and stem.
- Egg-shaped leaves.
- The flowers are yellow, often dark.

Picture 69. Kiterong Areuy (Fragraea blumei)

A climber and strangler Fragraea blumei can start life by creeping up other plants and the, when its lower parts die, becoming epiphytic, growing wholly on another tree. Such plants are called hemi-epiphytes.

The seeds transpoted by birds, start life high in the branches of host tree as epiphytes. Then they grow long roots to the ground which form a thick enveloping network and strangle the host tree.

HM 27

Watch around: Montane vegetation all along the path, 5 m beyond the marker on the right hand side of the path.

- Lots of tree fersn with the bird's nest fern growing on trees.
- You can see a climber tree: Kitando (***Agalmyla parasitica***).
- A climber with large green leaves with small teeth on leaf-edge.
- Family ***Gesneriaceae***.
- Kitando: very noticeable when in bloom.
- The bright red, upright flowers are 3,5 – 5,5 cm long, during flowering season can usually be found along the path.

Agalmyla parasitica is an important indicator of primary forest and is rare in logged or degraded secondary forest.

This plant is the one you will most frequently encounter along the path to Cibeureum. Although the name suggests a parasitic mode of life, the plant is usually described as ***epiphytic*** (growing on others).

Picture 70. Kadaka

Picture 71. Kitando (Agalmyla parasiticia)

HM 28

LOOK ALL AROUND!!!
You are now in Cibeureum Waterfall complex

- 3 waterfalls, from the left to right, namely Cikundul, Cidendeng, and Cibeureum.
- The open spaces where you are now standing is formed where several tracts of lava meet.
- To your right are the volcanic rocks Pangrango and to your left are the Java flows of the more recent Gede eruptions.
- It is worth to look around for pyrocalsstic or 'fire broken' rocks.
- Red moss (***Sphagnum gedeanum***), gives the area its name: Cibeureum, meaning Red (Moss) River.
- The moss is named after Mt. Gede and has very limited distribution.

Picture 72. Left to right: Cikundul, Cidendeng dan Cibeureum waterfalls.

BIBILIOGRAPHY

Gede Pangrango National Park. 1996. Cibodas to Cibeureum. A walk in one of the oldest and most famous tropical forest reserves on earth. Information Book Series Vol I. Ministry of Forestry, Directorate Genereal of Forest Protection and Nature Conservation. Mt. Gede Pangrango National Park.

Balai Taman Nasional Gunung Gede Pangrango. 2006. Buku Inforamasi Flora Taman Nasional Gunung Gede Pangrango. Balai Taman Nasional Gunung Gede Pangrango. Cibodas.

Sunarno, Bambang & Rugayah. (Eds). 1992. Flora Taman Nasional Gunung Gede Pangrango. Bogor Herbarium Bogoriense, Puslitbang Bilogi-LIPI.

GLOSSARY

Alkaloid:
a large group of organic, carbon compounds containing nitrogen, frequently poisonous and often investigated for medical properties.

Canopy:
a layer in the forest made up of tall trees forming the leafy 'roof' to the forest.

Cellulose:
large organic compound made up of many small sugars.

Crown:
part of the tree above the trunk, made up of branches, twigs, leaves. Etc.

Decomposers:
organism such as bacteria fungi which get their energy from breaking down dead matter. They release mineral/nutrients which can be used by living organism for growth.

Emergent:
tall trees that has a crown that reaches well above the forest canopy.

Epiphyte:
plant or animal growing on others but not taking nutrient from the host.

Eutrophic:
water containing high levels of nutrients which causes growth of algae and other micro-organism, which often use up all the oxygen.

Exotic:
a plant from another country or area.

Flagellum (pl. flagella):
long whip-like structure possessing spines or claws used by rattans for climbing. Often has flowers growing from it. The base joins onto a stem (***cf.* cirrus**). Only found in reed rattan ***(Calamus).***

Fumarole:
steam vent on a volcano often around which is deposit sulphur.

Genus (pl. genera):
a taxonomic group that is made up of closely related species.

Host:
animal or plant on which an epiphyte or parasite lives.

Insectivores:
animals specializing in eating insects (and small invertebrates).

Liana:
woody climbers

Niche:
the role played by an organism within the functioning of the biological community.

Parasite:
a plant or animal that lives on or in another and taking nutrients from it, hence doing the host harm.

Photosynthesis:
a process by which green plants use light energy to produce sugars from carbon dioxide and water, a bi-product being oxygen.

Resin:
semi-liquid substance which bleeds from certain trees and plants when injured. It often hardens sealing the wound.

Spur:
long, narrow, tube-like strunture.

Transitional area:
area of gradual change area.

Temperate:
cool climatic conditions, not very hot or very cold.

Toxin:
poisons.