

蓮華池亞熱帶常綠闊葉森林動態樣區 樹種特徵及其分布模式

Lienhuachih Subtropical Evergreen Broadleaf Forest Dynamics Plot
Tree Species Characteristics and Distribution Patterns

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Lienhuachih Subtropical Evergreen Broadleaf Forest Dynamics Plot: Tree Species Characteristics and Distribution Patterns

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森林動態變化為近年來森林生態學研究上的重要課題。傳統的森林生態研究多著重於了解森林內植物社會組成與結構等靜態的生態現象；而當代趨勢使生態學家更加熱衷的，卻是探究森林在時間和空間上的各種動態變化，及造成該變化的原因，進而試圖了解是否在各種類型森林中，存在一定的生態機制，以維持控制植物族群的生長、死亡、物種分布，以及生物多樣性的多寡。

為了從事這樣的生態研究，必須規劃出一套有別於傳統分散式、小面積的取樣調查方式，並且要能夠長期地進行監測工作，才能夠獲得完整的森林動態資訊。為此，國外許多生態研究機構早在二、三十年前就開始實施此類生態研究，其中尤以美國史密森熱帶研究院熱帶森林科學中心(Center for Tropical Forest Science of the Smithsonian Tropical Research Institute)所建立的森林動態樣區網(forest dynamics plots network)，其研究的規模與成果最為學界所矚目。此一樣區網絡中，目前總共有42個大型的研究樣區，分別分布在21個國家內，正同時監測全球超過450萬株樹木的生長情形。而他們所採用的都是長期、標準化、統一的調查研究方式，以利進行跨地區性的比較研究。

農委會林業試驗所為國內唯一林業研究專業機關，以科學試驗為基礎，長期肩負台灣地區森林生態研究之責任，同時透過技術協助與諮詢服務，提供森林及自然保育、經營、管理之權威建議。2004年林業試驗所成功在北台灣福山地區設置台灣第一座大型森林動態樣區，其後2008年在台灣中部南投蓮華池地區也設置了第二座大型森林動態樣區，面積均同樣是25公頃。

台灣山區地勢陡峭，平均坡度達30度，而蓮華池森林動態樣區地貌起伏甚大，坡度陡峭，平均坡度高達35.3度，其中又有許多小乾溝、沖蝕溝等微地形變異，不論是在坡度或是地形變化上，足可為台灣山區地形之代表。同時此區在台灣垂直植群帶屬於楠櫟林帶，在天然闊葉林中物種多樣性高，存在許多台灣特有且珍稀之植物，具台灣低海拔森林植物社會之代表與特色，因此設立大型樣區，長期對樣區內植物之動態變化進行研究，對台灣山地森林生態系具有相當代表性意義。

本書詳盡地描述了蓮華池25公頃樣區常綠闊葉林群落的物種特性、分布模式和徑級結構，而精美的樣區植物照片讓讀者對本書的內容有更感性的認知。同時本書也是蓮華池樣區設置啟動以來五年工作成果的展現，為未來樣區的深入研究提供了必備的基礎生態資訊，也期待吸引更多的年輕學子加入森林生態學的探索行列。

行政院農業委員會林業試驗所 所長

黃裕星

2012年4月



One of the key topics for modern forest ecology is the dynamically changing forest. Traditional forest ecology took a synchronic approach, studying the constituent elements and structure of the forest biome as a static system. Today, there is a move toward researching how the forest changes over time and the causes of these changes. Ultimately, the goal is to understand whether the same ecological mechanism function in all types of forest to maintain and control growth, death, species distribution, species diversity in each community.

This type of research demands new survey practices. Unlike the scattered, small area sampling methods used for traditional forest ecology, there is a need for long term observation, to generate a comprehensive picture of forest dynamics. Some 20 to 30 years ago, many research organizations around the world started to carry out this type of research include, inter alia, the Center for Tropical Forest Science (CTFS) at the Smithsonian Tropical Research Institute (STRI). CTFS set up a network of plots for the study of forest dynamics, a project whose scale and results have attracted enormous interest. The network includes 42 large plots in 21 countries, bringing over 4.5 million trees around the world under simultaneous observation. Research methods in all of these plots are long term, standardized and unified, allowing for effective comparative studies among and beyond regions.

In 2004, the Taiwan Forestry Research Institute (TFRI) succeeded in establishing Taiwan's first large forest dynamics plot at Fushan in northeastern Taiwan. The TFRI is the only dedicated forestry research institute in Taiwan. The primary responsibility of TFRI is research for solving Taiwan's forestry problems and also provides technical assistance and authoritative advice on forest conservation, community forestry and forest management. In 2008, the TFRI set up second dynamic plot at Lienhuachih Experimental Forest plot in central Taiwan. Like the Fushan plot, it is 25 hectares in scale.

Taiwan's mountain areas are very steep and rugged, with average slopes around 30 degrees. The Lienhuachih forest dynamic plot is a representative of Taiwan's mountainous territory: it is extremely steep, with slopes as steep as 35.3 degrees, and has great topographical variation, with multiple dry ditch and gully features. The plot is in the *Machilus-Castanopsis* zone, featuring natural hardwood forest with high biodiversity, and many precious plant species unique to Taiwan. It is a typical forest community for Taiwan's low-elevation mountain areas. By setting a large plot here and conducting long term research of dynamic changes to the vegetation, we have the opportunity to learn from a highly representative forest ecosystem in mid Taiwan.

This volume exhaustively describes species, distribution patterns, and size-class distributions for species in this evergreen broadleaf forest community. It also includes beautiful botanical photographs to give the reader a deeper esthetic understanding of the species described. It documents the discoveries over the past five years since the establishment of the plot. It provides the basic ecological data necessary for future research. I am sure it will inspire more young scientists to join us in our exploration of forest ecology.

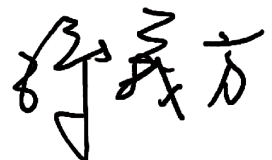
Director General, Taiwan Forestry Research Institute
2012/04

森林生態系是人類賴以生存的重要維生系統，更是台灣島上各種生物最重要的家。森林不僅提供乾淨的空氣及水，亦大量涵養水源、提供水土保持的功能，有效降低每年侵台的颱風所造成的災害。此外，森林提供了各式各樣的棲息地，容納各種生物生存其中，在物種保育上佔有極重要的地位。這些大大小小的生物不但是生命力的象徵，也與許多人的生活息息相關。因此，失去森林的我們在上生活上將受到不可思量的影響。

在全球現代化的過程中，森林承受了高度的開發和大面積破壞，直接地降低了自然淨水、固碳及水土涵養等功能。取而代之森林的大規模都市及工業區，卻更增加了人類對森林生態系所提供資源及功能的需求。在地球暖化越趨嚴重、氣候越趨極端之際，如何加強對森林的了解並進一步復育受到破壞的森林，實為當務之急。

森林動態研究提供了各樹種在生長、死亡與更新方面的詳細資訊，是了解森林生態系的第一步。台灣地跨亞熱帶及熱帶區域，高物種豐富度增加了森林生態系統的複雜性。為掌握較完整的森林動態資訊，提高計量和空間分析的可信度，森林動態樣區以大面積、長時間的方法研究森林動態。這種大型研究能完整提供森林樹種在時間及空間上變遷的資料；所獲得之資訊能再進一步提供整合性研究所用，分析造成森林變化的原因及其影響，為現今國際上森林生態學研究的重要趨勢之一。但是設置森林動態樣區所花費之人力及物力絕非一般研究可比，主事者必須有高遠的眼光與堅定的支持，而執行者必須有堅強的意志力與執行力，才可能克服萬難完成之。我很樂見林業試驗所及林務局能有此眼光與魄力，繼福山動態樣區後，又在台灣中部僅存的低海拔森林，再度合作設置了蓮華池25公頃森林動態樣區，讓面積雖小的台灣卻擁有兩個與世界森林生態研究前沿接軌的研究平台。這本蓮華池stand book即是結合眾人之力，也是呈現台灣林業單位努力的最佳成果之一。這本stand book詳細記錄了蓮華池25公頃內出現的木本植物，包含物種分類特徵、族群數量、空間分布及物候資料。相信這本書的出版，讓我們對台灣中部低海拔常綠闊葉林有更深入的了解，也能鼓勵更多的研究人員參與森林生態學的研究。

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2012年4月

Forest ecosystem is vital to human survival. Without the functions and services provided by forest ecosystem, such as clean air, clean water and prevention of soil erosion, our life will be greatly affected. This is especially evident in Taiwan which forested area usually suffered much less damage from typhoon compare to non-forested area. In addition, forest is home to thousands of organisms and is important in biodiversity conservation. The links between these forest organisms and human society are complex and indispensable.

During the process of global modernization, forests around the world were heavily logged and converted to cities or industrial area. The destruction of forest has impaired ecosystem functions significantly. Yet human society demands even more service provided by forest under the current trend of global warming and climate change. There is an urgent need for us to further understand forest dynamics and use this knowledge to design science-based forest management policy and to restore our forests.

Documenting forest dynamics is the first step to understand the change of forest ecosystem. Forest Dynamics Plots (FDP) utilizes long-term and large-scale approach to study the spatial and temporal patterns of trees and the mechanisms that maintain species diversity. Such approaches permit researchers to conduct thorough analyses and look into more details in the patterns of forest dynamics. However, the FDP approach is very time- and money consuming. Without vision and full support from higher level, and strong wills and leadership in implementation stage, the establishment of such FDP plots is not possible. Fortunately, with the full support from Taiwan Forest Research Institute and Taiwan Forestry Bureau, we have established another 25-ha FDP plot in Lienhuachih forest, a pristine lowland evergreen broadleaf forest in Central Taiwan. The establishment of Lienhuachih FDP is the joint efforts of many parties, from government agencies to universities; and of many people, from professors to volunteers. The Lienhuachih stand book represents another achievement of this collaboration. This stand book details the woody plant species found in the 25-ha plot. Information in this book includes not only taxonomic description, abundance and distribution pattern of the resident species, but also phenology information, which is very difficult to collect. We trust that this stand book shall greatly enhance our understanding of Lienhuachih forest, and will further encourage more researchers and students to conduct research in the Lienhuachih forest.



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Introduction to the Lienhuachih Experimental Forest

1 · 沿革與地形位置

蓮華池試驗林設立於1918年，原為一藥用植物試驗地，1945年後由林業試驗所接管，進行林業試驗研究至今。試驗林位於台灣中央山脈西側，屬於中部濁水溪支流上游之集水區小盆地，總面積461.04 ha。全區海拔高度介於576~925 m（黃正良等，2002）。整體地勢上，盆地西側和尚頭山勢較高，北側桃米坑山較低，流貫盆地中央與東側溪流交匯後，形成一南向之開口。區內除溪流經所形成之河谷平地地勢較平坦之外，其餘地區起伏甚大（李孟芬，2006）。

2 · 自然環境

(1) 氣候

本區氣候夏熱冬暖、年溫差小、雨量集中、乾季明顯。年平均氣溫20.8℃，7月平均最高氣溫25.2℃，1月平均最低氣溫為14.8℃；相對溼度平均為87.1%；年總降雨量2285.0 mm。雨季多集中於5月至9月，佔全年總降雨量89.6%；每年6月為降雨量最高峰，平均為482.7 mm；11月降雨量最少，平均只有24.4 mm（陸象豫等，2008）（圖1）。

1. Background and Location

The Lienhuachih Experimental Forest (LEF) was established in 1918. The forest used to be an Medicinal Plants Experiment Field, and has been administered by the Lienhuachih Research Center of the Taiwan Forestry Research Institute since 1945.

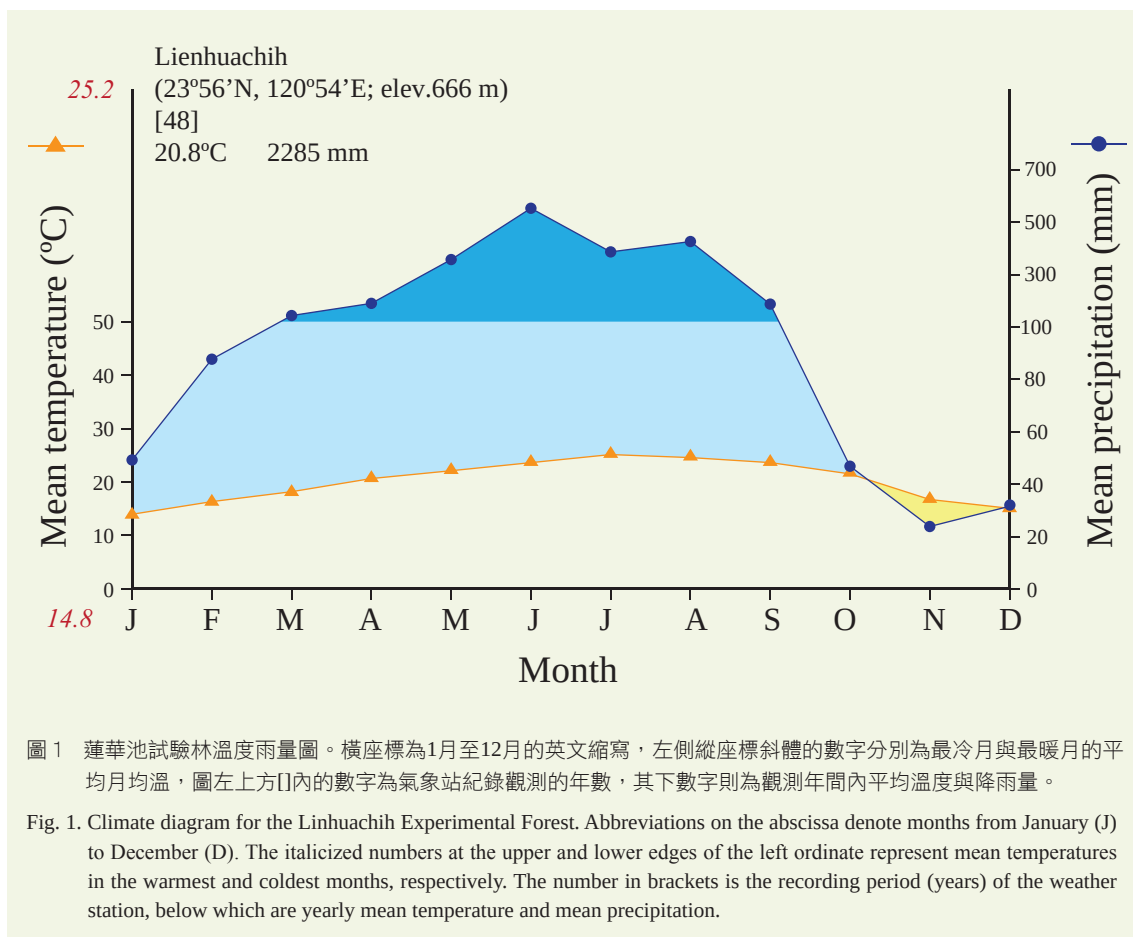
The LEF is a basin located at the headwaters of the Jhuoshuei River catchment in the Central Mountain Range. The total area is 461.04 ha with elevations ranging 576~925 m (Hwong et al. 2002). As to the topography, the LEF is bordered on the west by Mt. He-Sheng-Tou, and the northern border is the lower-elevation Mt. Tao-Mi-Keng. Streams flow to the south through the basin to the outlet, where a relatively flat river plain is formed. However, the rest of the LEF is very steep with undulating terrain (Lee 2006).

2. Natural Environment

(1) Climate

The climatic characteristics of this area are hot summers with warm winters, and the range of average monthly temperatures is small throughout the year. Moreover, it has a distinct dry season. The mean annual temperature is 20.8°C. The hottest month of the year is July with a mean temperature of 25.2°C, and the coldest is January with a mean temperature of 14.8°C. The mean relative humidity is 87.1%. The annual precipitation is 2285.0 mm with seasonality. More than half of the rain falls between May and September (about 89.6% of the total rainfall). The month with the highest rainfall is June (482.7 mm on average), and the month with the least rainfall is November (24.4 mm on average) (Lu et al. 2008) (Fig. 1).

Introduction to the Lienhuachih Experimental Forest



(2) 地質與土壤

蓮華池試驗林全區地質屬於第三紀始新世至漸新世之白冷層，主要為厚層石英岩質砂岩與長石質砂岩，間夾薄層硬頁岩互層，部份砂岩為粗粒至小礫，頂部夾薄煤層¹（李孟芬，2006）。土壤則可分為正淡瘠弱育土（Typic Dystrochrept）以及正簡極育土（Typic Hapludult）兩類（金恆鏞，1986）。

(2) Geology and Soils

The geology throughout the LEF belongs to the Tertiary Eocene to the Paileng Formation of the Oligocene. The substrate consists of alternating argillaceous sandstone and shale, with intervals of thin-layered hard shale. In the upper parts of the sandstone are thin coal seams¹(Lee 2006). The dominant soils can be classified into 2 types, Typic Dystrochrept and Typic Hapludults red soils (King 1986).

¹ 經濟部中央地質調查所，地質資料整合查詢系統基本圖資系列之五萬分之一地質圖

¹ Central Geological Survey, geological data query system, 1/50,000 geologic maps.

(3) 植被狀況

蓮華池試驗林區有一半為天然林（246.77 ha），另一半為人工林（214.27 ha）。人工林栽植種類多為杉木（*Cunninghamia lanceolata*）、香杉（*Cunninghamia konishii*）、台灣杉（*Taiwania cryptomerioides*）、台灣肖楠（*Calocedrus formosana*）、柳杉（*Cryptomeria japonica*）、肯氏南洋杉（*Araucaria cunninghamii*）等針葉樹，少數為桉樹（*Eucalyptus*）及油茶（*Camellia oleifera*）、香椿（*Toona sinensis*）等特用植物（黃正良等，2002）。林區之天然闊葉林，根據蘇鴻傑1984年劃分台灣中部山地森林其屬於楠櫟林。主要的物種為栲屬、青剛櫟屬、楠屬、木荷屬等植物（黃正良等，2002）。此外，蓮華池試驗林還有許多稀有的台灣特有物種（呂勝由等，2001）。整個試驗林區調查到的維管束植物共計有177科、561屬、879種（黃正良等，2002）。

3・自然與人為擾動

自然擾動方面，蓮華池森林每年夏季平均受到0.7個強烈颱風侵襲（李孟芬，2006），且由於地貌陡峭，經由颱風所帶來的大量降水使得土壤水分過飽和，產生嚴重崩塌，進而影響蓮華池森林結構與物種多樣性（李孟芬，2006）。

此外，蓮華池森林自古以來為原住民重要的狩獵場所（孫正春，2006），當地居民在沿溪畔開墾多處為農作耕種地，更有多條道路通往鄰近鄉鎮。這些人為干擾，而使得原本完整的天然森林形成破碎及退化之現象。

(3) Vegetation

About half (246.77 ha) of the LEF is composed of natural forests, while the other half is plantations (214.27 ha). Most of the plantations are composed of *Cunninghamia lanceolata*, *Cunninghamia konishii*, *Taiwania cryptomerioides*, *Calocedrus formosana*, *Cryptomeria japonica*, and *Araucaria cunninghamii*, and a few are of *Eucalyptus* spp., *Camellia oleifera*, and *Toona sinensis*. In total, 879 vascular plant species, belonging to 177 families and 561 genera, have been recorded within the entire LEF (Hwong et al. 2002). The dominant vegetation type in the LEF is considered to be the Lauro-Fagaceous forest as defined by Su (1984), and many rare endemic species exist in this unique habitat (Lu et al. 2001). Most of the trees are *Castanopsis* spp., *Cyclobalanopsis* spp., *Machilus* spp., and *Schima* spp. (Hwong et al. 2002).

3. Natural and Human Disturbances

In terms of natural disturbances, on average, 0.7 typhoons pass by the area each year and often cause severe damage (Lee 2006). Typhoons usually bring extremely heavy rainfall and result in over-saturation of soil water. Because of the steep slopes in this area, typhoons often cause serious landslides, which in turn influence the forest structure and biodiversity of the LEF (Lee 2006).

The LEF was also an aboriginal hunting ground (Sun 2006) with some human disturbance. Human activities within the LEF include agricultural fields and roads to neighborhoods. These human disturbances resulted in the natural vegetation in some areas becoming fragmented and degraded.

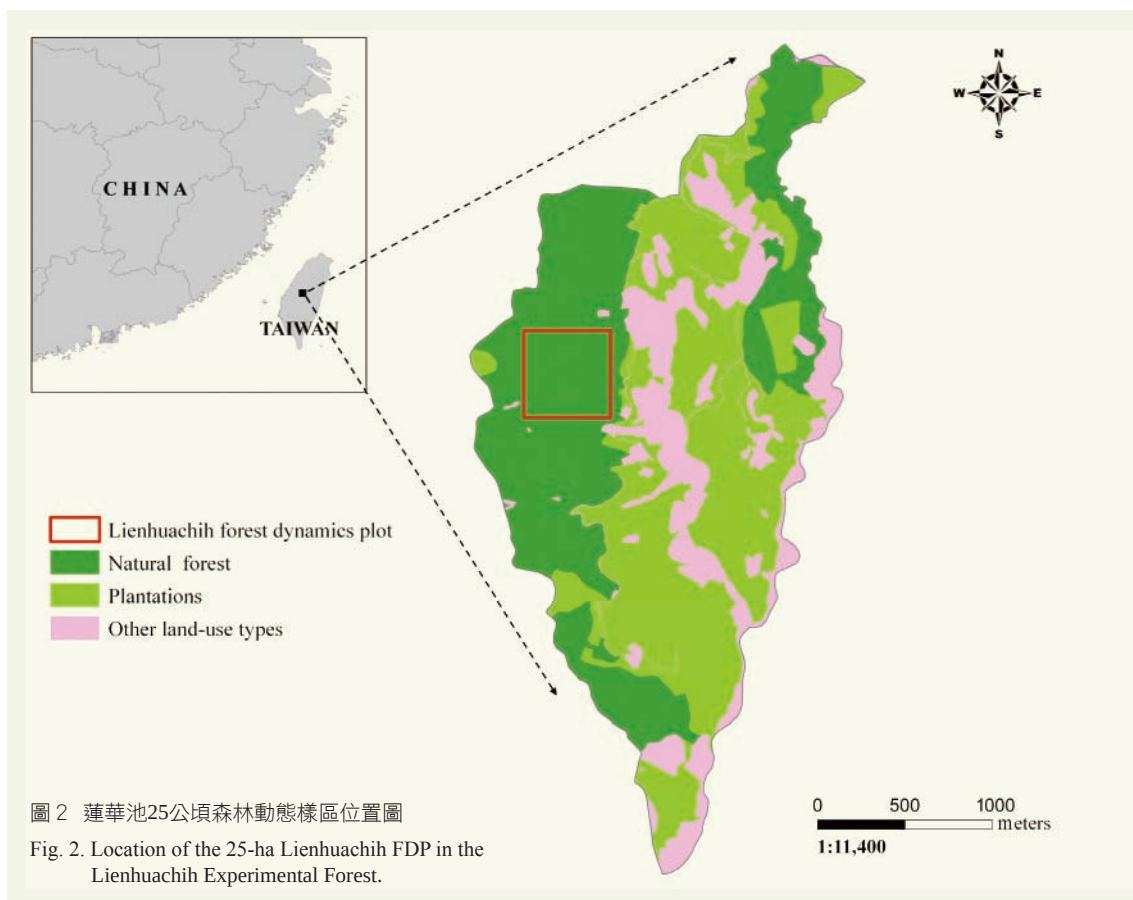
The Lienhuachih Forest Dynamics Plot (FDP)

1 · 樣區概況

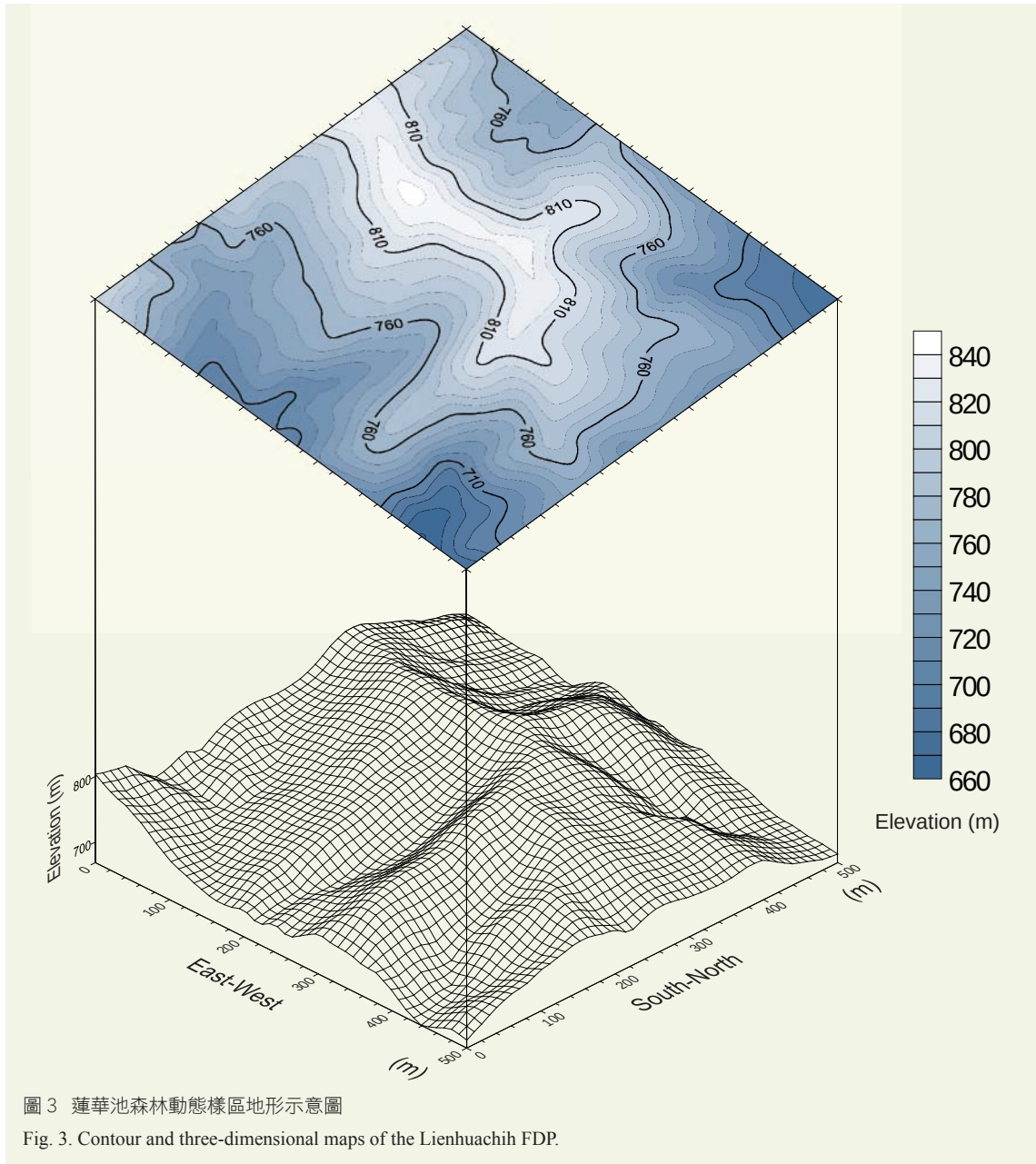
森林動態樣區位於蓮華池試驗林第4林區及第6林區內（圖2），經緯度為：23° 54' 49" N, 120° 52' 43" E。全區海拔範圍為667~845 m，平均坡度為35.3°，具有許多谷地、陡峭坡地與稜脊等。樣區地勢大致由西邊之山地向東傾斜（圖3），主稜線呈東西走向，橫亙於樣區中央偏北處，主稜以南為1號集水區，以北為2號集水區，區內有幾條明顯之小溪流。於颱風季帶來的大量降雨使得小溪流兩旁區域產生崩塌，而乾季小溪流內則無水流，呈現乾涸現象。總體而言，全樣區地貌異質性高（圖3）。

1. Topographic Features

The Forest Dynamics Plot (FDP) is located in the 4th and 6th Forest Compartments of the L EF (23° 54' 49"N, 120° 52' 43"E) (Fig. 2). The elevation of the plot ranges from 667~845m above sea level. The average slope of plots is about 35.3°, so the land is very steep. The topography of the plot is characterized by hills with valleys, steep slopes, and ridges. The terrain is generally higher in the western part and lower in the eastern part of the plot (Fig. 3). A main ridge runs from west to east in the north-central portion of the plot. To its south is the 1st water catchment, and to its north is the 2nd water catchment. Some small streams appear in the wet season. When typhoons with heavy rains pass this region, instant and large amounts of rainfall cause landslides and the collapse of steep



slopes and stream banks. In the dry season, small streams usually dry up. Topographic features display high spatial heterogeneity within the Lienhuachih FDP (Fig. 3).



The Lienhuachih Forest Dynamics Plot (FDP)

2 · 調查方法

(1) 樣區標定與測量

依據CTFS進行森林動態樣區研究的作業模式（Condit 1998），於試區地點測量設置一500 m×500 m正方形，投影面積為25 ha之樣區。使用經緯儀標定地形，並於每隔10 m與20 m 水平距離各標定一個基點，插上不鏽鋼桿。將25 ha之樣區切分為625個20×20 m 之小樣方，每個小樣方內有16個5 m×5 m。將每個小樣方以其西南角之XY 座標點加以命名。

(2) 植物調查

於樣區內我們根據CTFS調查手冊（Condit, 1998），調查所有胸高直徑（DBH）達到1 cm的植株，並記錄物種名稱、胸高直徑（DBH）與每一株樹木的位置及編號，由於主幹難以判定，木質藤本與蔓性灌木，並未列入調查。胸高直徑定義為由地面至1.3 m的直徑，胸高直徑的測量點，以紅漆標示。對於在野外無法辨識的個體，採集證據標本，作為後續鑑定之依據，樣區木本植物名錄基本資料以*Flora of Taiwan*（第二版）為主。

3 · 初步調查結果

(1) 植物組成

調查區域（25 ha）內共計調查到153,268株（6131 株/ha）胸高直徑（DBH）在1 cm以上的木本植物有144種木本植物，分屬於46科，88個屬（如表1）。總胸高斷面積為869.31 m²

2. Methods

(1) Field Inventory

Following the census manuals developed by the Center for Tropical Forest Science (CTFS) long-term research for FDP (Condit 1998), we set up a forest dynamics plot (500×500) m with a projected area of 25 ha in the sampling area. Electronic total-station theodolites were used for precise topographic measurements, and a stainless post was used to locate every base point (horizontal distance 10 and 20 m). The plot was then divided into 625 quadrats of 20×20 m, each with 16 5×5m subquadrats. Each quadrat was named after its southwestern X and Y coordinates.

(2) Tree Census

The tree census work was also carried out according to the methodology developed by CTFS (Condit 1998). In the 25-ha plot, we identified, measured, tagged, and mapped every shrub and tree with diameter at breast height (DBH) of ≥ 1 cm. Nevertheless, lianas and scandent shrubs were omitted due to a lack of distinct main stems. Because many the censused individuals are not growing exactly upright, the “DBH” here was defined as the diameter measured at the height of a post exactly 1.3 m in length. All censused individuals were painted red at the point of measurement for future reference. In terms of plant identification, voucher specimens were collected from individuals that could not be determined in the field. The identification of plant species was based on the *Flora of Taiwan* (Editorial Committee of the *Flora of Taiwan* 1993-2003).

3. Preliminary Results

(1) Floristic Composition

In total, 153,268 (6131 stems/ha) tree individuals were recorded within the 25-ha plot, belonging to

表 1 蓮華池森林動態樣區木本植物組成

Table 1. Composition of woody plants in the Lienhuachih FDP.

	裸子植物 Gymnosperms	雙子葉植物 Dicotyledons	單子葉植物 Monocotyledons	合計 Total
科數 (Families)	2	43	1	46
屬數 (Genera)	2	85	1	88
種數 (Species)	2	141	1	144
台灣特有種 (Endemic species)	2	27	0	29

(34.77 m² / ha)。其中僅有桃實百日青及台灣五葉松屬於裸子植物，檳榔屬於單子葉植物，其它141種皆為雙子葉植物（表1）。台灣特有種共計29種，如：蓮花池山龍眼、桃實百日青…等。

以科而言，種類最多的科是樟科，其次依序為茜草科、殼斗科、茶科及大戟科（表2）；若以各科的胸高斷面積而言，則殼斗科所佔的比例最大（26.47%），其次才為樟科、胡桃科、大戟科及五加科；若以各科所佔有的數量而言，茜草科所佔有株數數量最多（20.86%），其次為樟科和殼斗科。將全樣區各科相對之個體數、胸高斷面積加總後，得到樣區內各科之重要值指數，將其由多到少，列出排名前10名的科別，如表3。綜合上述，就全樣區而言，以殼斗科、樟科、茜草科最為優勢（表3）。

以種而言，植株數量最多者為茜草樹，佔有 13.75 %，次多者為柏拉木，佔 10.57 %，第三多為大丁黃，佔5.07 %。前兩種數量最多的種類均為灌木或次冠層的植物，在全樣區內皆有分布，雖然

144 species, 88 genera, and 46 families (Table 1). The total basal area was 869.31 m² (34.77 m²/ha). Except for 2 gymnosperms (*Podocarpus nakaii* and *Pinus morrisonicola*) and 1 monocotyledon (*Arecae catechu*), the rest of the woody species were all dicotyledons (Table 1). In total, 29 species are endemic to Taiwan, for instance, *Helicia rengetiensis* and *Podocarpus nakaii*.

Families with the most number of species in the plot were the Lauraceae, followed by the Rubiaceae, Fagaceae, Theaceae, and Euphorbiaceae (Table 2). Families with the greatest basal areas were the Fagaceae (26.47% of the total basal area), followed by the Lauraceae, Juglandaceae, Euphorbiaceae, and Araliaceae. The Rubiaceae had the greatest stem density (20.86% of total stems), followed by the Lauraceae and Fagaceae. The top 10 families in terms of Importance values (IVs) are shown in Table 3. The dominant families were ranked in the order of the Fagaceae, Lauraceae, and Rubiaceae (Table 3).

The 3 most abundant species in number of trees in descending order were *Randia cochinchinensis* (Rubiaceae) (13.75%), *Blastus cochinchinensis* (Melastomataceae) (10.57%), and *Euonymus laxiflorus* (Celastraceae) (5.07%). The first 2 species are small trees or shrubs which are distributed throughout most of the plot. The 2 together accounted for 24.32% of the

蓮華池森林動態樣區簡介

The Lienhuachih Forest Dynamics Plot (FDP)

表 2 蓮華池森林動態樣區植物之科、屬、種

Table 2. Checklist of plant families, genera and species in the Lienhuachih FDP.

科名	Family	屬名	Genus	種類 數量	No. of Species	同科 數量	Subtotal
松科	Pinaceae	松屬	<i>Pinus</i>	1		1	1
羅漢松科	Podocarpaceae	羅漢松屬	<i>Podocarpus</i>	1		1	1
獼猴桃科	Actinidiaceae	水冬瓜屬	<i>Saurauia</i>	1		1	1
漆樹科	Anacardiaceae	漆樹屬	<i>Rhus</i>	2		2	2
冬青科	Aquifoliaceae	冬青屬	<i>Ilex</i>	7		7	7
五加科	Araliaceae	鵝掌柴屬	<i>Schefflera</i>	1		1	1
紫葳科	Bignoniaceae	山菜豆屬	<i>Radermachia</i>	1		1	1
紫草科	Boraginaceae	厚殼樹屬	<i>Ehretia</i>	1		1	1
山柑科	Capparaceae	山柑屬	<i>Capparis</i>	1		1	1
忍冬科	Caprifoliaceae	莢 屬	<i>Viburnum</i>	1		1	1
衛矛科	Celastraceae	衛矛屬	<i>Euonymus</i>	2		3	
		假衛矛屬	<i>Microtropis</i>	1			
山茱萸科	Cornaceae	桃葉珊瑚屬	<i>Aucuba</i>	1		1	1
虎皮楠科	Daphniphyllaceae	虎皮楠屬	<i>Daphniphyllum</i>	1		1	1
柿樹科	Ebenaceae	柿樹屬	<i>Diospyros</i>	2		2	2
杜英科	Elaeocarpaceae	杜英屬	<i>Elaeocarpus</i>	2		2	2
杜鵑花科	Ericaceae	杜鵑花屬	<i>Rhododendron</i>	2		3	
		越橘屬	<i>Vaccinium</i>	1			
大戟科	Euphorbiaceae	油桐屬	<i>Aleurites</i>	1		8	
		五月茶屬	<i>Antidesma</i>	1			
		重陽木屬	<i>Bischofia</i>	1			
		土密樹屬	<i>Bridelia</i>	1			
		饅頭果屬	<i>Glochidion</i>	1			
		野桐屬	<i>Mallotus</i>	2			
		烏白屬	<i>Sapium</i>	1			
殼斗科	Fagaceae	栲屬	<i>Castanopsis</i>	3		11	
		栲屬	<i>Cyclobalanopsis</i>	1			
		槲屬	<i>Limlia</i>	1			
		石櫟屬	<i>Lithocarpus</i>	1			
		柯屬	<i>Pasania</i>	5			
大風子科	Flacourtiaceae	嘉賜木屬	<i>Casearia</i>	1		2	
		天料木屬	<i>Homalium</i>	1			
金縷梅科	Hamamelidaceae	假蚊母樹屬	<i>Distyliopsis</i>	1		2	
		秀柱花屬	<i>Eustigma</i>	1			
八角科	Illiciaceae	八角屬	<i>Illicium</i>	1		1	1
胡桃科	Juglandaceae	黃杞屬	<i>Engelhardtia</i>	1		1	1
樟科	Lauraceae	瓊楠屬	<i>Beilschmiedia</i>	1		17	
		樟屬	<i>Cinnamomum</i>	4			
		厚殼桂屬	<i>Cryptocarya</i>	1			
		釣樟屬	<i>Lindera</i>	1			
		木薑子屬	<i>Litsea</i>	4			
		楨楠屬	<i>Machilus</i>	3			
		新木薑子屬	<i>Neolitsea</i>	2			
		雅楠屬	<i>Phoebe</i>	1			

表 2 蓮華池森林動態樣區植物之科、屬、種 (續)

Table 2. Checklist of plant families, genera and species in the Lienhuachih FDP. (Continued)

科名	Family	屬名	Genus	種類 數量	No. of Species	同科 數量	Subtotal
豆科	Leguminosae	領垂豆屬	<i>Archidendron</i>	1		2	
		紅豆樹屬	<i>Ormosia</i>	1			
千屈菜科	Lythraceae	紫葳屬	<i>Lagerstroemia</i>	1			1
木蘭科	Magnoliaceae	烏心石屬	<i>Michelia</i>	1			1
野牡丹科	Melastomataceae	柏拉木屬	<i>Blastus</i>	1		2	
		野牡丹屬	<i>Melastoma</i>	1			
桑科	Moraceae	榕屬	<i>Ficus</i>	5			5
楊梅科	Myriaceae	楊梅屬	<i>Myrica</i>	1			1
紫金牛科	Myrsinaceae	紫金牛屬	<i>Ardisia</i>	4		5	
		山桂花屬	<i>Maesa</i>	1			
桃金娘科	Myrtaceae	赤楠屬	<i>Syzygium</i>	2			2
木犀科	Oleaceae	木犀屬	<i>Osmanthus</i>	1			1
山龍眼科	Proteaceae	山龍眼屬	<i>Helicia</i>	3			3
薔薇科	Rosaceae	枇杷屬	<i>Pourthiaea</i>	1		4	
		梅屬	<i>Prunus</i>	2			
		石斑木屬	<i>Rhaphiolepis</i>	1			
茜草科	Rubiaceae	黃梔屬	<i>Gardenia</i>	1		13	
		雞屎樹屬	<i>Lasianthus</i>	7			
		九節木屬	<i>Psychotria</i>	1			
		茜草樹屬	<i>Randia</i>	1			
		狗骨仔屬	<i>Tricalysia</i>	1			
		水錦樹屬	<i>Wendlandia</i>	2			
芸香科	Rutaceae	石苓舅屬	<i>Glycosmis</i>	1		4	
		三腳龍屬	<i>Melicope</i>	1			
		賊仔樹屬	<i>Tetradium</i>	1			
		花椒屬	<i>Zanthoxylum</i>	1			
清風藤科	Sabiaceae	泡花樹屬	<i>Meliosma</i>	2			2
無患子科	Sapindaceae	無患子屬	<i>Sapindus</i>	1			1
省沽油科	Staphyleaceae	山香圓屬	<i>Turpinia</i>	1			1
梧桐科	Sterculiaceae	梭羅樹屬	<i>Reevesia</i>	1			1
安息香科	Styracaceae	安息香屬	<i>Styrax</i>	2			2
灰木科	Symplocaceae	灰木屬	<i>Symplocos</i>	5			5
茶科	Theaceae	楊桐屬	<i>Adinandra</i>	1		9	
		山茶屬	<i>Camellia</i>	3			
		柃木屬	<i>Eurya</i>	1			
		大頭茶屬	<i>Gordonia</i>	1			
		烏皮茶	<i>Pyrenaria</i>	1			
		木荷屬	<i>Schima</i>	1			
		厚皮香屬	<i>Ternstroemia</i>	1			
榆科	Ulmaceae	朴屬	<i>Celtis</i>	1		3	
		山黃麻屬	<i>Trema</i>	2			
馬鞭草科	Verbenaceae	紫珠屬	<i>Callicarpa</i>	2		4	
		海州常山屬	<i>Clerodendrum</i>	2			
棕櫚科	Palmae	檳榔屬	<i>Areca</i>	1			1
總計 Total				144		144	

The Lienhuachih Forest Dynamics Plot (FDP)

表 3 蓮華池森林動態樣區各科重要值前10名

Tale 3. Importance Value (IV) Indices for the top 10 families in the Lienhuachih FDP.

Family	科名	相對個體數 RD (%)	相對胸高斷面積 RBA (%)	重要值 IV (%)
Fagaceae	殼斗科	10.62	26.47	18.55
Lauraceae	樟科	12.68	17.53	15.10
Rubiaceae	茜草科	20.86	5.98	13.42
Euphorbiaceae	大戟科	3.52	7.78	5.65
Melastomataceae	野牡丹科	10.46	0.44	5.45
Araliaceae	五加科	3.13	7.23	5.18
Proteaceae	山龍眼科	6.94	3.02	4.98
Juglandaceae	胡桃科	1.18	8.12	4.65
Theaceae	茶科	1.48	6.74	4.11
Others	其他	29.13	16.69	22.91
Total	總計	100.00	100.00	100.00

*相對胸高斷面積；相對密度

*RBA, relative basal area; RD: relative density.

其數量累積佔全部之24.32%，但胸高斷面積少，總共僅有3.52%。

各種的胸高斷面積部份，以南投石櫟胸高斷面積最大，佔全部胸高斷面積的8.38%，黃杞及鵝掌柴分別位居第二及第三。除了厚殼桂外，森林中胸高斷面積的優勢樹種大部分皆為冠層樹種。

以各種之重要值IV（相對密度及相對胸高斷面積加總）來看，樣區內最優勢的前5名物種分別為茜草樹8.34%、柏拉木5.50%、鵝掌柴5.41%、厚殼桂5.31%及黃杞4.63%（表4）。前30種優勢植物其重要值指數累積量超過80%，此外，前20種優勢植物，即有2種陽性植物，分別為白袍子、白臼，排名第10及第20，表示此森林遭受到高頻度的擾動。

total abundance, but only 3.53% of the total basal area.

Based on the basal area, the dominant species were large-statured, less-abundant trees, including *Pasania nantoensis* (8.38%), *Engelhardtia roxburghiana*, and *Schefflera octophylla*. Most of them, except *Cryptocarya chinensis*, are canopy species.

The top 5 important species as indicated by the IVs were *R. cochinchinensis* (8.34%), *B. cochinchinensis* (5.50%), *S. octophylla* (5.41%), *C. chinensis* (5.31%), and *E. roxburghiana* (4.63%). The top 30 dominant species contributed over 80% to the total IV (Table 4). Among the 20 most dominant species, some pioneer species, such as *Mallotus paniculatus* (10th) and *Sapium discolor* (20th), are also major canopy species, indicating a high frequency of disturbance.

表4 樣區樹種重要值前30名

Table 4. Ranking of the top 30 species in terms of important value (IV) for the 144 tree species in the Lienhuachih FDP.

中文名 Chinese name	學名 Species	相對胸高斷面積 RBA	相對密度 RD	重要值 IV	平均胸徑 Mean DBH
茜草樹	<i>Randia cochinchinensis</i>	3.10%	13.75%	8.43%	2.88
柏拉木	<i>Blastus cochinchinensis</i>	0.43%	10.57%	5.50%	1.44
鵝掌柴	<i>Schefflera octophylla</i>	7.23%	3.58%	5.41%	7.34
厚殼桂	<i>Cryptocarya chinensis</i>	6.10%	4.53%	5.31%	5.16
黃杞	<i>Engelhardtia roxburghiana</i>	8.12%	1.15%	4.63%	12.45
南投石櫟	<i>Pasania nantoensis</i>	8.38%	0.54%	4.46%	11.28
捲斗櫟	<i>Cyclobalanopsis pachyloma</i>	4.16%	2.53%	3.34%	6.80
山紅柿	<i>Diospyros morrisiana</i>	3.09%	3.26%	3.17%	5.16
香桂	<i>Cinnamomum subavenium</i>	3.52%	2.48%	3.00%	5.27
白匏子	<i>Mallotus paniculatus</i>	3.49%	2.48%	2.98%	6.40
Top10		47.63%	44.86%	46.25%	
狗骨仔	<i>Tricalysia dubia</i>	1.80%	4.08%	2.94%	4.12
木荷	<i>Schima superba</i>	5.16%	0.49%	2.82%	16.88
山龍眼	<i>Helicia formosana</i>	2.01%	3.42%	2.71%	3.81
大丁黃	<i>Euonymus laxiflorus</i>	0.34%	5.07%	2.70%	1.83
小葉赤楠	<i>Syzygium buxifolium</i>	1.36%	3.89%	2.63%	3.59
火燒柯	<i>Castanopsis fargesii</i>	3.68%	0.83%	2.26%	7.71
台灣紅豆樹	<i>Ormosia formosana</i>	1.27%	3.12%	2.20%	2.93
九節木	<i>Psychotria rubra</i>	0.59%	3.73%	2.16%	2.12
小葉樹杞	<i>Ardisia quinqueгона</i>	0.38%	3.71%	2.05%	2.08
白白	<i>Sapium discolor</i>	2.80%	0.77%	1.78%	10.05
Top20		67.02%	73.97%	70.49%	
蓮花池山龍眼	<i>Helicia rengetiensis</i>	0.95%	2.09%	1.52%	3.46
長葉木薑子	<i>Litsea acuminata</i>	1.49%	1.42%	1.46%	5.06
大葉苦槠	<i>Castanopsis kawakamii</i>	2.54%	0.22%	1.38%	8.28
變葉新木薑子	<i>Neolitsea aciculata</i>	0.36%	2.29%	1.32%	2.39
桃實百日青	<i>Podocarpus nakaii</i>	0.95%	1.63%	1.29%	4.69
裏白饅頭果	<i>Glochidion acuminatum</i>	1.43%	0.91%	1.17%	7.56
長尾尖葉槠	<i>Castanopsis cuspidata</i>	1.91%	0.42%	1.16%	8.04
油葉石櫟	<i>Pasania konishii</i>	1.36%	0.86%	1.11%	4.26
短尾葉石櫟	<i>Pasania harlandii</i>	1.54%	0.64%	1.09%	7.52
香楠	<i>Machilus zuihoensis</i>	1.77%	0.35%	1.06%	10.46
Top30		81.32%	84.81%	83.06%	

*相對胸高斷面積；相對密度；胸高直徑

*RBA, relative basal area; RD, relative density (no. of individuals); DBH, diameter at breast height.

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表 5 樣區各徑級之胸高斷面積、豐度、科屬種豐富度與多樣性與均勻度之指數

Table 5. Basal area, abundance, richness, diversity, and evenness of woody species in different size classes in the Lienhuachih FDP.

徑級 Diameter	胸高斷面積*		豐度		種數		屬數		科數		夏農指數		均勻度		費雪 α 指數	
	Basal area*		Abundance		No. of species		No. of genera		No. of families		Shannon's Index		Evenness		Fisher's alpha	
(cm)	25-ha plot	1 ha	25-ha plot	1 ha	25-ha plot	1 ha	25-ha plot	1 ha	25-ha plot	1 ha	25-ha plot	1 ha	25-ha plot	1 ha	25-ha plot	1 ha
≥ 1	869.31	34.77	153268	6131	145	94	90	65	47	35	3.57	3.41	0.72	0.75	15.79	15.69
≥ 5	803.97	32.16	36572	1463	118	68	83	50	44	30	3.67	3.46	0.77	0.82	15.15	14.80
≥ 10	710.08	28.40	16513	661	102	55	69	42	38	25	3.64	3.40	0.79	0.86	14.49	13.99
≥ 30	370.11	14.80	2267	91	58	24	47	20	30	11	3.11	2.73	0.77	0.87	10.85	10.63
≥ 60	109.90	4.40	251	10	27	6	23	6	15	4	2.59	1.56	0.79	0.90	7.68	8.92

*胸高斷面積：包含分枝

* The total basal area includes the branch basal area.

(2) 植物多樣性

以物種數而言，每個小樣方（0.04 ha）平均約有35種，最少為6種，最多則為55種，全樣區之Fisher's α 指數為15.79、Shannon指數為3.57、均勻度指數為0.72（表5）。與台灣其他低海拔動態樣區比較（Losos et al. 2004, Su 2007, Chang et al. 2010），蓮華池森林動態樣區為最為豐富；另與世界上其他島嶼中的森林動態樣區比較，其多樣性低於其它熱帶的樣區，卻和波多黎各森林動態樣區相當（Losos et al. 2004, Chang et al. 2010）。

樣區之種-面積曲線顯示樣區內的物種隨面積的增加而顯著地上升（圖4）。但面積累計至5 ha以後，則物種增加的速度漸趨緩，達10 ha以後，曲線更幾近平緩，僅有少數物種新增。

(2) Floristic Diversity

On average, there are 35 species per 0.04-ha plot, and this ranged from 6 to 52 species. The alpha diversity of the plot was 15.79 for Fisher's alpha index, 3.57 for Shannon's index, and 0.72 for the evenness index (Table 5). In the Lienhuachih FDP both diversity indices and tree density were higher than other lowland forest plots of Taiwan (Losos et al. 2004, Su 2007, Chang et al. 2010). However, the diversity was much lower than the other tropical islands but similar to that of the Luquillo FDP (Puerto Rico) (Losos et al. 2004, Chang et al. 2010).

The species-area curve showed that the number of species increased rapidly (Fig. 4). After reaching 5 ha, the speed of finding new species became slower. The curve had nearly leveled off after 10 ha had been sampled.

(3) 全區徑級結構

將樣區內所有植株個體之胸徑，以每 5 cm 為一個單位，超過 80% 的個體皆為小徑級的植株，大部分皆為灌木層或次冠層以及冠層植物的幼苗，表示著此森林植物社會有許多的幼樹；樣區內所有個體的徑級分布呈現明顯的”L”型，而胸徑最大的則為九重吹（115 cm）。

(3) Size-class Distribution Pattern

The size-class distributions of the entire forest community revealed different features for abundance and basal area (Fig. 5). The size-class (in every 5 cm) distribution of the abundance presented a L-shaped line, such that it gradually declined with an increasing diameter size. Nearly 80% of all individuals were in the smallest size class (1~5 cm), which was mostly shrubs and saplings of canopy and sub-canopy trees. This structural feature indicates sufficient recruits of trees in the forest. The distribution also had a long tail towards the largest tree size which was a *Ficus nervosaa* individual with a DBH of 115.0 cm.

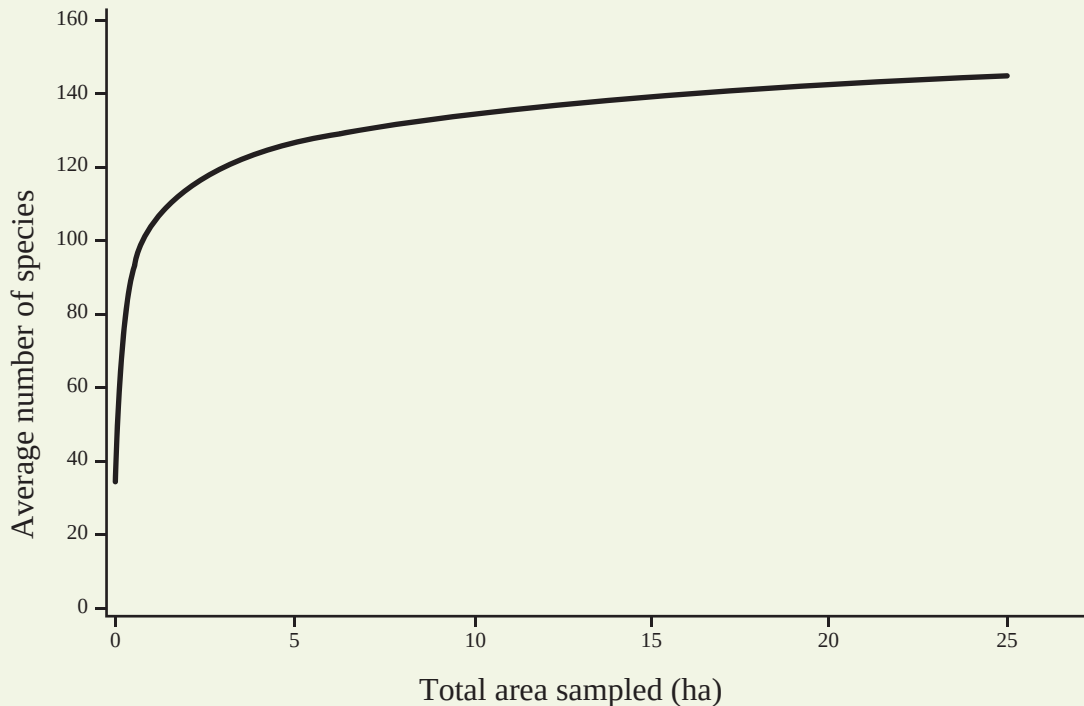


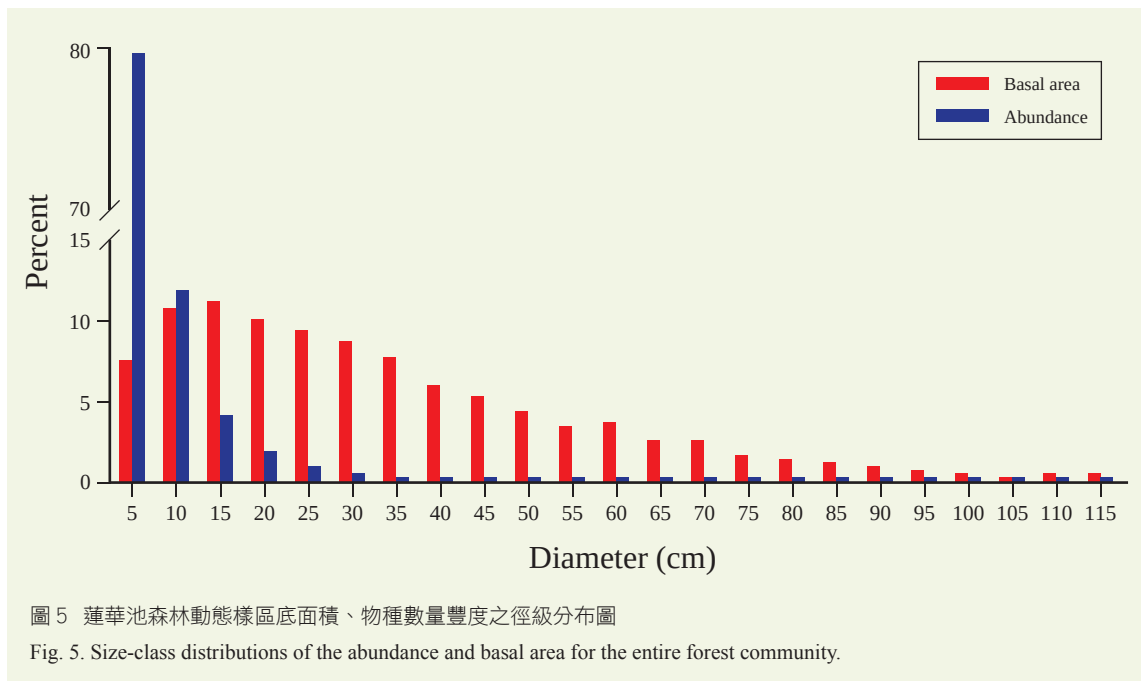
圖 4 蓮華池森林動態樣區種-面積曲線圖

Fig. 4. Species-area curve for the Lienhuachih FDP.

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檢視全樣區胸高斷面積隨著徑級大小的變化趨勢，則呈現出比較寬幅度的右偏斜單峰型，以10-15 cm徑級所佔的比例最高，第二為5-10 cm徑級這一群，而15-20 cm這一徑級之胸高斷面積排名第三，即表示此處森林的生物量亦可能也是呈單峰分布並且主要分配在10-35 cm之間中徑級的林木群，徑級超過60 cm 以上的大樹佔全部的胸高斷面積為12.69%，但僅佔全部株樹的0.12%（254株）（圖5）。

In contrast, the structure of the basal area distribution exhibited a right-skewed and platykurtic bell-shaped curve with the highest percentage of basal area (11.14%) in the 10~15-cm DBH size class, followed by the 5~10-cm and 15~20-cm DBH size classes. This implies that the biomass of the forest also exhibited a right-skewed and bell-shaped curve with the highest percentage in the 10~35-cm DBH size class. Large-sized trees (≥ 60 cm in diameter) accounted for 12.69% of the total basal area, but represented only 0.12% (254 stems) of the total stems.



Interpreting the Species Information

在列出樣區樹種介紹之前，先為各位說明一下植物個論中的各項資訊。每個植物物種各論以一頁中文描述，另一頁面為英文描述組成，其內容包括：物種中文名、英文名、學名、漢語拼音、葉序照片、型態描述、樣區分布圖、徑級結構表、花果期資訊與照片（植株、花、果實、樹皮）。

文字描述

標題：

在中文頁面的標題為物種中文名稱，而其他常用俗名，則置於後續括號中。其後之白色字體為此物種的漢語拼音，方便讓外國人讀出較正確發音，以詢問此物種。在英文頁面的標題列為物種學名（黑色字體）與物種英文名（白色字體，此並不是每個物種皆有）。內文區標題則提供物種科名與物種之特有性質，如非台灣特有種，則僅呈現物種科名。如遇有效科名，則以“=”並列之。以上資訊皆以*Flora of Taiwan*第二版資料為基準，若為台灣植物誌出版後發表之物種，則以發表文獻之使用學名與中文名稱為準。物種英文俗名則以台灣植物名彙（楊再義，1982）和台灣植物資訊整合查詢系統（<http://tai2.ntu.edu.tw/>）為資料來源。

樹冠層級：

此欄用以呈現該物種於蓮華池森林動態樣區內的樹冠層級。樹冠層級會因植株位於稜線、坡面、谷地…等位置，而影響該物種的樹高及胸徑大小變化。本欄之樹冠層級判定以蓮華池森林動態樣區調查所得之胸徑結果，輔以調查人員實際觀察之樹高與周遭地形條件訂定之。

Before presenting the species' information, items need to be introduced. The information on each species comprises 1 page in Chinese and another in English. The contents include the Chinese name of the species, the English name, the scientific name, hanyu pinyin, a scaled leaf image, a taxonomic description, a distribution map, a size structure table, a phenological calendar, and pictures of the entire plant, flowers, fruit, and bark in most case.

Text

Page title:

The Chinese name and common name are in brackets on the Chinese page. After this, the white words are hanyu pinyin of this species. It can help foreigners to read correct Chinese name, when they asked for help. The scientific name (black characters) and English name (in white letters; not every species has one) is on the English page. The title includes the family name and the status of its endemism. If the species is not endemic, only the family name is given. If there is another valid family name, both family names are displayed with a equals sign. All of the above information is based on the *Flora of Taiwan*, 2nd edition. If the species was published after the *Flora of Taiwan*, 2nd edition was published, the scientific and Chinese names are based on the latest paper published. The English names are based on *A List of Plants in Taiwan* (Yang 1982) and the website: Plants of TAIWAN (<http://tai2.ntu.edu.tw/>).

Stratum:

The species' place in the stratum in the Lienhuachih FDP is displayed here. Whether the species grows on the crest line, slope face, or valley land will affect its height and diameter, thus affecting the stratum. Information on the species' stratum is mostly based on the diameter of the species measured in the Lienhuachih FDP, but also partly based on observing the height of the species and the environment in the plot.

Interpreting the Species Information

描述：

針對該物種特徵作一完整性的描述，內容包含葉序、葉形、花序、花、果實、種子等之性狀描述。

樣區分布圖

各物種之樣區分布圖以10 m間隔的等高線圖為底，藍色線條為溪流，X軸和Y軸之比例尺單位為公尺。物種分布情形以圖示標出，圖示可分為紅色實心圓---代表該植株胸高直徑（DBH）1 cm以上，未滿5 cm；藍色空心圓---代表植株胸高直徑5 cm以上，未滿30 cm；綠色空心三角形---代表植株胸高直徑30~115 cm。

照片

葉序照片：

將採集之物種葉序枝條以平展方式，且使葉片有正反面向顯示，並去除雜亂背景，輔以比例尺為對照，方便初學者辨識使用。

型態照片：

此類照片包含該物種之植株、花、果實、樹皮特徵照片，照片拍攝地點以蓮華池森林動態樣區內為主。樹皮照片利用新台幣10元硬幣（直徑26 mm）作為比例尺，並切開部分樹皮顯現其內部顏色以供特徵比對。部分物種還有果實和種子圖片以插圖方式呈現，並於旁邊附上比例尺以供參考。

Description:

This section has a detailed characteristics of the species, including the phyllotaxy, the shape of the leaf, inflorescence, and traits of the flower, fruit, and seed.

Distribution Map

The distribution of each species in the 500 x 500-m plot is illustrated on the contour map drawn using 10-m intervals of elevation. The blue line in the plot is a stream. The units of the X- and Y-axis scales are in meters. Corresponding symbols are used to display the distribution of the species in the plot. Symbols are categorized in three diameter size classes: a solid red circle indicates $1 \leq \text{DBH} < 5$ cm; a hollow blue circle indicates $5 \leq \text{DBH} < 30$ cm; and a hollow green triangle indicates $30 \leq \text{DBH} \leq 115$ cm.

Picture

Scaled leaf image:

The twig and leaves were collected and scanned flat, and a scale is given with the upper and lower surfaces of the leaves. The background of the image was moved, and a scale was added to help beginners easily identify the important leaf features.

Feature pictures:

The selected pictures display features of the entire plant, flower, fruit, and bark, and most pictures were taken in the Lienhuachih FDP. Pictures of the bark include an NT\$10 coin (diameter: 26 mm) as a scale, and the bark was cut to show the inner color. These should facilitate identification. Images of the fruit and seeds are illustrated with a scale to assist identification.

徑級結構表

此表格顯示該物種在各徑級區分中的植株數量和比例，可了解此物種的生活型態和在這個樣區中的角色。另外在其下有該物種在樣區的總底面積統計，單位為： $\text{cm}^2/25 \text{ ha}$ 。

花果期物候資訊

此資訊顯示該物種在蓮華池森林動態樣區一年當中的開花時期（黃色區塊）和結果至果熟時期（綠色區塊）。資料來源主要以在蓮華池森林動態樣區中觀察之情形為主，如遇到該物種從未在樣區中開花結果，則以其他圖鑑查詢到的資料遞補。

隨後為蓮華池森林動態樣區初次調查之144種木本植物個體，物種排序方式以裸子植物為優先，再者為被子植物之雙子葉植物類，最後為被子植物之單子葉植物類。各類又以科名為主要順序，學名為次要順序。

Size Structure Table

Numbers of individuals in the plot and the proportion of each size structure are displayed in this table, so one can understand the lifeform of the species and its role in this plot. The total basal area of this species is also given in units of $\text{cm}^2/25 \text{ ha}$.

Phenological Calendar

This information displays the flowering (yellow bar) and fruiting (green bar) seasons. The source of the information is mostly based on observation at the Lienhuachih FDP. If a species was never recorded flowering or fruiting in this plot, the phenological information was based on other references.

Following the “Interpretation” are descriptions of the 144 species investigated in the Lienhuachih FDP. Gymnosperms are presented first, followed by dicotyledons and monocotyledons. Families are alphabetized, and within each family, species are alphabetized.



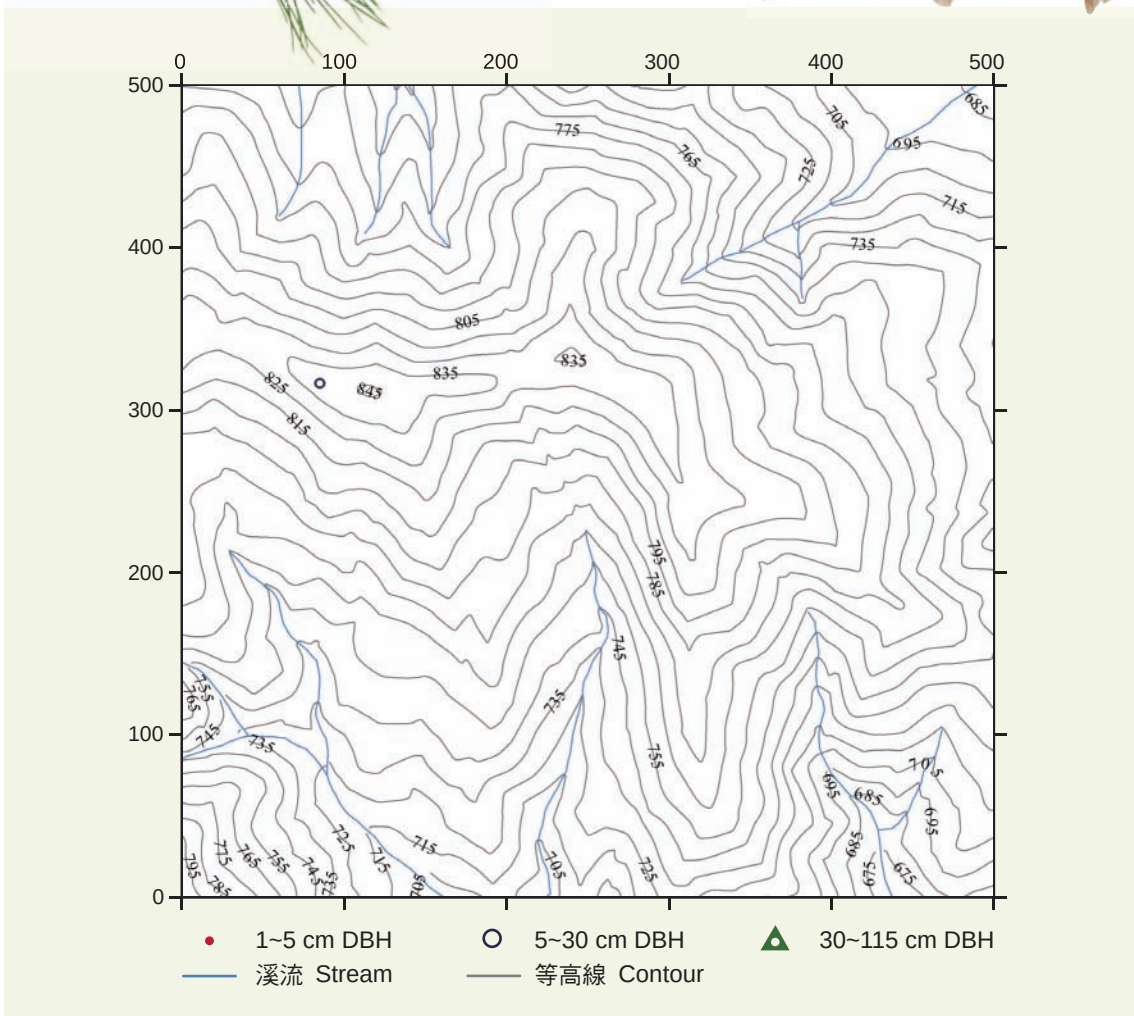
松科 特有種

樹冠層級

冠層

描述

樹皮具龜裂或不規則溝裂。葉五針一束，6~8 cm長，斷面三角形，具2樹脂溝。雌雄同株，單性花；雄毬果葉莖花序狀，腋生，簇生於幼枝條基部，黃色；雌毬果側生或近頂生於老枝上。成熟毬果卵形或橢圓狀卵形，褐色，長10 cm，徑4~5 cm；果鱗長橢圓狀卵形，內含種子2枚，具翅。



Pinaceae

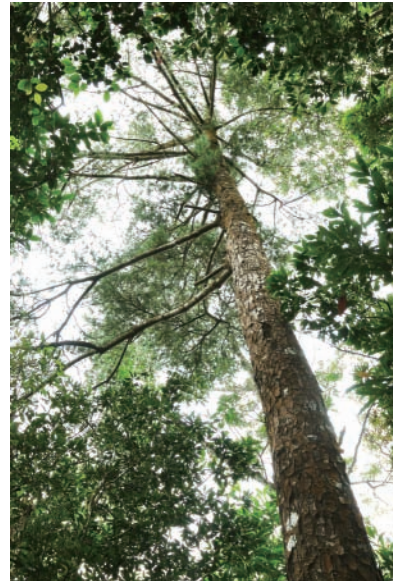
Endemic

Stratum

Canopy

Description

Bark with cracks or irregular furrows. Needles 5 in fascicle, 6~8 cm long, triangular in cross-section, with 2 resin-ducts. Monoecious, unisexual; staminate cones catkin-like, axillary, cluster at base of young shoot, yellow; ovuliferous cones lateral or subterminal on older branchlets. Mature cones ovoid to oblong-ovoid, brown, 10 cm long, 4~5 cm in diameter. Cone scales oblong-ovoid, with 2 winged seeds.



植株 Entire tree

林炎慶 Huan-Ching Lin/攝



雄花 Male flowers

林炎慶 Huan-Ching Lin/攝



毬果 Cones

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	0	0
2~5	0	0
5~10	0	0
10~20	0	0
20~30	1	100
30~60	0	0
60~115	0	0

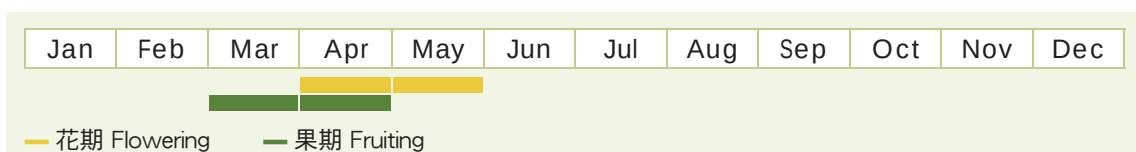
Total basal area = 692.44 cm²/25 ha

Number of trees/25 ha = 1



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





羅漢松科

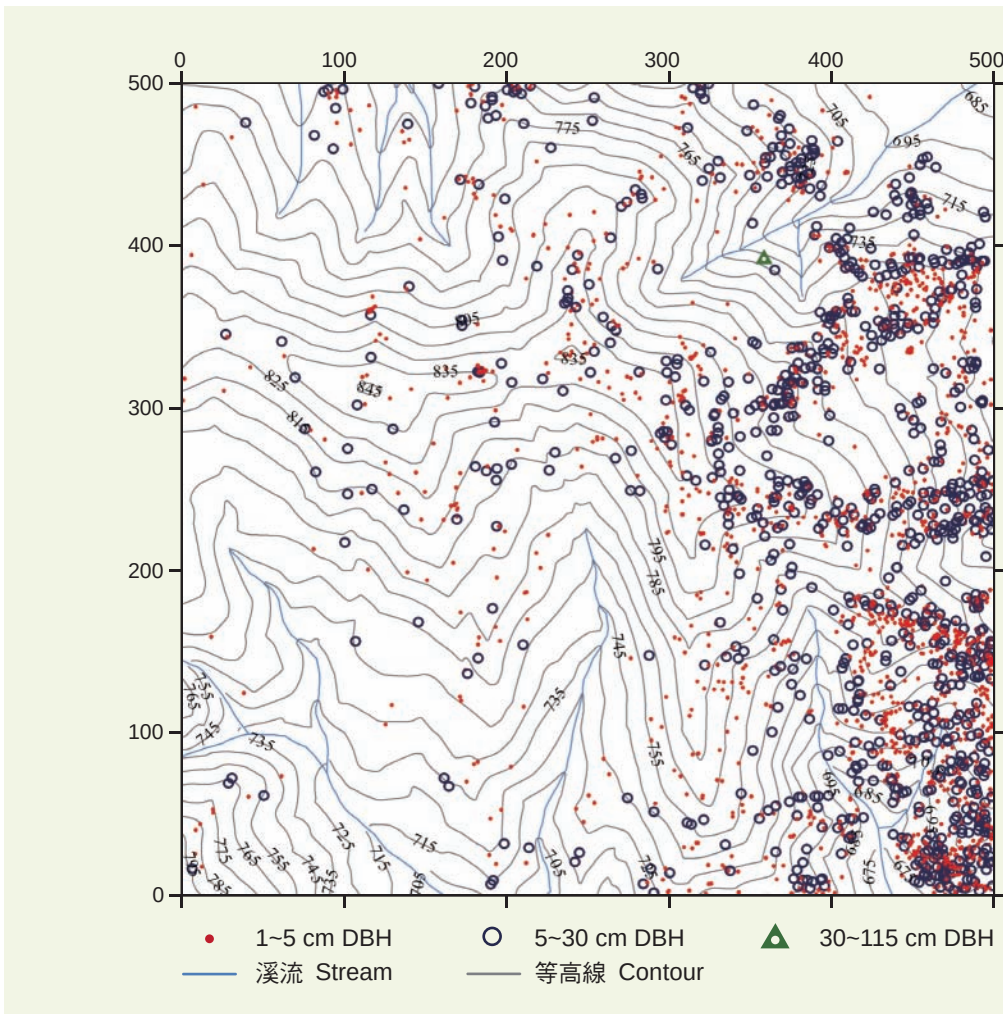
特有種

樹冠層級

次冠層

描述

樹皮呈細長條狀剝落。葉互生，革質，線形至線狀披針形，長5~10 cm，寬0.8~1.3 cm，上表面綠色，下表面淡綠色，先端銳尖至略鈍，基部銳尖或漸狹，新葉亮綠色中帶紅色。雌雄異株；雄毬花腋生，1~3個簇生，長圓柱形；雌毬花綠色，單出。種子單一，卵圓形，頂端傾斜，綠色；種托橘紅色，肉質。



Podocarpaceae

Endemic

Stratum

Sub-canopy

Description

Bark finely linear, flaky. Leaves alternate, coriaceous, linear to linear-lanceolate, 5~10 cm long, 0.8~1.3 cm wide, green above, pale-green below, acute or slightly obtuse at apex, acute or attenuate at base, young leaves mostly somewhat reddish light-green. Dioecious; staminate cones 1~3 in a cluster, axillary, cylindrical; ovuliferous green, solitary. Seeds solitary, ovoid, oblique at apex, green; receptacle orangish-red, fleshy.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



果實 Fruit

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	549	22.01
2~5	1033	41.42
5~10	626	25.10
10~20	264	10.59
20~30	21	0.84
30~60	1	0.04
60~115	0	0.00

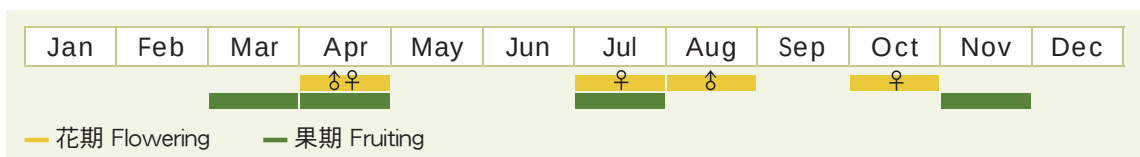
Total basal area = 82550.03 cm²/25 ha

Number of trees/25 ha = 2494



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





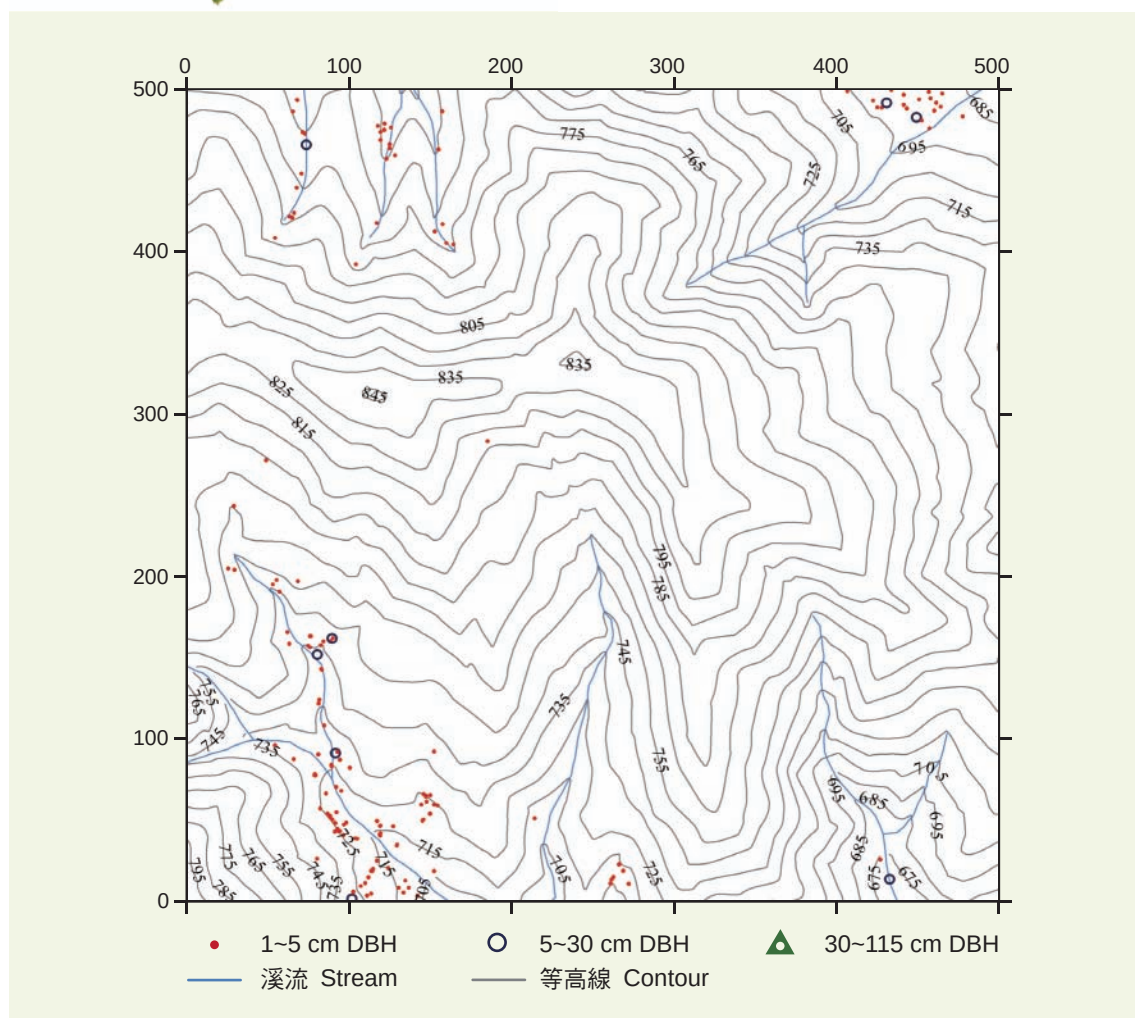
獼猴桃科

樹冠層級

次冠層

描述

幼枝被剛毛。葉互生，紙質，橢圓形至倒卵形，長13~25 cm，寬6~10 cm，先端銳尖至鈍，基部銳尖或淺心形，葉全緣至邊緣具稀疏剛毛或近細齒牙緣，上下表面具剛毛，尤其在葉背面主脈處；葉柄長2~3 cm。花兩性，短聚繖花序，被毛，腋生；花小，徑約1 cm；萼片5，近等大，卵圓形，光滑或變無毛；花瓣5，淡粉紅色；雄蕊多數；花柱3。漿果，光滑，白色球形，徑約1 cm，萼片宿存。



Saurauia tristyla DC. var. *oldhamii* (Hemsl.) Finet & Gagnep.

Actinidiaceae

Stratum

Sub-canopy

Description

Young branchlets hispid-hirsute. Leaf alternate, chartaceous, elliptical to obovate, 13~25 cm long, 6~10 cm wide, acute to obtuse at apex, acute or slightly cordate at base, entire to sparsely rigid-setose or subdenticulate, hispid on both surfaces, especially along lower midrib; petioles 2~3 cm long. Bisexual; inflorescence short pubescent cymes, axillary; flowers small, ca. 1 cm across; sepals 5, subequal, orbicular, glabrous or glabrescent; petals 5, light-pink; stamens numerous; styles 3. Berry glabrous, globose, white, ca. 1 cm across, with persistent calyx.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



漿果 Berries

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	94	55.95
2~5	65	38.69
5~10	9	5.36
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

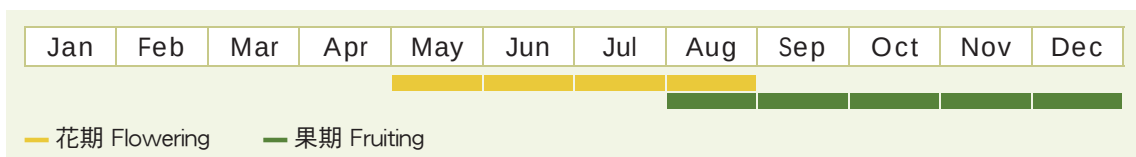
Total basal area = 1290.99 cm²/25 ha

Number of trees/25 ha = 168



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





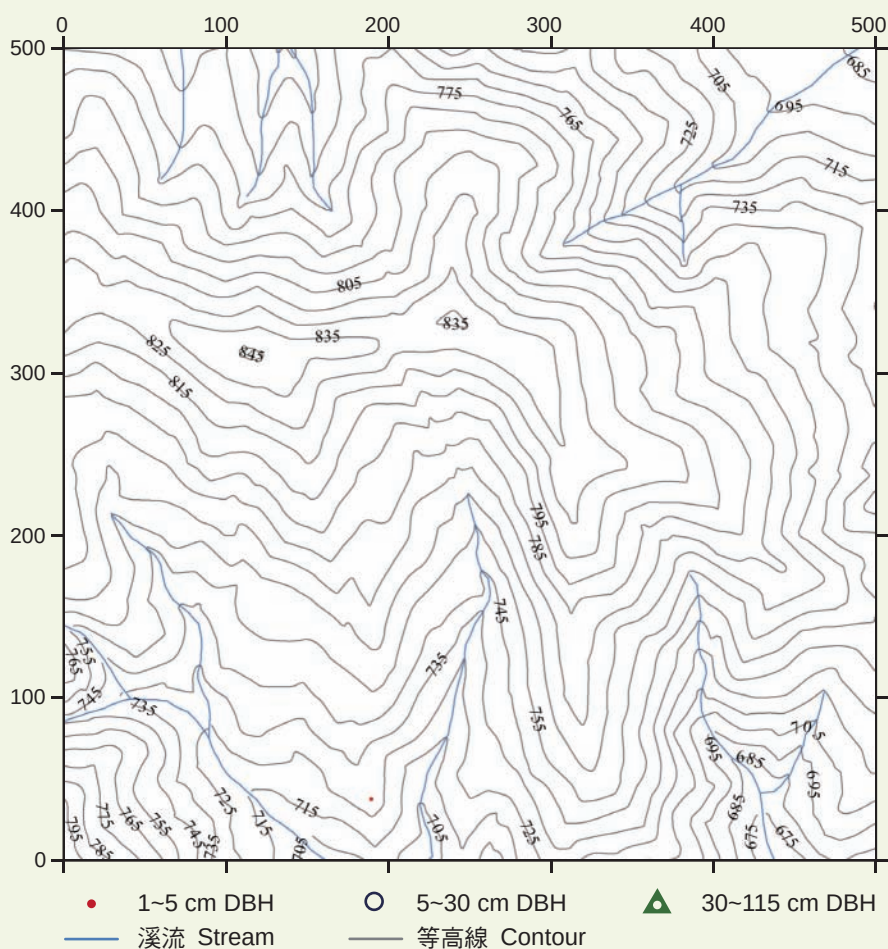
漆樹科

樹冠層級

次冠層

描述

幼枝被毛。葉互生，紙質；奇數羽狀複葉，小葉9~17枚，對生，卵狀披針形，長8~15 cm，寬3~6 cm，先端銳尖或鈍，基部圓或鈍，粗鋸齒緣，側脈明顯；小葉無柄。雌雄異株；圓錐花序，頂生；花黃白色，徑約2~2.5 mm，密集開放；花萼杯狀，5裂；花瓣5，長橢圓形，反捲；雄蕊5；柱頭3裂。核果，扁球狀，橙紅色，徑5~6 mm，被毛。



Rhus javanica L. var. *roxburghiana* (DC.) Rehder & E. H. Wils.

Anacardiaceae

Stratum

Sub-canopy

Description

Young branchlets pubescent. Leaves alternate, chartaceous, odd-pinnate, leaflets 9~17, opposite, ovate-lanceolate, 8~15 cm long, 3~6 cm wide, acute or obtuse at apex, rounded or obtuse at base, coarsely serrate, lateral veins distinct; leaflets sessile. Dioecious; flowers in terminal panicles, yellowish- white, 2~2.5 mm across, with dense blossoms; calyxes cup-shaped, 5-lobed; petals 5, oblong, concave; stamens 5; style 3-lobed. Drupe depressed-globose, reddish-orange, 5~6 mm across, pubescent.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	0	0.00
2~5	1	100.00
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

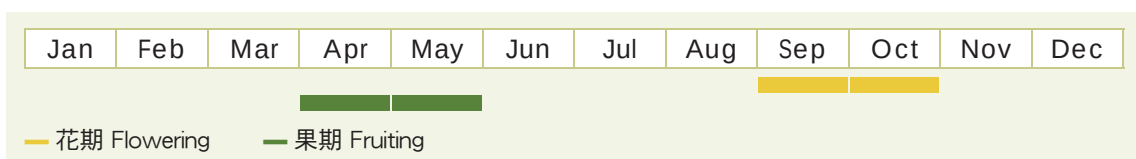
Total basal area = 7.07 cm²/25 ha

Number of trees/25 ha = 1



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





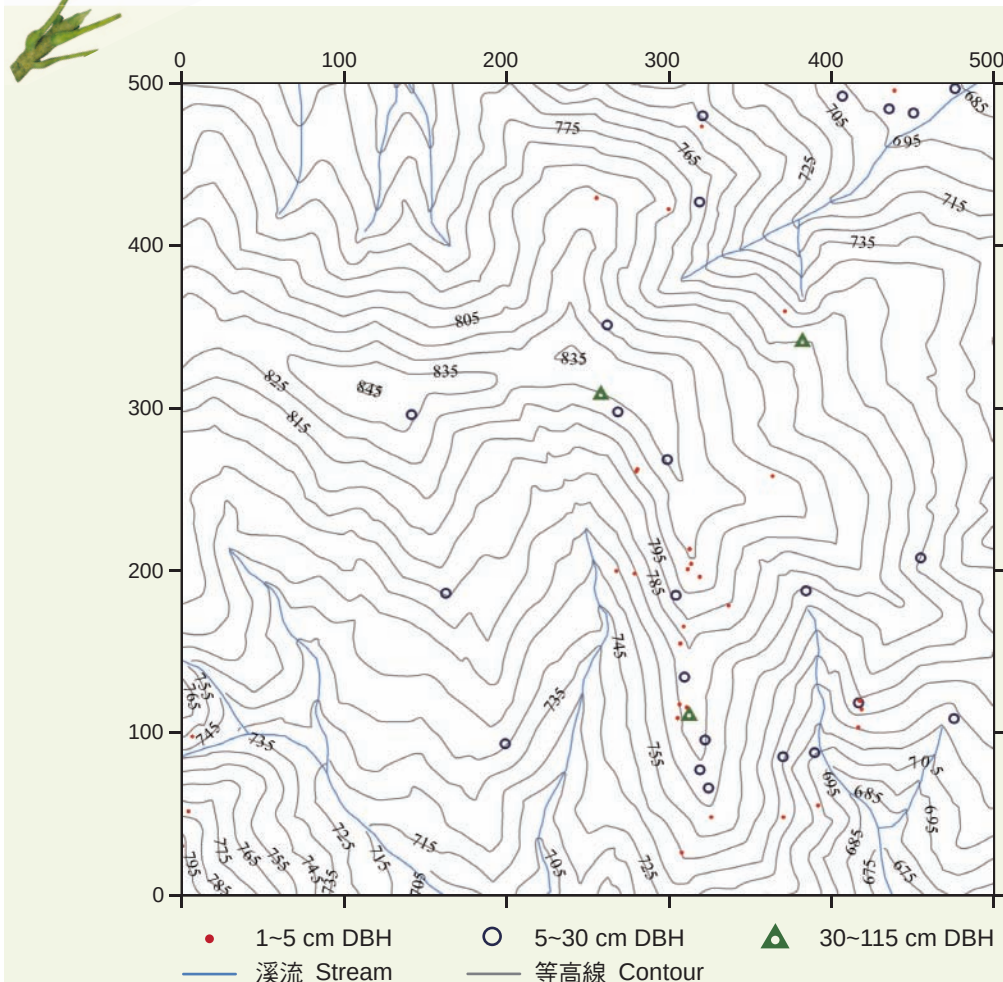
漆樹科

樹冠層級

冠層

描述

小枝光滑。葉互生，紙質；奇數羽狀複葉，小葉7~13枚，對生或近對生，長橢圓狀披針形，長4~12 cm，寬1.5~3.5 cm，先端漸尖，基部銳尖，全緣，落葉前轉為紅色；小葉具短柄。雌雄異株；腋生，圓錐花序；花黃白色，徑約2~2.5 mm；花萼杯狀，5裂；花瓣5，橢圓形，反捲；雄蕊5。核果，扁球形，徑8 mm。



Anacardiaceae

Stratum

Canopy

Description

Branchlets glabrous. Leaves alternate, chartaceous, odd-pinnate; leaflets 7~13, lateral ones opposite or subopposite, oblong-lanceolate, 4~12 cm long, 1.5~3.5 cm wide, acuminate at apex, acute at base, margins entire, turning red before falling; leaflets shortly petiolulate. Dioecious; inflorescence paniculate, axillary; flowers yellowish-white, 2~2.5 mm across; calyxes cup-shaped, 5-lobed; petals 5, elliptical, concave; stamens 5. Drupe depressed-globose, 8 mm across.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	23	40.36
2~5	8	14.04
5~10	10	17.54
10~20	10	17.54
20~30	3	5.26
30~60	3	5.26
60~115	0	0.00

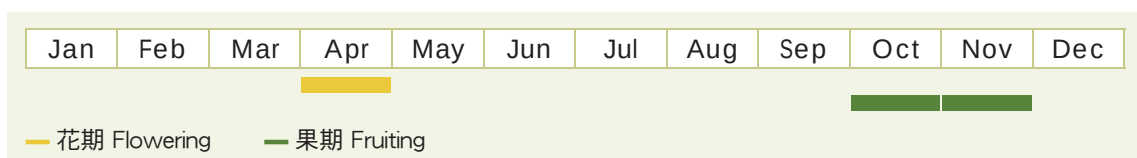
Total basal area = 7242.54 cm²/25 ha

Number of trees/25 ha = 57



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





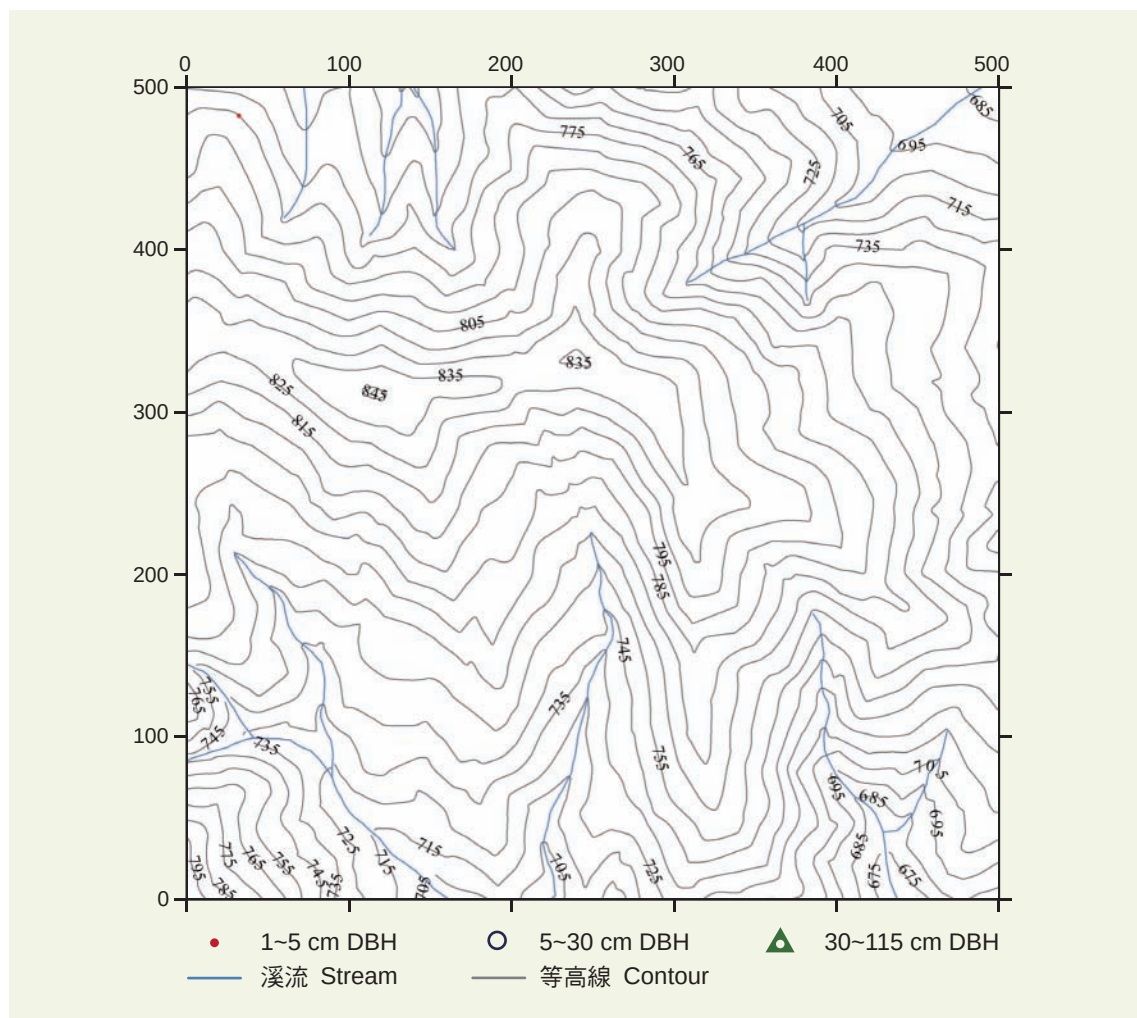
冬青科

樹冠層級

灌木層

描述

枝條茂密，小枝纖細，光滑。葉互生，薄紙質，卵形，長3~5 cm，寬1.5~2.5 cm，先端漸尖或銳尖，基部銳尖至鈍，葉脈上有毛，下表面光滑；葉柄長3~5 mm。雌雄異株；腋生，繖形花序，具長柄；花萼4~5裂；花瓣4~5，白色；雄蕊與花瓣同數，花絲短；子房先端與柱頭相連，無花柱。核果，橢圓形，黑色，小核果粗糙，具硬之內果皮。



Ilex asprella (Hook. & Arn.) Champ.

Aquifoliaceae

Stratum

Shrub

Description

Dense branches, branchlets slender, glabrous. Leaves alternate, thin-chartaceous, ovate, 3~5 cm long, 1.5~2.5 cm wide, acuminate or acute at apex, acute to obtuse at base, hirsute above on nerves, nearly glabrous below; petioles 3~5 mm long. Dioecious; umbels with slender pedicels, axillary; calyxes 4- or 5-lobed; petals 4 or 5, white; stamens 4 or 5, filaments short; top of ovary connected to stigmas, without styles. Drupe ellipsoid, black, pyrenes rough, with stony endocarp.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	1	100.00
2~5	0	0.00
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

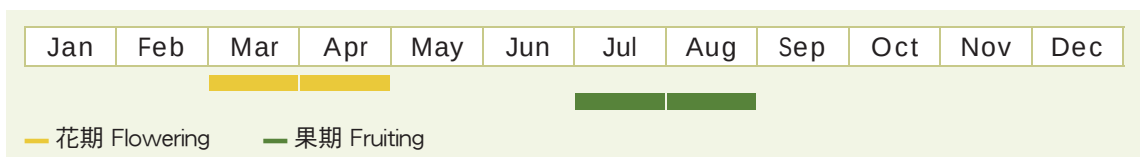
Total basal area = 0.79 cm²/25 ha

Number of trees/25 ha = 1



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





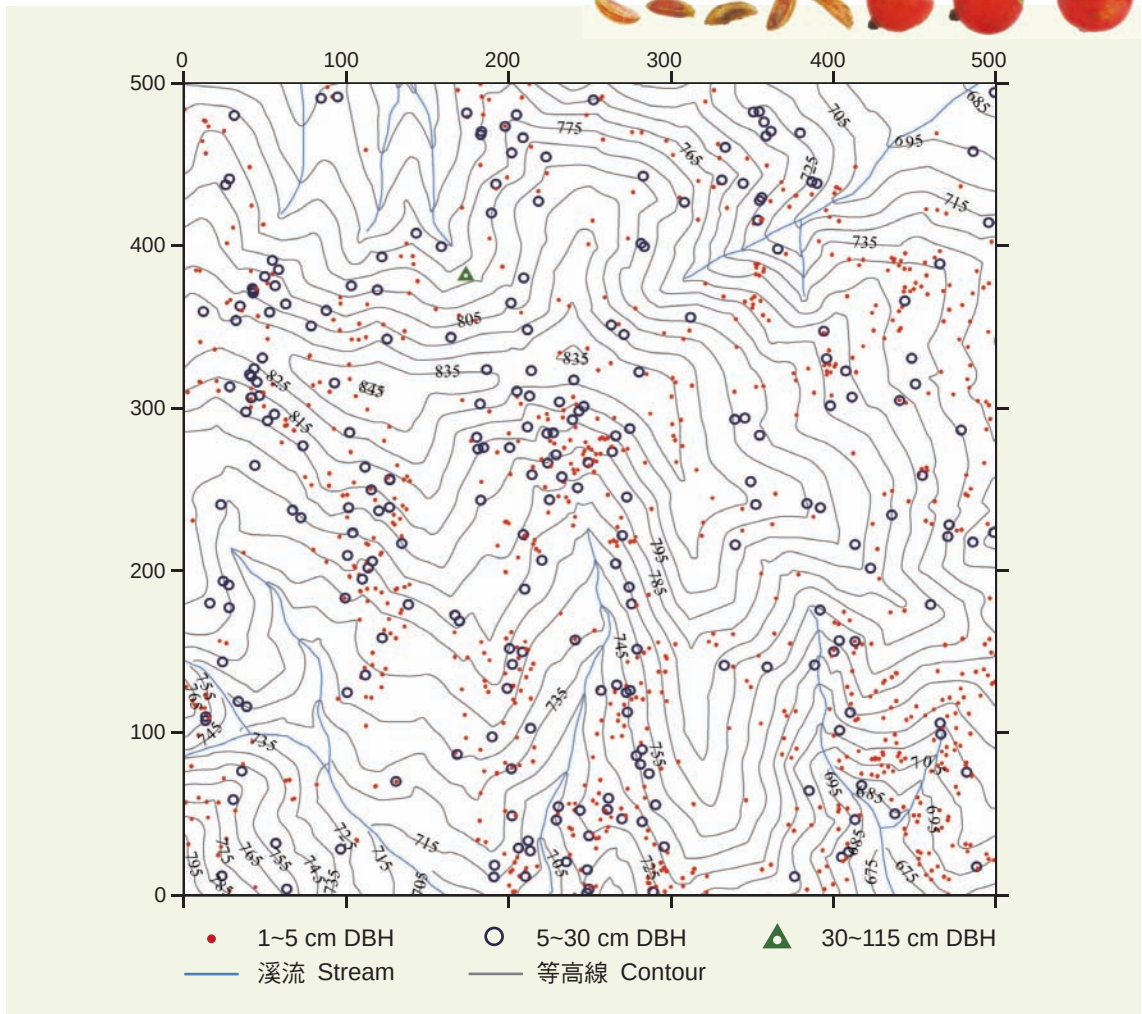
冬青科

樹冠層級

次冠層

描述

小枝初被毛，後漸光滑。葉互生，薄革質至厚紙質，長橢圓形或卵狀披針形，長6~12 cm，寬2.5~4 cm，先端長尾狀突尖，基部銳尖至鈍，兩面光滑無毛，葉全緣至疏鋸齒緣，下表面側脈明顯；葉柄長1~1.5 cm。雌雄異株；花簇生於葉腋；花萼裂片4，三角形；花瓣4，橢圓形；雄蕊4；子房光滑，柱頭頭狀，花柱短或無。核果，球形，果熟時紅色，徑5~7 mm，果柄長3~5 mm；小核果2~4顆。



Aquifoliaceae

Stratum

Sub-canopy

Description

Branchlets pubescent, gradually becoming glabrous. Leaves alternate, thin-coriaceous to thick-chartaceous, oblong to ovate-lanceolate, 6~12 cm long, 2.5~4 cm wide, abruptly long-caudate at apex, acute to obtuse at base, glabrous on both surfaces, margins entire to remotely serrate, lateral veins distinct below; petiole 1~1.5 cm long. Dioecious, in axillary clusters; calyx lobes 4, triangular; petals 4, elliptical; stamens 4; ovary glabrous, stigma capitate, style very short or lacking. Drupe globose, red when mature, 5~7 mm across, stalks 3~5 mm long; pyrenes 2~4.



枝葉 Stems and leaves

翁明毅 Ming-I Weng/攝



雄花 Male flowers

蘇聲欣 Sheng-Hsin Su/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	359	31.88
2~5	509	45.20
5~10	198	17.59
10~20	54	4.80
20~30	5	0.44
30~60	1	0.09
60~115	0	0.00

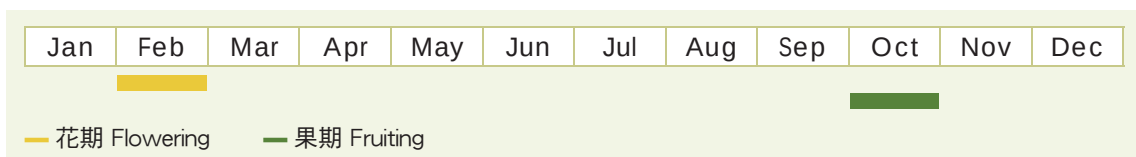
Total basal area = 23737.55 cm²/25 ha

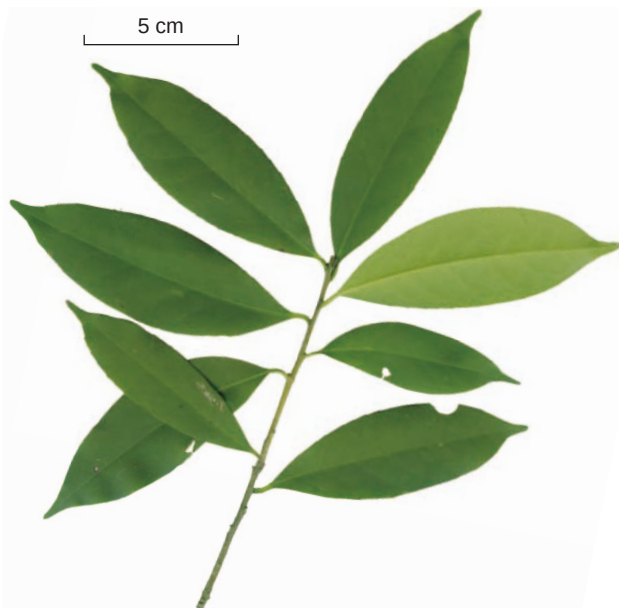
Number of trees/25 ha = 1126



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





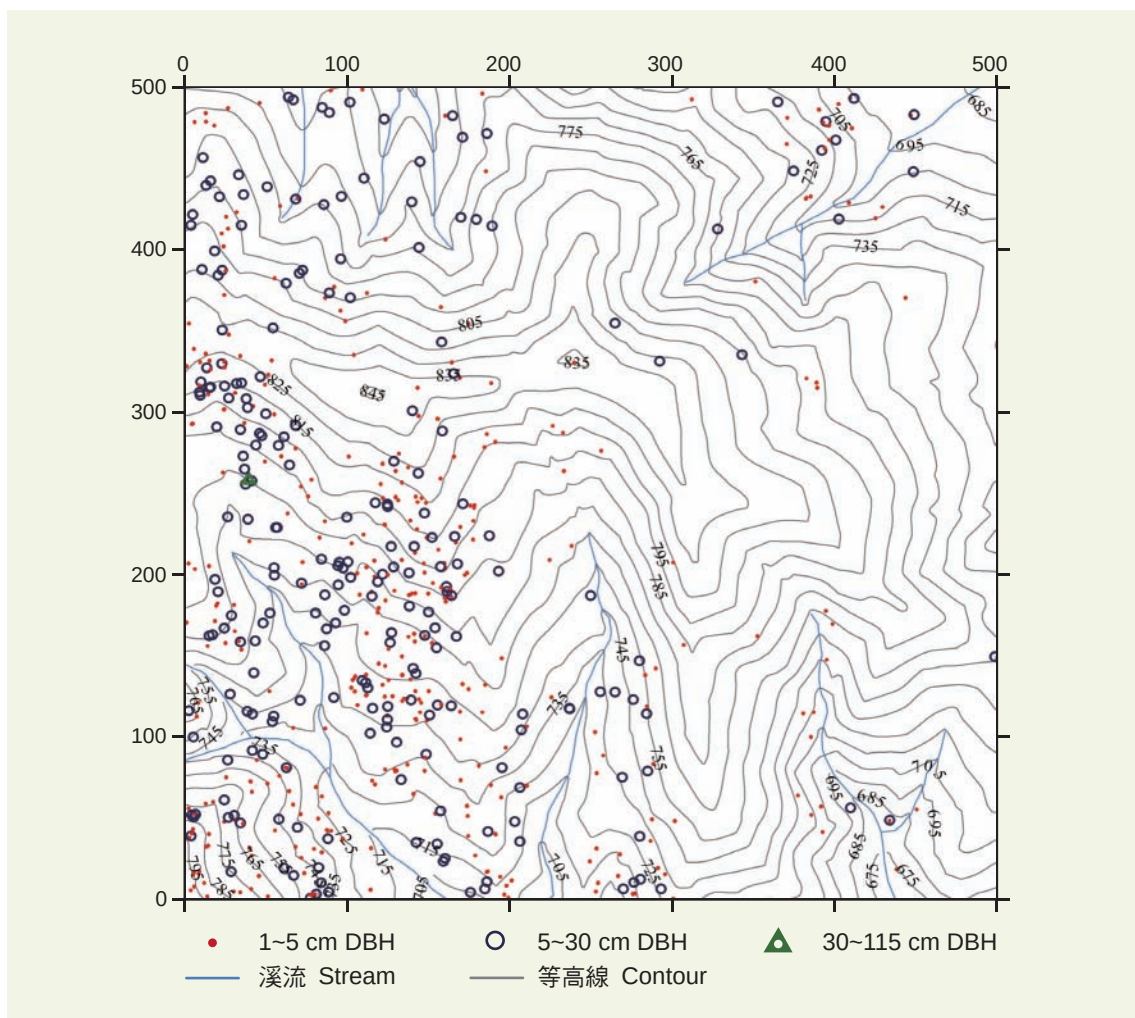
冬青科

樹冠層級

次冠層

描述

小枝光滑。葉互生，薄革質至革質，橢圓形或長橢圓狀披針形，長6~9 cm，寬3~4 cm，先端漸尖，基部銳尖至鈍，兩面光滑無毛，葉全緣至疏鋸齒緣，下表面側脈不明顯；葉柄長5~9 mm。雌雄異株；花簇生於葉腋；花萼裂片4，三角形；花瓣4，橢圓形；雄蕊4；子房光滑，柱頭頭狀，花柱短或無。核果，球形，果熟時紅色，徑5~7 mm，果柄長2~3 mm。



Aquifoliaceae

Stratum

Sub-canopy

Description

Branchlets glabrous. Leaves alternate, thin-coriaceous to coriaceous, elliptical or oblong-lanceolate, 6~9 cm long, 3~4 cm wide, acuminate at apex, acute to obtuse at base, glabrous on both surfaces, margins entire to sparsely serrate, lateral veins obscure below; petiole 5~9 mm long. Dioecious; flowers clustered in axillary; calyx lobes 4, triangular; petals 4, elliptical; stamens 4; ovary glabrous, stigma capitate, style very short or lacking. Drupe globose, red when mature, 5~7 mm across, stalks 2~3 mm long.



1 cm



枝葉 Stems and leaves

翁明毅 Ming-I Weng/攝



雄花 Male flowers

李碧鳳 Bi-Fong Lee/攝



核果(未熟) Immature drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	112	18.61
2~5	254	42.19
5~10	146	24.25
10~20	77	12.79
20~30	11	1.83
30~60	2	0.33
60~115	0	0.00

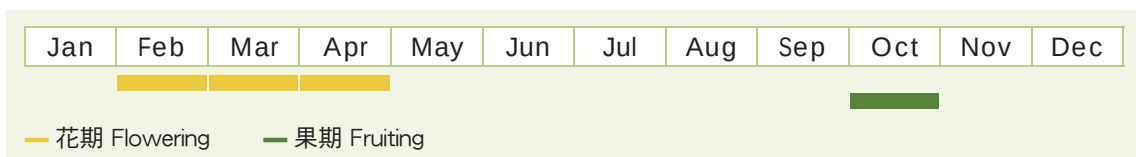
Total basal area = 26493.16 cm²/25 ha

Number of trees/25 ha = 602



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





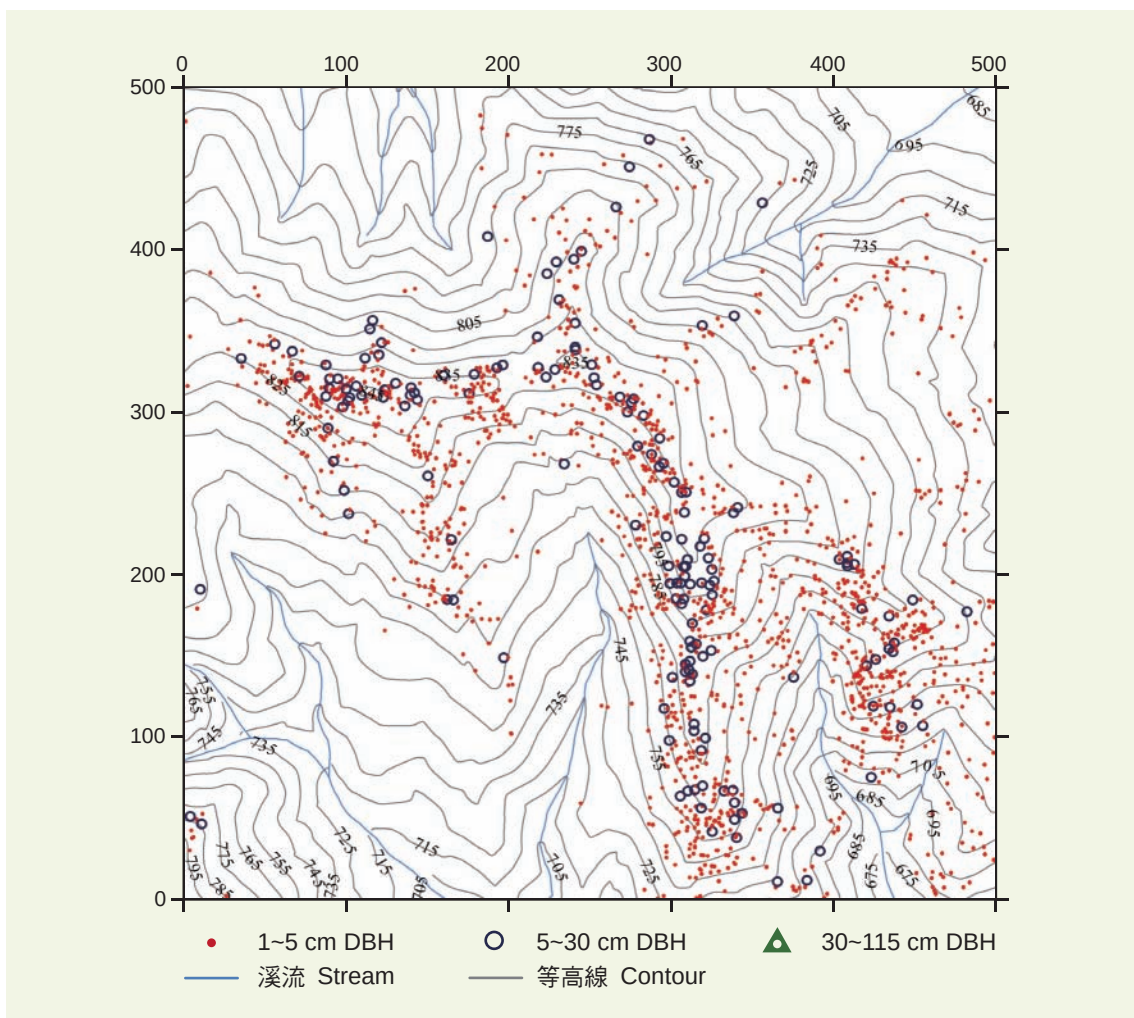
冬青科

樹冠層級

次冠層

描述

小枝細長光滑。葉互生，革質，近圓形或寬橢圓形，長2.5~4 cm，寬1.5~2.5 cm，先端漸尖，基部鈍至銳尖，兩面光滑無毛，全緣；葉柄長3~7 mm，光滑。雌雄異株；腋生，繖形花序，花梗細長；花萼裂片4，闊三角形；花瓣4，橢圓形，白色；雄花雄蕊4枚；雌花柱頭盤狀，略凸出。核果，球形，果熟時紅色。



Aquifoliaceae

Stratum

Sub-canopy

Description

Branchlets slender, glabrous. Leaves alternate, coriaceous, suborbicular to broadly elliptical, 2.5~4 cm long, 1.5~2.5 cm wide, acuminate at apex, obtuse to acute at base, glabrous on both surfaces, margins entire; petioles 3~7 mm long, glabrous. Dioecious; flowers in axillary umbels; pedicels elongated; calyx lobes 4, broadly triangular; petals 4, elliptical, white; staminate flowers with 4 stamens; stigma of pistillate flowers discoid, slightly convex. Drupe globose, red when mature.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	838	47.13
2~5	758	42.63
5~10	170	9.56
10~20	12	0.68
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

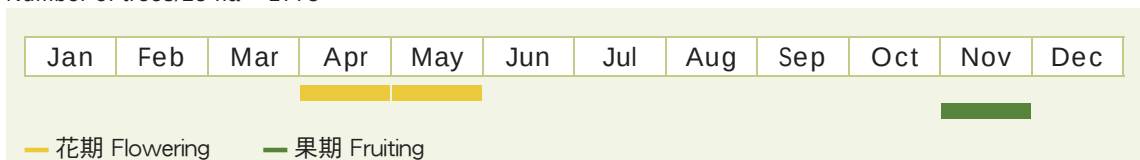
Total basal area = 15741.22 cm²/25 ha

Number of trees/25 ha = 1778



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





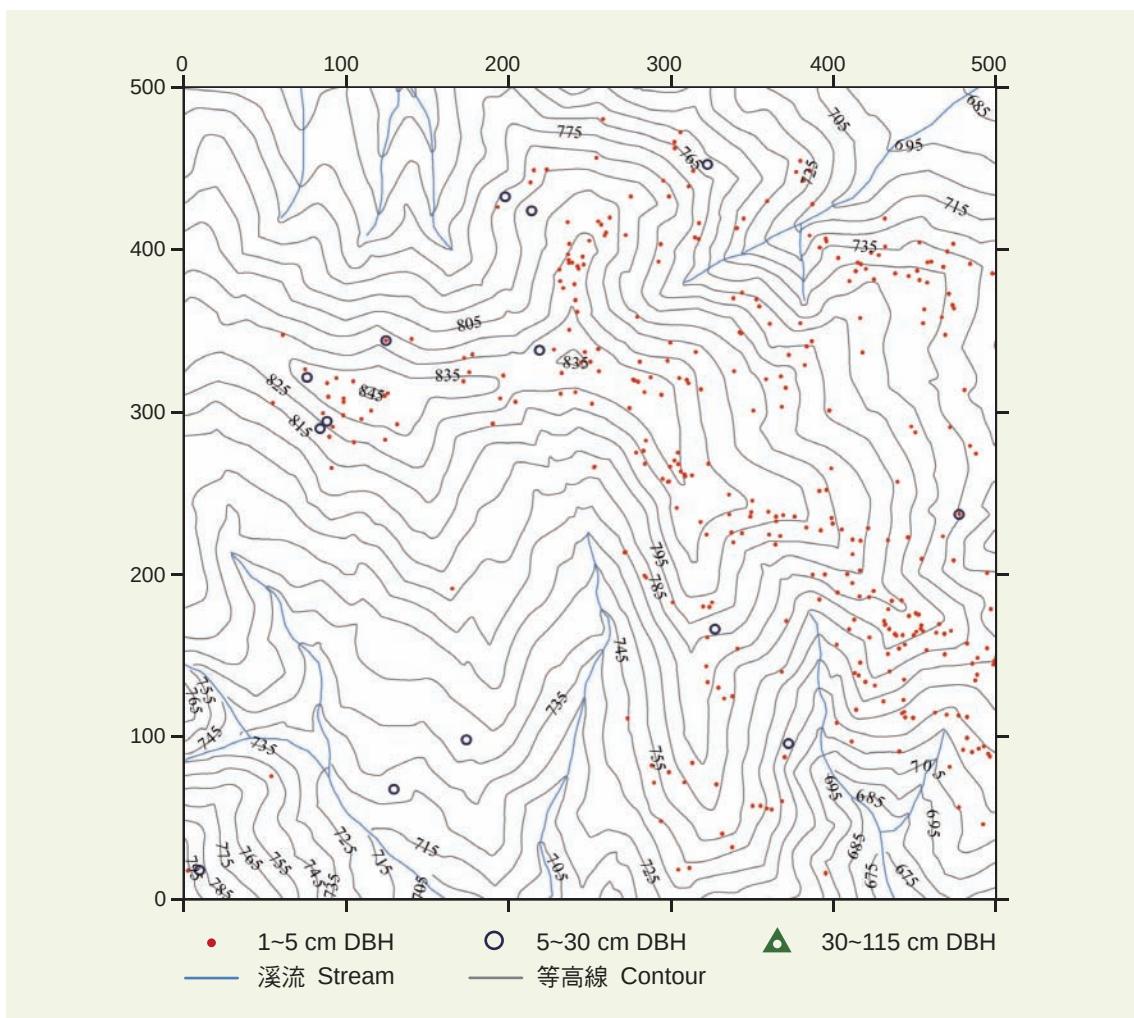
冬青科 特有種

樹冠層級

次冠層

描述

小枝光滑無毛。葉互生，薄革質，橢圓形至卵形，長6~11 cm，寬2.5~4.5 cm，先端漸尖至銳尖，基部鈍或楔形，全緣，葉緣反捲；葉柄長5~7 mm，光滑。雌雄異株；腋生，聚繖花序，花紫紅色；花萼4，三角形；花瓣4，橢圓形；雄花雄蕊4枚；雌花柱頭盤狀。核果，球形，光滑，徑7 mm；小核果平滑，背側略凹。



Aquifoliaceae

Endemic

Stratum

Sub-canopy

Description

Branchlets glabrous. Leaves alternate, thin coriaceous, elliptical to ovate, 6~11 cm long, 2.5~4.5 cm wide, acuminate to acute at apex, obtuse or cuneate at base, margins entire, recurved; petioles 5~7 mm long, glabrous. Dioecious; flowers in axillary cymes, purplish-red; sepals 4, triangular; petals 4, elliptical; staminate flowers with 4 stamens; stigma of pistillate flowers discoid. Drupe globose, glabrous, 7 mm across; pyrenes smooth, shallowly concave on dorsal surface.



枝葉 Stems and leaves

翁明毅 Ming-I Weng/攝



花 Flowers

林奐慶 Huan-Ching Lin & 翁明毅 Ming-I Weng/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	225	61.31
2~5	128	34.88
5~10	12	3.27
10~20	2	0.54
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

Total basal area = 2089.76 cm²/25 ha

Number of trees/25 ha = 367



果實與種子 Fruit and seeds

林奐慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
— 花期 Flowering				— 果期 Fruiting							



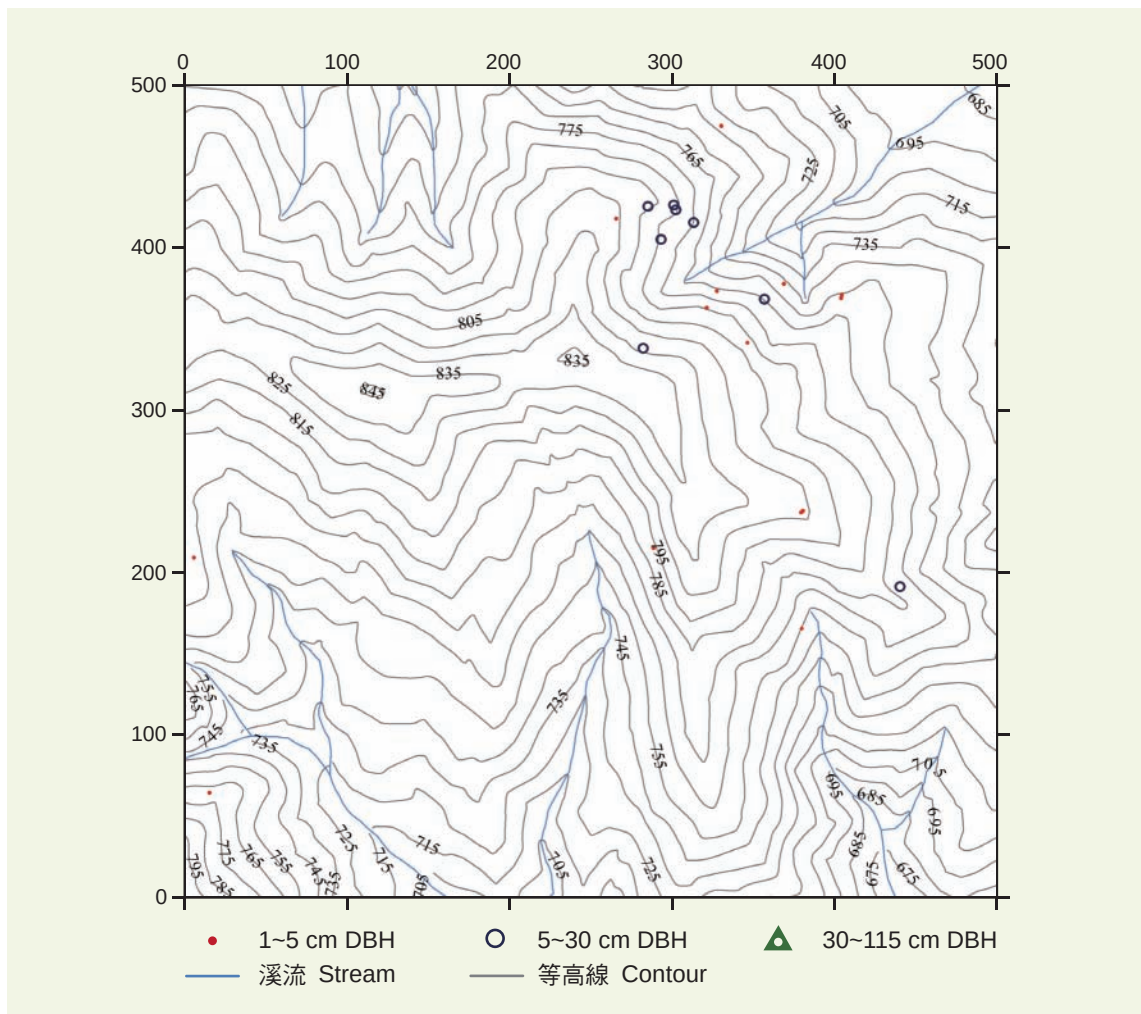
冬青科

樹冠層級

次冠層

描述

小枝近光滑。葉互生，紙質，長橢圓形至卵狀長橢圓形，長6~13 cm，寬3~5 cm，先端漸尖至銳尖，基部鈍至圓形，兩面皆光滑無毛，疏鋸齒緣；葉柄帶紫紅色，長2.5~3 cm。雌雄異株；腋生，複聚繖花序；花萼5~9；花瓣5~9，橢圓形，白色至淡黃色；雄花雄蕊5~9枚；雌花柱頭頭狀。核果，球形，徑3~4 mm，果熟時紅色。



Aquifoliaceae

Stratum

Sub-canopy

Description

Branchlets pubescent. Leaves alternate, chartaceous, oblong to ovate-oblong, 6~13 cm long, 3~5 cm wide, acuminate to acute at apex, obtuse to rounded at base, glabrous on both surfaces, remotely serrate; petioles 2.5~3 cm long, purplish-red. Dioecious; flowers in axillary compound cymes; sepals 5~9; petals 5~9, elliptical, white to pale-yellow; staminate flowers with 5~9 stamens; stigma of pistillate flowers capitate. Drupe globose, 3~4 mm across, red when mature.



植株 Entire plant

翁明毅 Ming-I Weng/攝



枝葉 Stems and leaves

翁明毅 Ming-I Weng/攝



核果 Drupes

翁明毅 Ming-I Weng/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	4	18.18
2~5	10	45.45
5~10	3	13.64
10~20	5	22.73
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

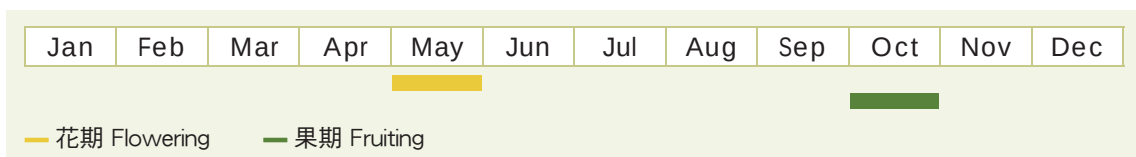
Total basal area = 1084.40 cm²/25 ha

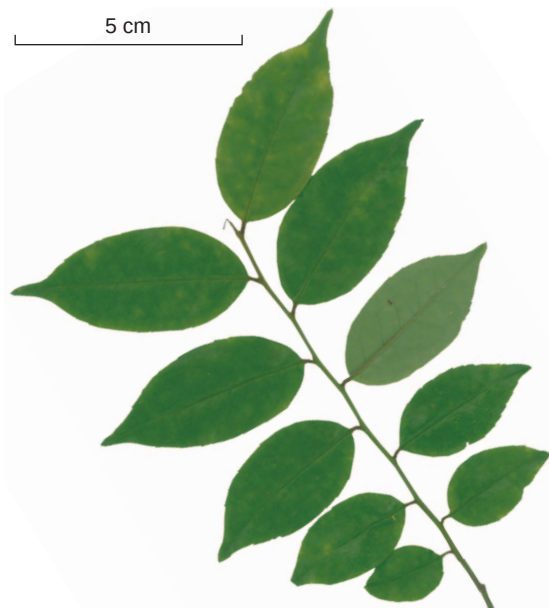
Number of trees/25 ha = 22



樹皮 Bark

林煥慶 Huan-Ching Lin/攝





冬青科

樹冠層級

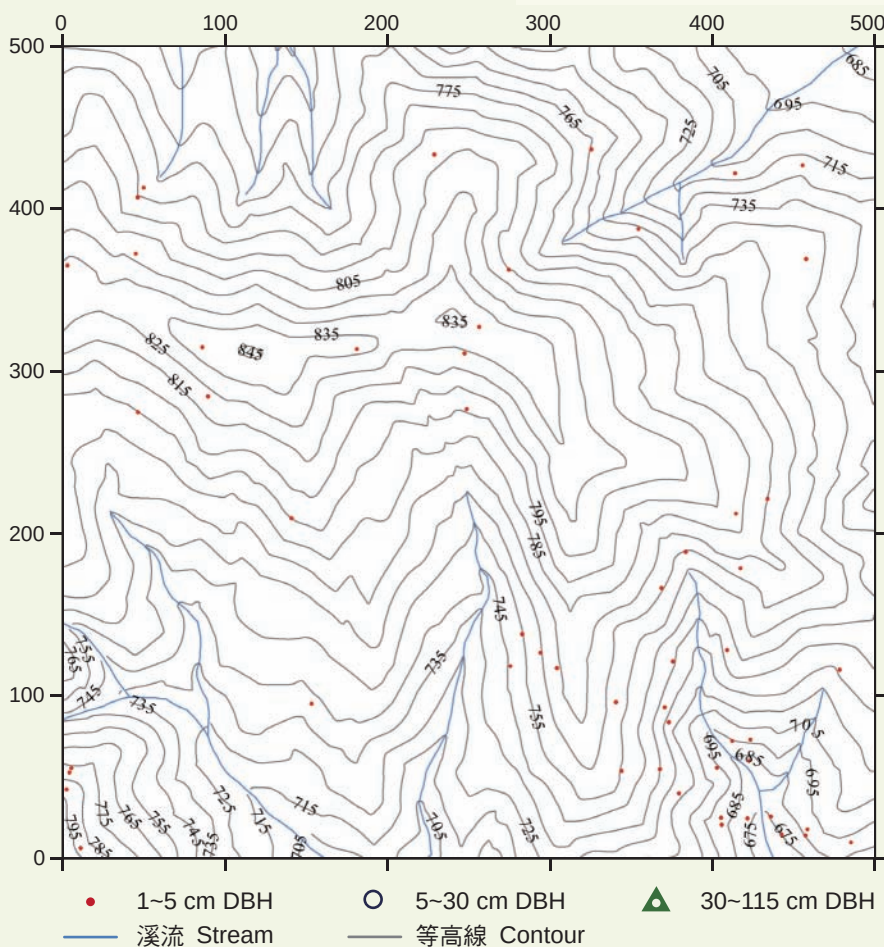
灌木層

描述

小枝纖細，密被毛。葉互生，紙質，長橢圓形或長橢圓狀披針形，長2~5 cm，寬1~2 cm，先端銳尖，基部鈍或銳尖，葉緣近全緣至細鋸齒緣，上下表面側脈不顯著，中脈被毛；葉柄長3~4 mm，密被毛。雌雄異株；腋生，短聚繖花序；花萼裂片5；花瓣5，橢圓形，紫紅色至白色；雄花雄蕊5枚；雌花柱頭頭狀，近無花柱。核果，球形，紅色；小核果4~5，內果皮稍木質化。



1 cm



Aquifoliaceae

Stratum

Shrub

Description

Branchlets slender, densely hirsute. Leaves alternate, chartaceous, oblong or oblong-lanceolate, 2~5 cm long, 1~2 cm wide, acute at apex, obtuse to acute at base, margins subentire to minutely serrate, veins inconspicuous on both surfaces, midrib pubescent; petioles 3~4 mm long, densely pubescent. Dioecious; flowers in short axillary cymes; calyx lobes 5; petals 5, elliptical, purplish-red to white; staminate flowers with 5 stamens; stigma of pistillate flowers capitate, style almost lacking. Drupe globose, red; pyrenes 4 or 5, endocarp sublignescens.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flowers

翁明毅 Ming-I Weng & 林奐慶 Huan-Ching Lin/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	33	61.11
2~5	21	38.89
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

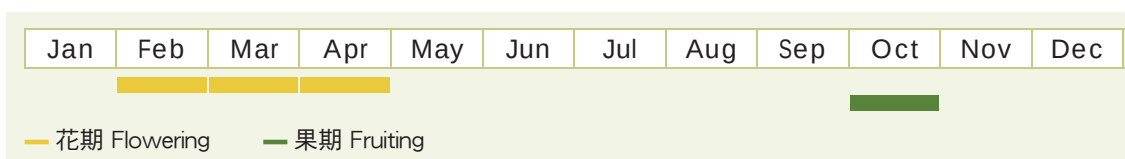
Total basal area = 194.14 cm²/25 ha

Number of trees/25 ha = 54



樹皮 Bark

林奐慶 Huan-Ching Lin/攝



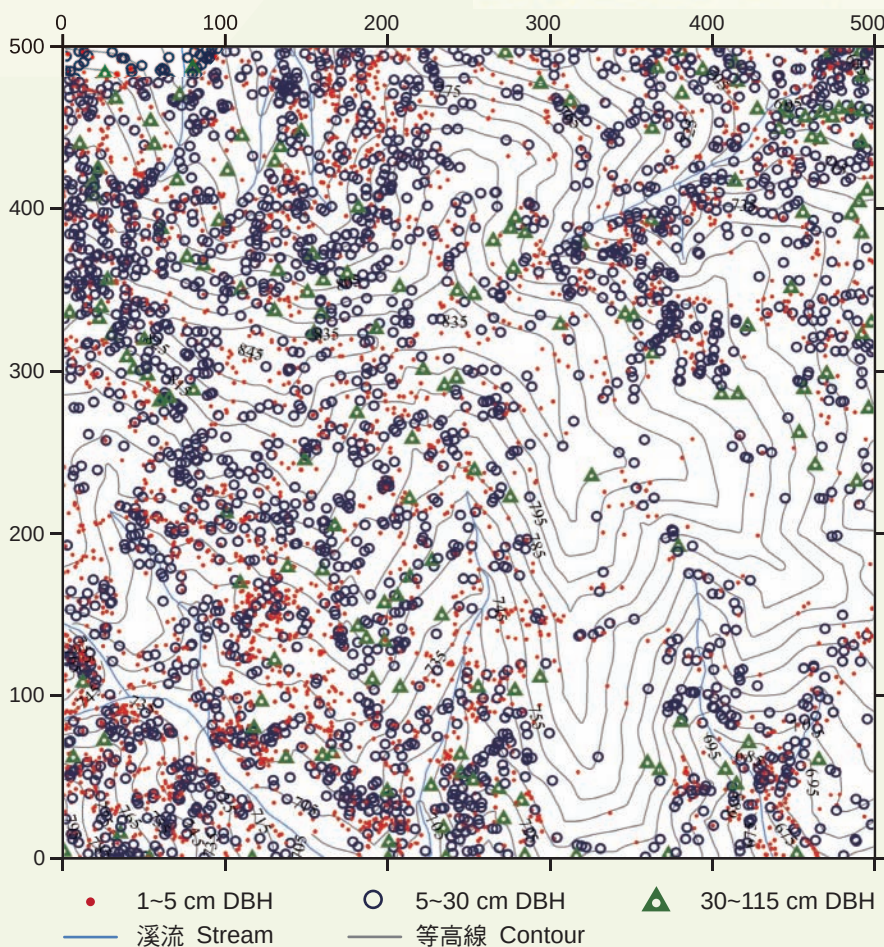
五加科

樹冠層級

冠層

描述

掌狀複葉，葉形多變化，具6~9個小葉，葉柄可長達8~25 cm；小葉革質，橢圓形或卵狀橢圓形，長7~20 cm，寬3~6 cm，先端銳尖至短漸尖，基部漸狹至近圓形，葉全緣，有時呈不規則裂葉，上下表面皆稍被星狀毛至漸光滑，小葉柄長1.5~5 cm。花兩性；頂生，大型圓錐花序，可長達25 cm，由多數小花排列成繖形花序，再組成圓錐花序；花黃綠色；花瓣5枚。漿果，圓形，紫黑色，花柱宿存。



Schefflera octophylla (Lour.) Harms

Araliaceae

Stratum

Canopy

Description

Leaves palmate-compound, size variable, generally 6~9 foliolate, long-petiolate, petioles 8~25 cm long; leaflets coriaceous, elliptical or ovate-elliptical, 7~20 cm long, 3~6 cm wide, acute to short-acuminate at apex, base attenuate to nearly rounded, margins entire, sometimes irregularly lobed, finely stellate-puberulent on both surfaces, turning glabrous; petiolules 1.5~5 cm long. Bisexual; inflorescence a large terminal panicle to 25 cm long, many-flowered arranged in umbels in panicles; flowers greenish-yellow; petals 5. Berry globose, purplish-black, style persistent.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



漿果 Berries

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	1295	23.59
2~5	1592	29.00
5~10	1118	20.36
10~20	953	17.36
20~30	365	6.65
30~60	152	2.77
60~115	15	0.27

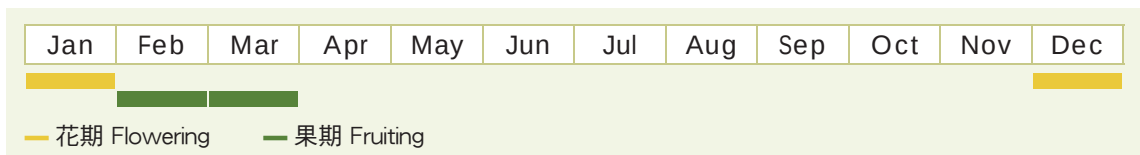
Total basal area = 628833.43 cm²/25 ha

Number of trees/25 ha = 5490



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





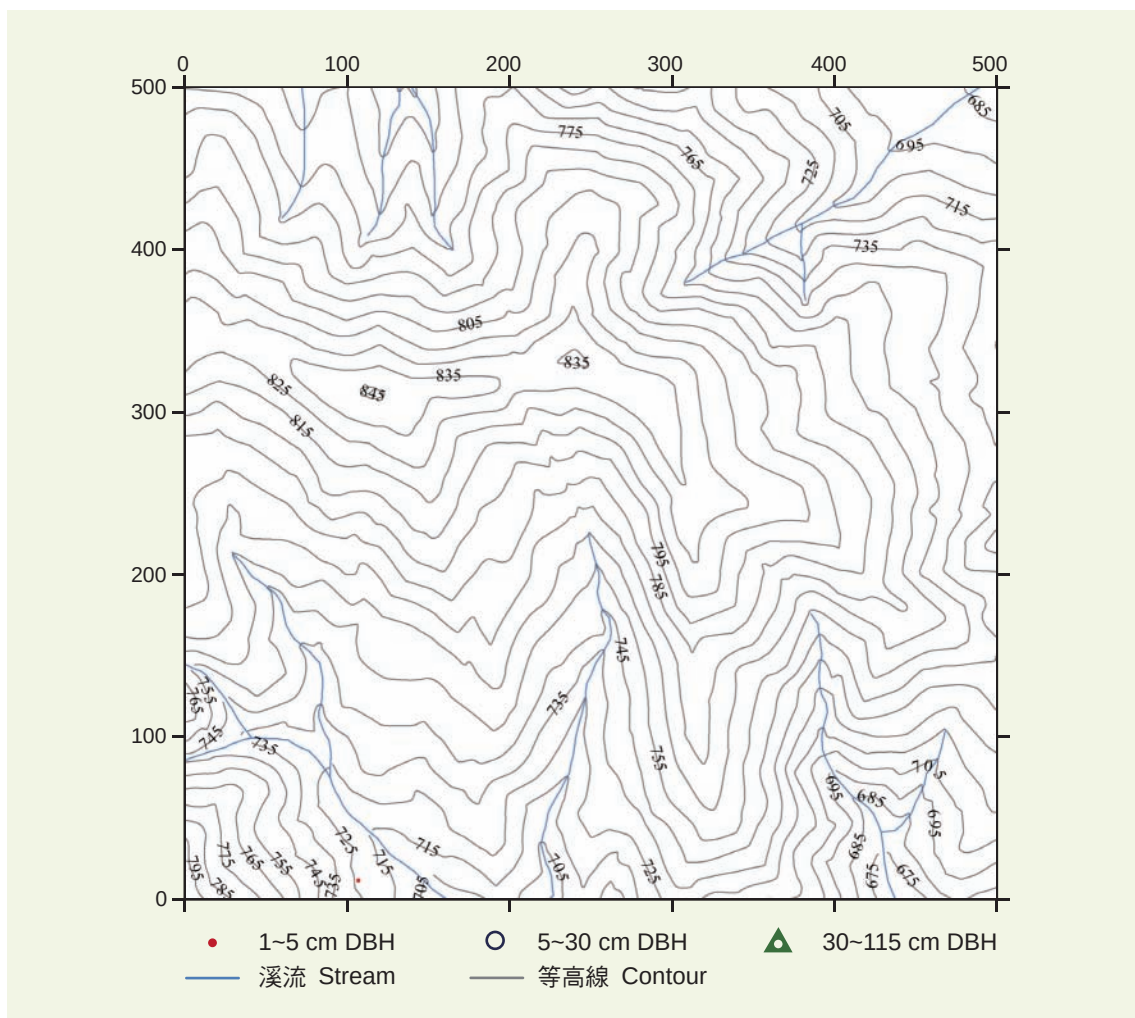
紫葳科

樹冠層級

次冠層

描述

二至三回奇數羽狀複葉，小葉對生，紙質，橢圓形至卵形，長4.5~6 cm，寬1~2.5 cm，先端尾狀漸尖，基部銳尖，葉緣全緣或不規則裂；小葉柄長4~8 mm。花兩性；大型頂生圓錐花序；花萼筒狀，先端5裂；花冠漏斗狀，白色，長10~12 cm，先端5裂；雄蕊4枚；花柱細長。蒴果，細圓柱形，長約50 cm，成熟時縱裂；種子扁平，近圓形至橢圓形，兩側具翅。



Radermachia sinica (Hance) Hemsl.

Bignoniaceae

Stratum

Sub-canopy

Description

Leaves odd bipinnately to tripinnately compound, leaflets opposite, chartaceous, elliptical to ovate, 4.5~6 cm long, 1~2.5 cm wide, caudate-acuminate at apex, acute at base, entire or sometimes irregularly lobed; petiolules 4~8 mm long. Bisexual; flowers in large terminal panicles; calyx tubular, 5-lobed at apex; corolla funnelform, white, 10~12 cm long, 5-lobed at apex; stamens 4; style slender. Capsule thin cylindrical, ca. 50 cm long, dehiscing longitudinally when mature. Seeds compressed, subglobose to ellipsoid, winged on 2 sides.



花 Flowers

翁明毅 Ming-I Weng/攝



植株 Entire plant

翁明毅 Ming-I Weng/攝



蒴果 Capsules

翁明毅 Ming-I Weng/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	0	0.00
2~5	1	100.00
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

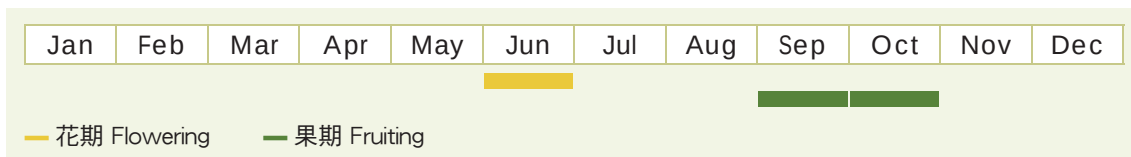
Total basal area = 7.07 cm²/25 ha

Number of trees/25 ha = 1



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





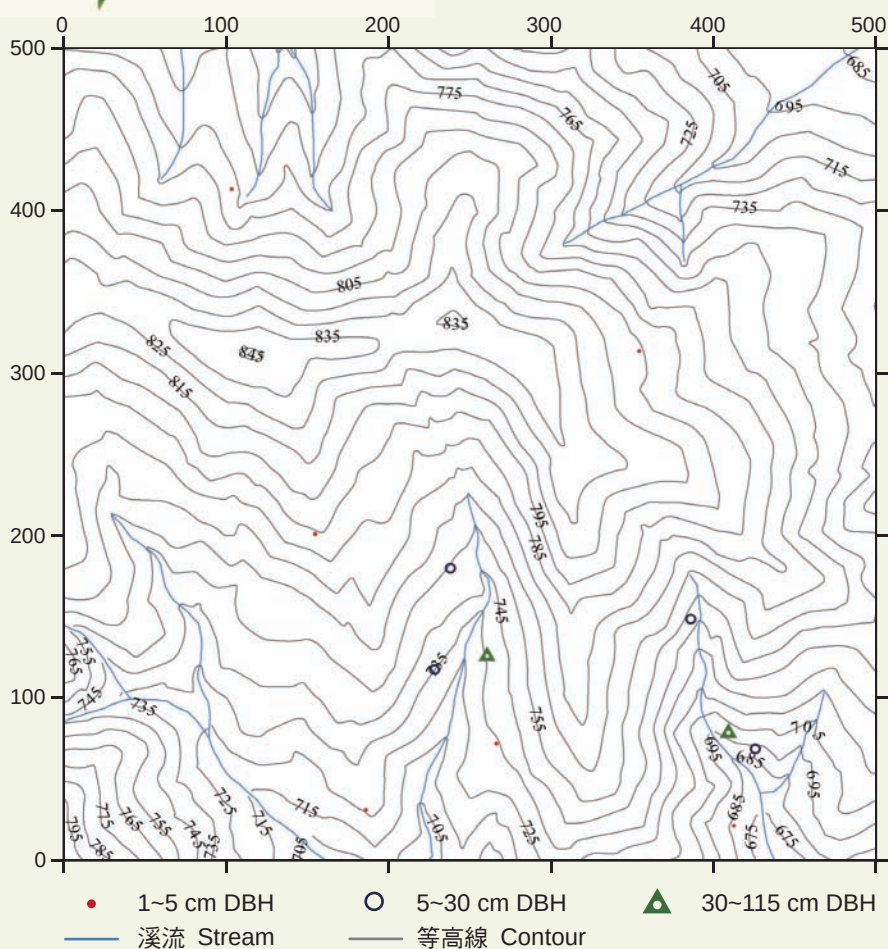
紫草科

樹冠層級

冠層

描述

枝條褐色光滑。葉橢圓形至長橢圓形或倒卵狀長橢圓形，長5~12 cm，寬2~5 cm，先端漸尖至短尾狀，全緣，上下表面無毛或略粗糙；葉柄長0.5~1 cm，近軸面具溝。花兩性；花序頂生或少數側生；花黃白色；花萼杯狀，光滑，裂片5，卵形，略被緣毛；花冠漏斗狀，裂片5，長橢圓形至倒卵形，略下彎；雄蕊伸長突出花冠筒；雌蕊柱頭2裂。核果，淡黃色，近球形；小核果4。



5 cm



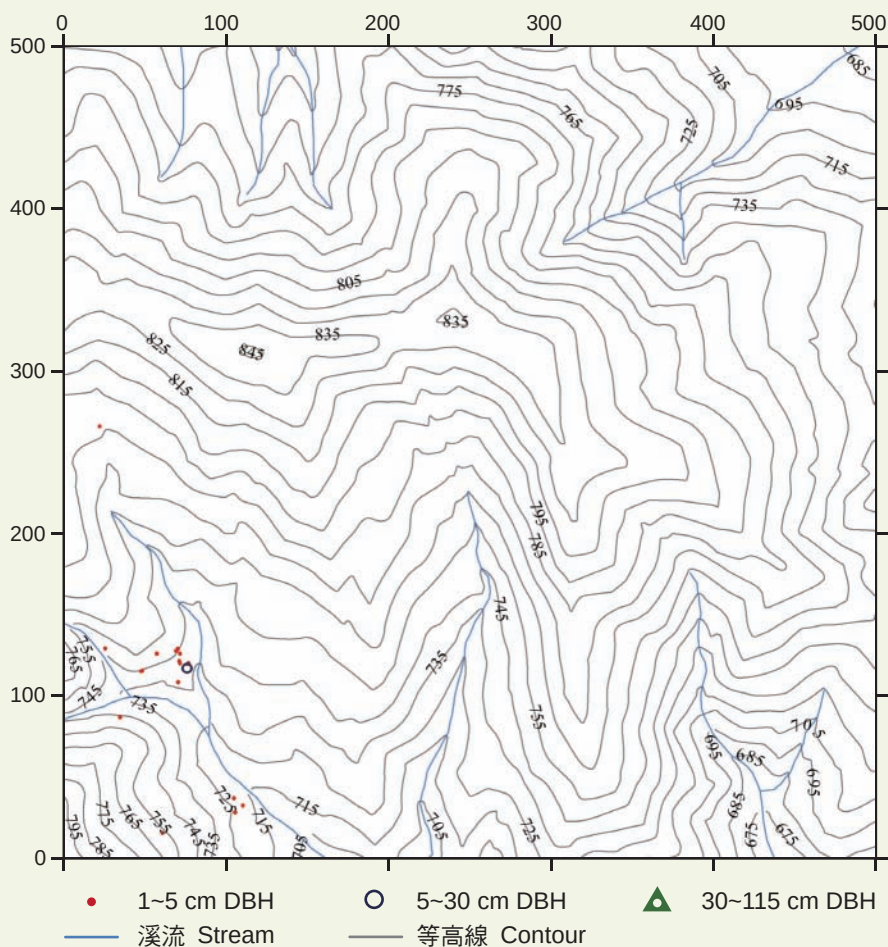
山柑科（白花菜科）

樹冠層級

次冠層

描述

全株光滑。莖有刺，嫩枝無刺。葉互生，薄革質，披針形、卵形至卵狀披針形，長6~10 cm，寬2.5~5 cm，先端漸尖或銳尖，基部圓或鈍，全緣，中肋於上表面略凹下，有時僅見於葉基部。花兩性；花腋生，白色，花瓣4，披針形；花瓣及萼片密被毛；雄蕊多枚且明顯突出。漿果，球形或橢圓形，長1.2~1.6 cm，徑約1.2~1.5 cm，成熟時為紫黑色。



Capparis sabiaefolia Hook. f. et Thoms.

Capparaceae

Stratum

Sub-canopy

Description

Entire plant glabrous. Stem prickly, young branchlet without spines. Leaves alternate, thin-chartaceous, lanceolate, ovate or ovate-lanceolate, 6~10 cm long, 2.5~5 cm wide, acuminate or acute at apex, rounded to obtuse at base, margins entire, midrib slightly sunken above, sometimes in basal part only. Bisexual; flowers axillary, white, petals 4, lanceolate; petals and sepals densely tomentose; stamens numerous, distinctly prominent. Berry globose to ellipsoid, 1.2~1.6 cm long, 1.2~1.5 cm across, purplish-black when mature.



枝葉 Stems and leaves

翁明毅 Ming-I Weng/攝



花 Flowers

葉秋好 Chiou-Yu Yeh/攝



漿果 Berry

伍淑惠 Shu-Hui Wu/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	5	26.32
2~5	13	68.42
5~10	1	5.26
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

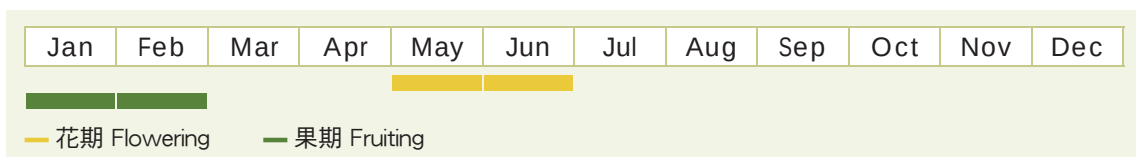
Total basal area = 234.39 cm²/25 ha

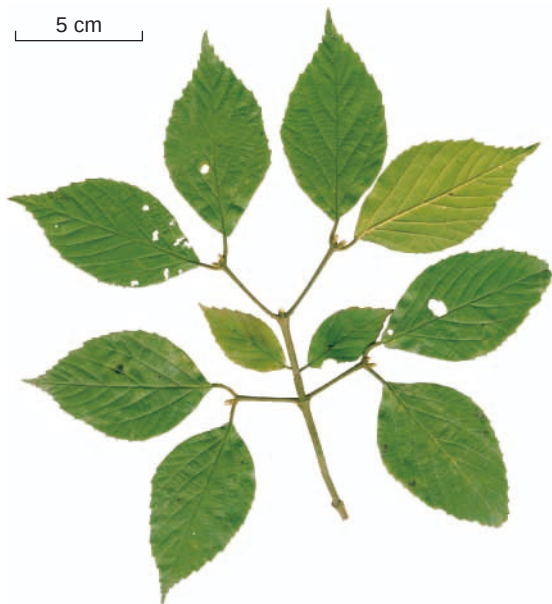
Number of trees/25 ha = 19



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





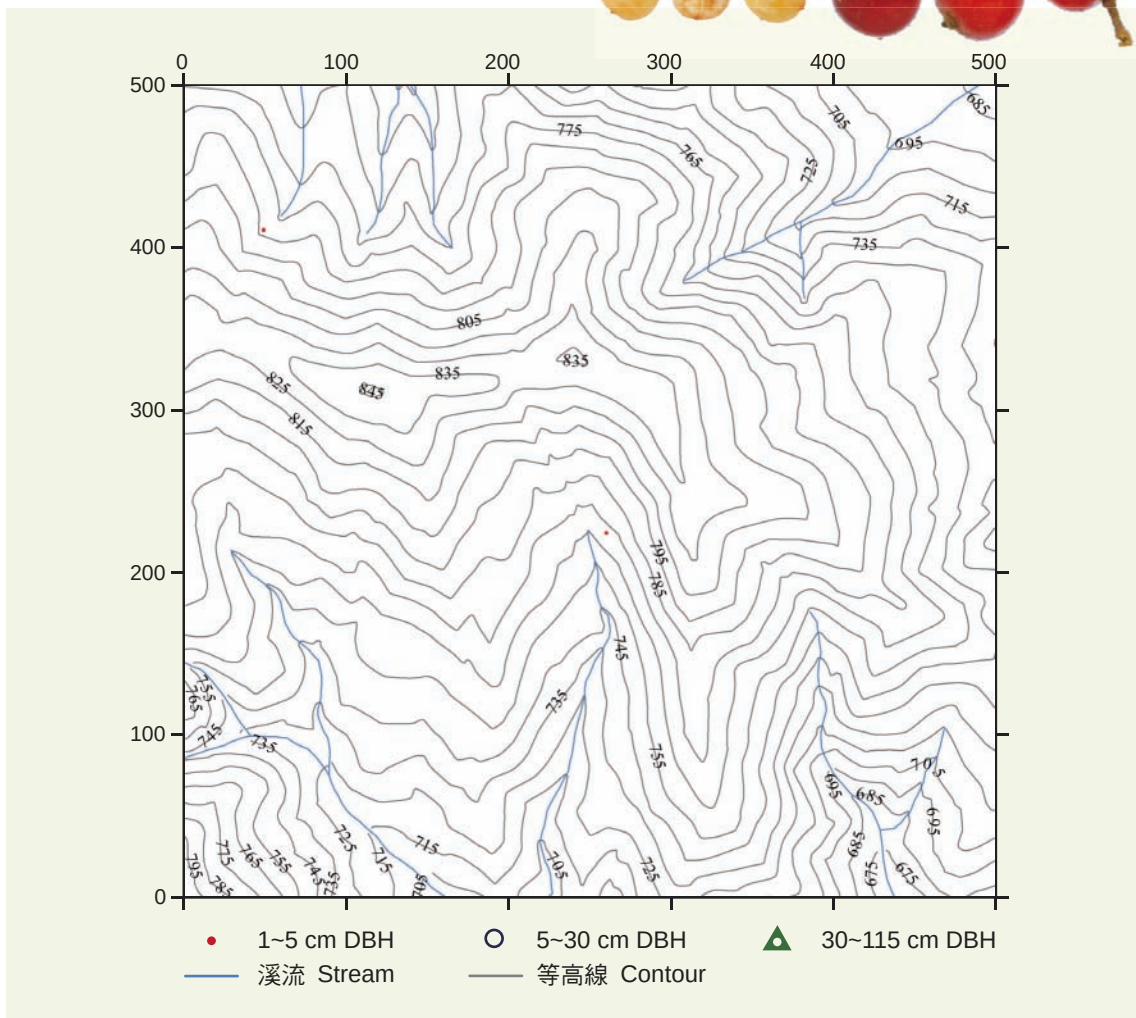
忍冬科

樹冠層級

灌木層

描述

小枝有毛。葉對生，紙質，生殖枝葉卵形，長4~8 cm，寬2.5~4.5 cm，先端漸尖或銳尖，基部銳尖，鋸齒緣；營養枝葉長橢圓形至橢圓形，長3~6 cm，寬2~4 cm，微鋸齒，上表面有毛至漸無毛，具小腺點，下表面被星狀毛，主側脈凹於葉表，凸出於葉背；葉柄有毛，長5~10 mm。花兩性；複聚繖花序，被鐵鏽色毛，頂生於側枝條；花白色；花萼有毛；花瓣輻射對稱，5枚。核果，球形，紅色。



Caprifoliaceae

Stratum

Shrub

Description

Branchlets pubescent. Leaves opposite, chartaceous, ovate on fertile branchlets, 4~8 cm long, 2.5~4.5 cm wide, acuminate or acute at apex, acute at base, serrate; oblong to elliptical on sterile branchlets, 3~6 cm long, 2~4 cm wide, shallowly dentate, pubescent to glabrescent and minutely glandular above, stellate-tomentose below; midrib and veins impressed on upper surface, raised on lower surface; petiole 5~10 mm long, pubescent. Bisexual; inflorescence a compound cyme,

rusty-tomentose, terminating on lateral branchlets; flowers white; calyx pubescent; corolla rotate, 5-lobed. Drupe globose, red.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



核果 Drupes

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	1	50.00
2~5	1	50.00
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

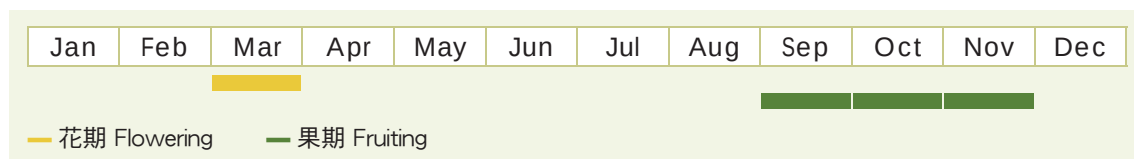
Total basal area = 12.68 cm²/25 ha

Number of trees/25 ha = 2



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





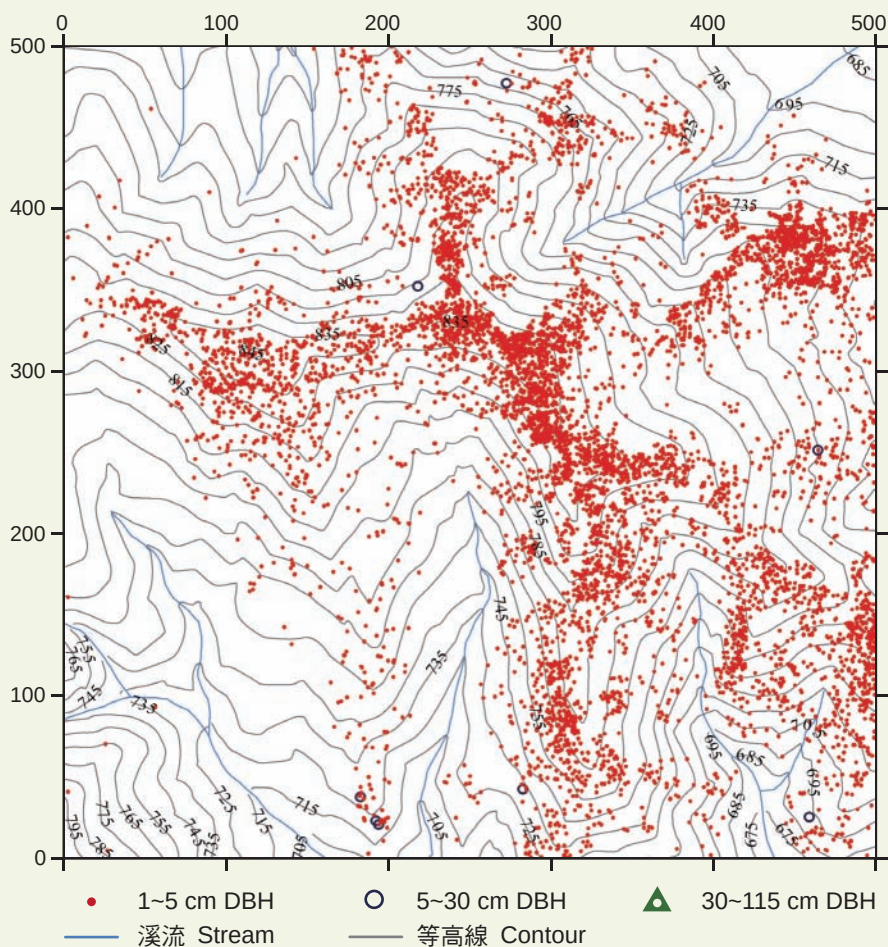
衛矛科

樹冠層級

灌木層

描述

葉對生，厚紙質或革質，光滑，橢圓形至長橢圓狀卵形，長5~7.5 cm，寬2.5~4 cm，先端凸起狀漸尖，基部楔形漸狹，表面有透明光澤，全緣或略鋸齒緣；葉柄長0.7~1 cm。花兩性，橘紅色；聚繖或複聚繖花序，花梗長1.5~5 cm；花萼5；花瓣5，闊圓形；雄蕊5，花絲極短。蒴果，倒圓錐形，長9 mm，徑7~8 mm，通常5室，有時2或4室。種子紅色。



Euonymus laxiflorus Champ. ex Benth.

Celastraceae

Stratum

Shrub

Description

Leaves opposite, thick-chartaceous or coriaceous, glabrous, elliptical to oblong-ovate, 5~7.5 cm long, 2.5~4 cm wide, cuspidate-acuminate at apex, cuneate-attenuate at base, pellucid and lustrous above; petioles 0.7~1 cm long. Bisexual; flowers reddish-orange, in simple or compound cyme; peduncles 1.5~5 cm long; sepals 5; petals 5, broadly rounded; stamens 5, filaments extremely short. Capsule obconical, 9 mm long, 7~8 mm across, usually 5-celled, sometimes 2- or 4-celled. Seeds red.



枝葉 Stems and leaves

李碧鳳 Bi-Fong Lee/攝



花 Flowers

林奂慶 Huan-Ching Lin/攝



蒴果 Capsules

林奂慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	4707	60.60
2~5	3050	39.27
5~10	10	0.13
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

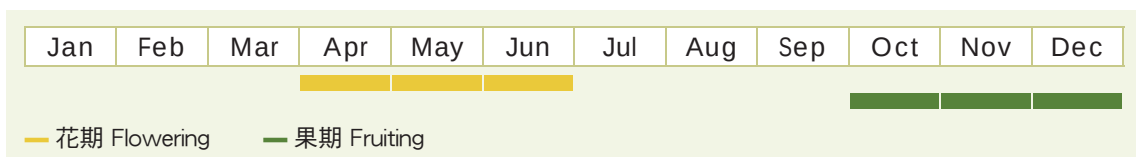
Total basal area = 29367.19 cm²/25 ha

Number of trees/25 ha = 7767



樹皮 Bark

林奂慶 Huan-Ching Lin/攝





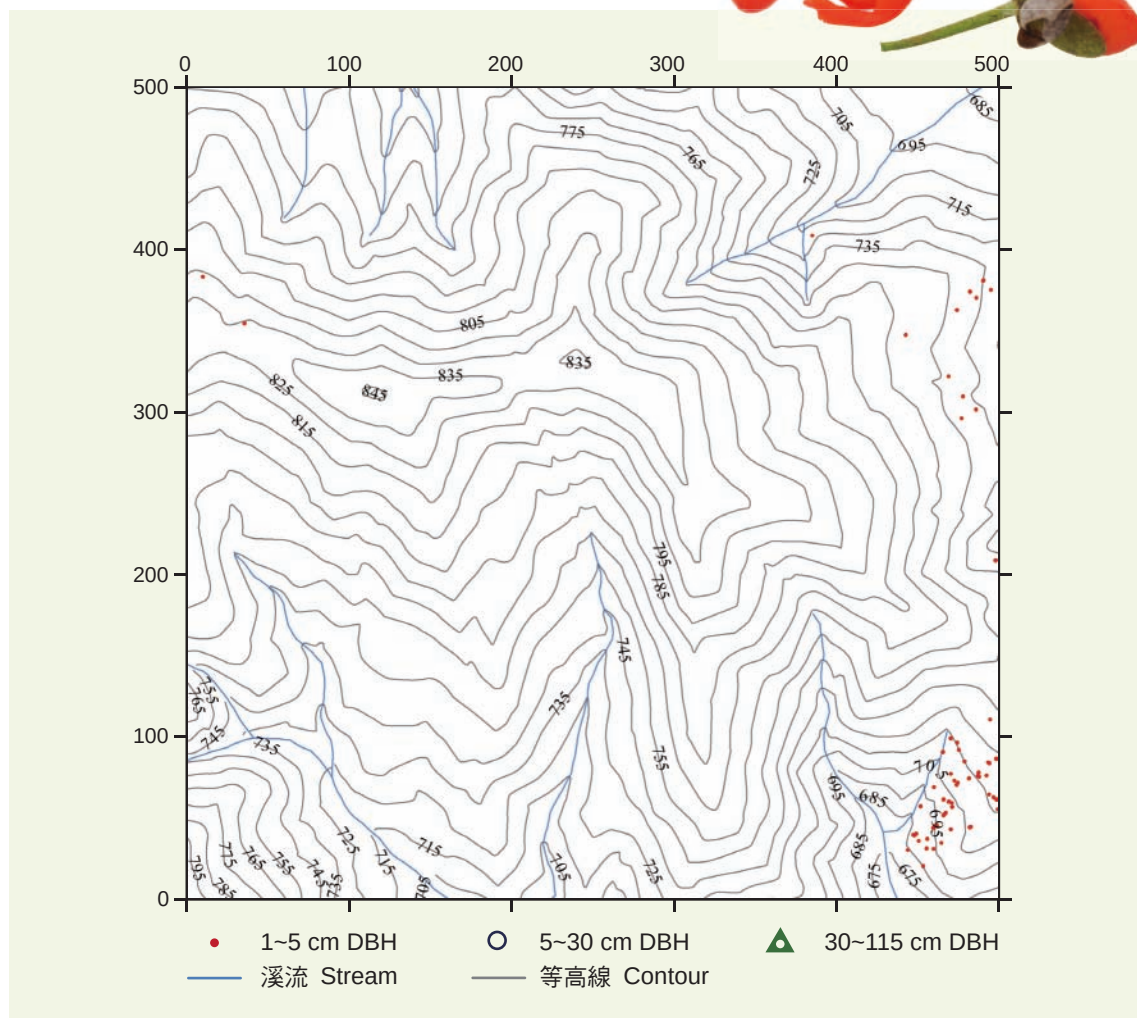
衛矛科

樹冠層級

灌木層

描述

枝條光滑，具四稜或圓柱形。葉對生，近革質或革質，橢圓狀菱形，光滑，長3~8 cm，寬1.5~4 cm，先端銳尖至漸尖，基部楔形至銳尖，葉緣鋸齒緣或上半部近全緣下半部全緣；葉柄長1~2 mm。花兩性，黃色；單生或少數叢生幼枝頂端，花梗長1~5 cm；花萼裂片4；花瓣4；雄蕊4；花柱短。蒴果，4室，不孕性者平坦，受孕性者呈圓形，徑7 mm，萼片宿存。



Celastraceae

Stratum

Shrub

Description

Branches and branchlets glabrous, 4-angled or terete. Leaves opposite, subcoriaceous or coriaceous, oblong-rhombic, glabrous, 3~8 cm long, 1.5~4 cm wide, acute to acuminate at apex, cuneate to acute at base, margins serrate or nearly entire on upper part and entire on lower part; petioles 1~2 mm long. Bisexual; flowers yellow, solitary or a few clustered in terminal of young branchlets; peduncles 1~5 cm long; calyx lobes 4; petals 4; stamens 4; style short. Capsule 4-celled, sterile ones flattened, fertile ones rounded, 7 mm across, with persistent calyx.



植株 Entire plant

翁明毅 Ming-I Weng/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



蒴果 Capsules

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	58	87.88
2~5	8	12.12
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

Total basal area = 138.63 cm²/25 ha

Number of trees/25 ha = 66



樹皮 Bark

林炎慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

— 花期 Flowering

— 果期 Fruiting



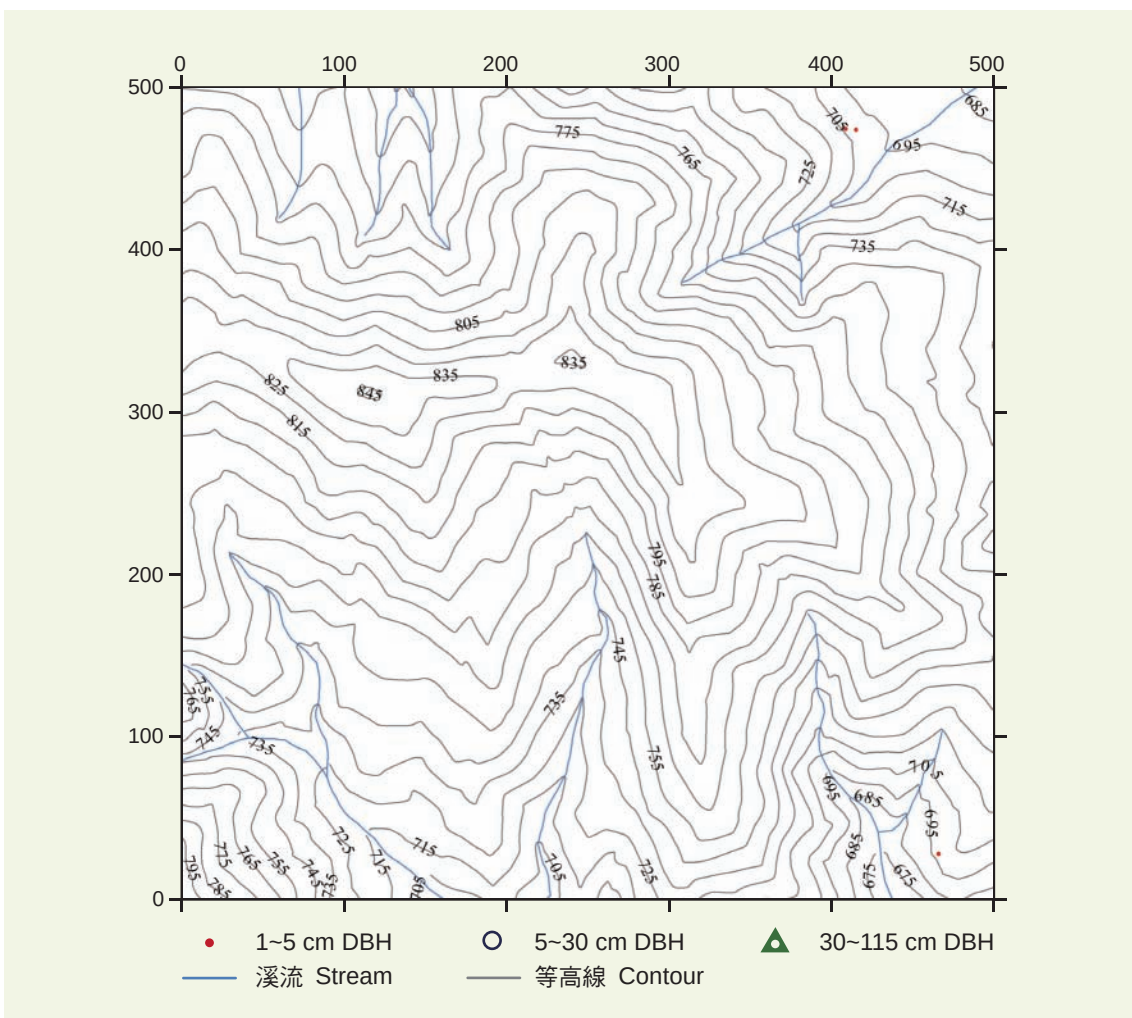
衛矛科

樹冠層級

灌木層

描述

小枝具稜，光滑。葉對生，紙質，披針形或橢圓形至長橢圓形，長5~8.5 cm，寬1.5~3.5 cm，先端漸尖，基部銳尖至鈍，全緣，兩面光滑；葉柄長5 mm。花兩性；腋生，繖形花序，稀疏或密集簇生，花梗長5 mm；花萼倒圓錐狀，先端裂片4；花瓣4，白色，卵狀長橢圓形；雄蕊4。蒴果倒卵形，長1 cm。種子1，種皮橘紅色。



Celastraceae

Stratum

Shrub

Description

Branchlets angular, glabrous. Leaves opposite, chartaceous, lanceolate or elliptical to oblong, 5~8.5 cm long, 1.5~3.5 cm wide, acuminate at apex, acute to obtuse at base, margins entire, glabrous on both surfaces; petioles 5 mm long. Bisexual; umbel axillary, few-flowered or densely fasciculate, peduncles 5 mm long; calyx obconical, 4-lobed at apex; petals 4, white, ovate-oblong; stamens 4. Capsule obovoid, 1 cm long. Seed 1, seed coat orangish-red.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

葉秋好 Chiou-Yu Yeh/攝



蒴果 Capsules

翁明毅 Ming-I Weng/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	2	66.67
2~5	1	33.33
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

Total basal area = 29.05 cm²/25 ha

Number of trees/25 ha = 3



樹皮 Bark

林炎慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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— 花期 Flowering

— 果期 Fruiting



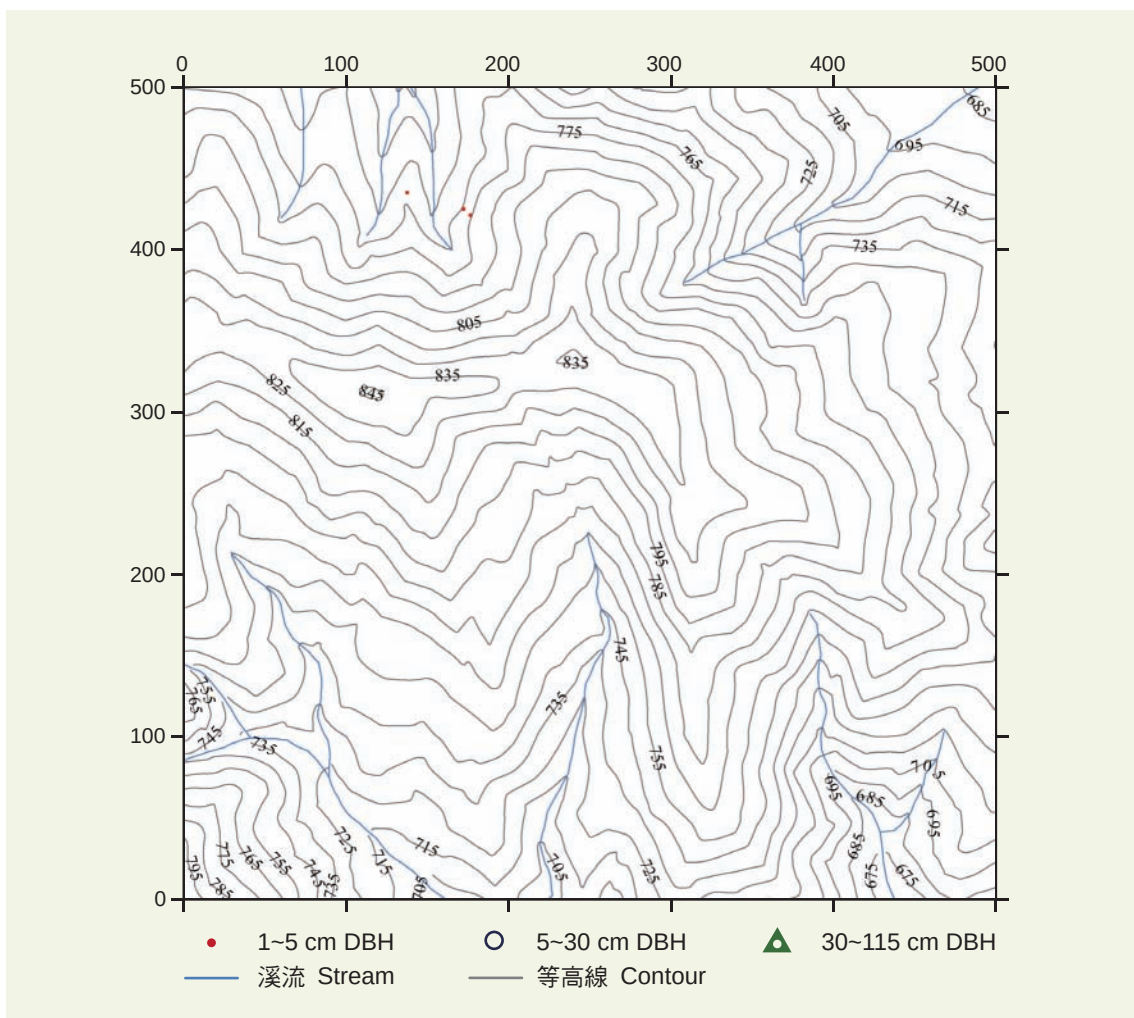
山茱萸科（四照花科）

樹冠層級

灌木層

描述

葉對生，厚紙質或薄革質，長橢圓形或長橢圓狀披針形，長10~18 cm，寬2~4 cm，先端漸尖，基部銳尖至鈍，葉緣為疏粗齒緣或鋸齒緣，上下表面光滑無毛；葉柄長1~2.5 cm。雌雄異株；短圓錐花序，長度小於2 cm；花瓣4枚，暗紫色，先端具長尾；雄花雄蕊4枚；雌花柱頭圓盤狀。核果，橢圓球形，具小於1 cm的果柄，成熟時鮮紅色。



Cornaceae

Stratum

Shrub

Description

Leaves opposite, thick-chartaceous or thin-coriaceous, oblong or oblong-lanceolate, 10~18 cm long, 2~4 cm wide, acuminate at apex, acute to obtuse at base, remotely dentate or serrate, glabrous on both surfaces; petioles 1~2.5 cm long. Dioecious; inflorescence a short panicle, less than 2 cm long; petals 4, darkish-purple, long-caudate at apex; staminate flowers, stamens 4; pistillate flowers, stigma discoid. Drupe ellipsoid, stalk less than 1 cm long, bright-red when mature.



枝葉 Stems and leaves

林炎慶 Huan-Ching Lin/攝



雄花 Male flowers

葉秋好 Chiou-Yu Yeh/攝



核果 Drupes

李碧鳳 Bi-Fong Lee/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	3	100.00
2~5	0	0.00
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

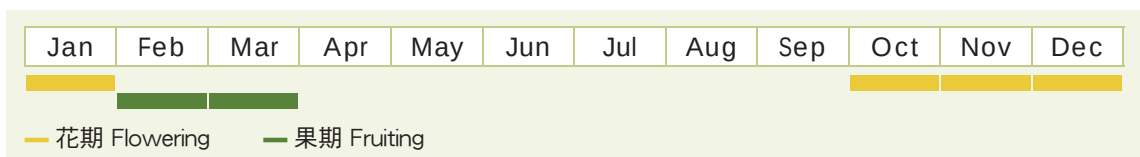
Total basal area = 2.85 cm²/25 ha

Number of trees/25 ha = 3



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





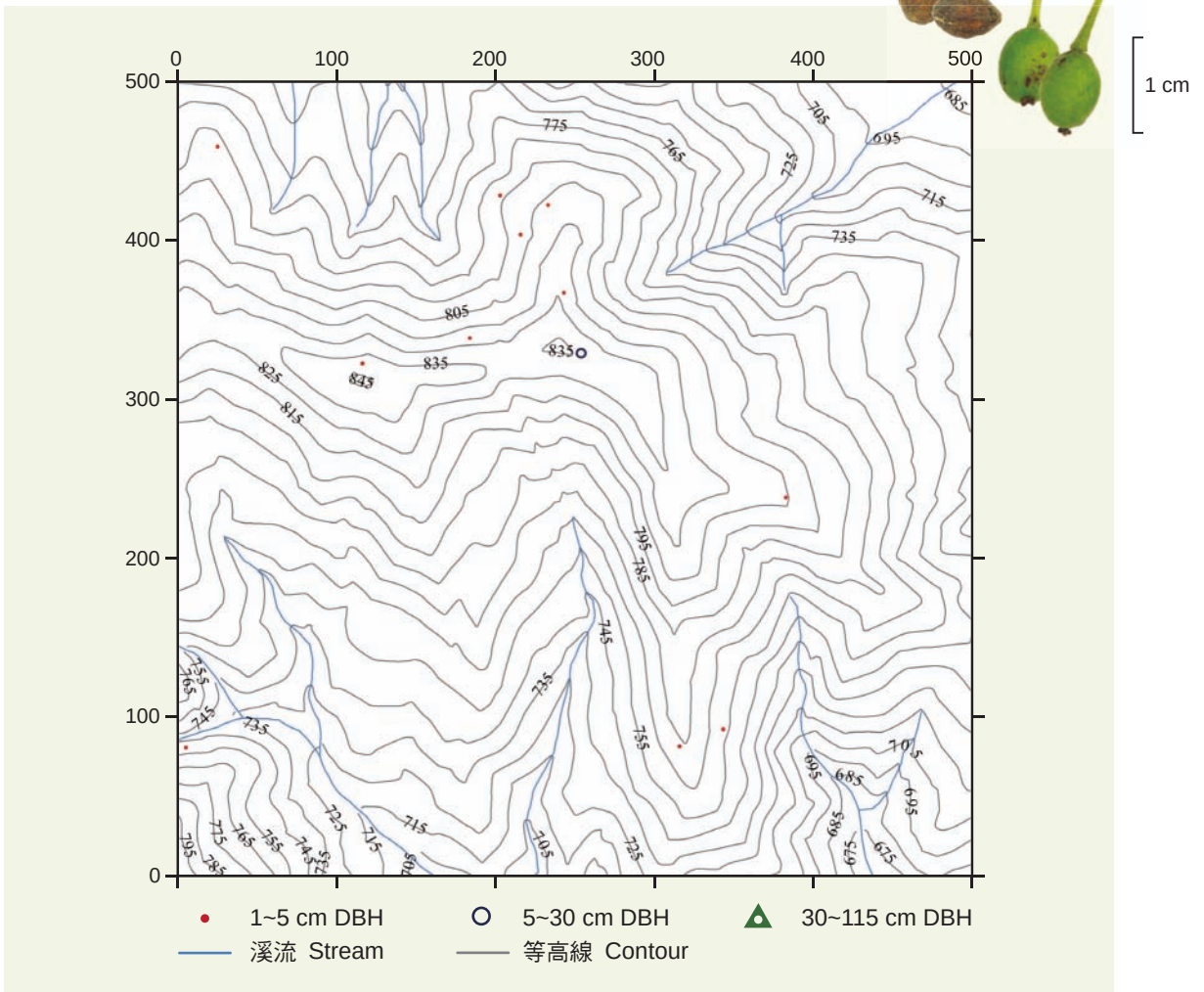
虎皮楠科

樹冠層級

次冠層

描述

枝條圓柱形，褐色。葉叢生，紙質，橢圓形、狹橢圓形或狹卵形，長7~16 cm，寬3~5 cm，先端漸尖至尾狀，基部漸狹楔形，葉緣稍反捲，上表面深綠，下表面灰白色或灰褐色，光滑且具乳頭狀突起，葉脈網格明顯；葉柄常帶紅色。雌雄異株；雄花序總狀，細長，腋生，花藥常呈略彎長橢圓形；雌花序總狀，腋生，花柱2裂，先端捲曲狀，花萼早落。果軸排列成總狀；核果，橢圓球形，先端花柱宿存。



Stratum

Sub-canopy

Description

Branchlets terete, brown. Leaves fascicled, chartaceous, elliptical, narrowly elliptical or narrowly ovate, 7~16 cm long, 3~5 cm wide, apex acuminate to caudate, base attenuate-cuneate, margins slightly revolute, darkish-green above, grayish-white or grayish-brown, glabrous, and papillate beneath, reticulate veins distinct; petioles often red. Dioecious; staminate inflorescence racemiform, slender, axillary, anthers usually obliquely oblong; pistillate inflorescence racemiform, axillary, styles 2-lobed, curled at top, calyx usually caducous. Fruiting axes racemiform; drupe ellipsoid, styles persistent at apex.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

葉秋好 Chiou-Yu Yeh/攝



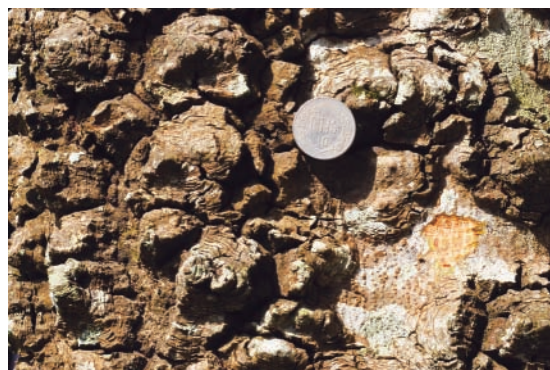
核果 Drupes

翁明毅 Ming-I Weng/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	6	50.00
2~5	5	41.67
5~10	1	8.33
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

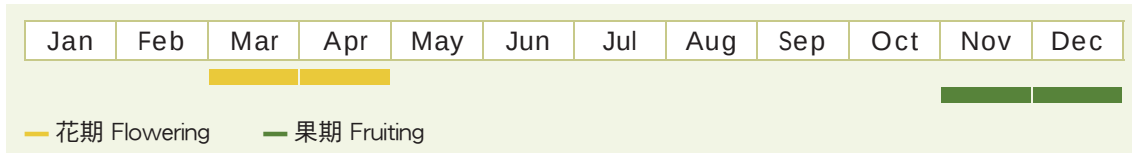
Total basal area = 77.09 cm²/25 ha

Number of trees/25 ha = 12



樹皮 Bark

林煥慶 Huan-Ching Lin/攝





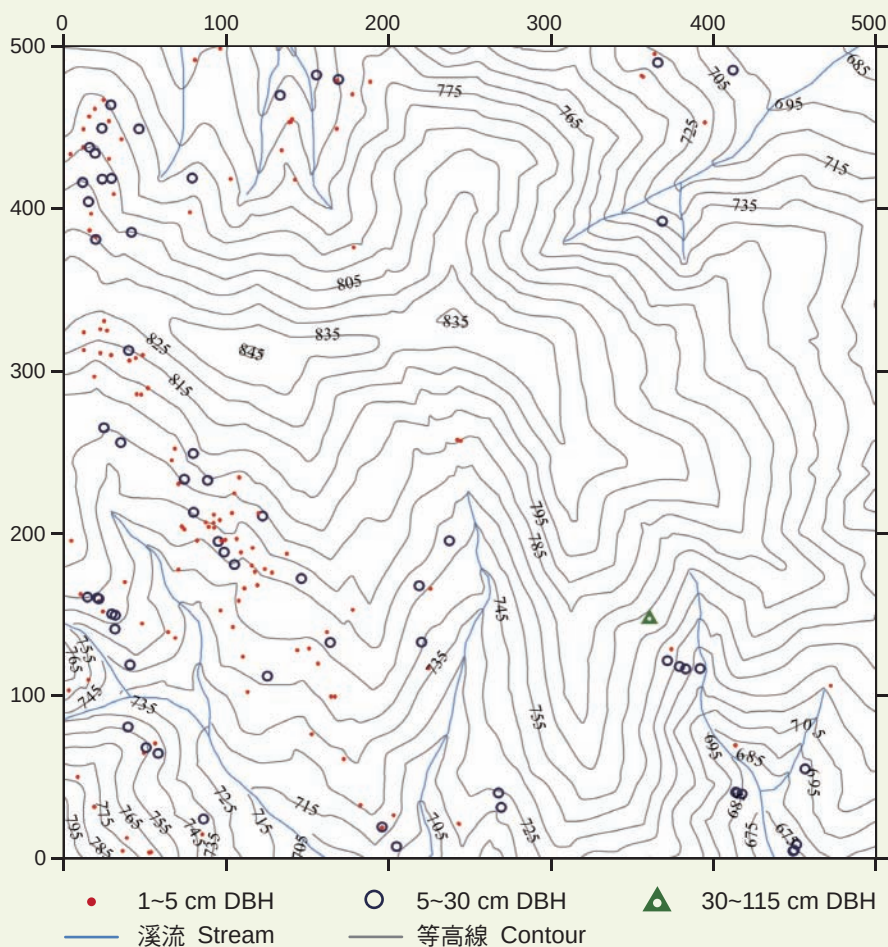
柿樹科

樹冠層級

次冠層

描述

樹幹黑色，小枝被黃褐色絨毛。葉互生，薄紙質，長橢圓狀披針形，長5~10 cm，寬2~3 cm，先端銳尖至漸尖，基部銳尖至鈍，全緣，上表面主脈光滑至被細絨毛，下表面顏色較淡且脈上被黃褐色毛，葉柄長2~4 mm，被毛。雌雄異株；腋生；花萼深裂；花冠白色，4淺裂，裂片狹卵形或披針形，花萼及花瓣上密被黃褐色絨毛。漿果，卵球形，先端略尖，上有曲柔毛，未熟時綠色，成熟為黑色。



Ebenaceae

Stratum

Sub-canopy

Description

Trunk black, branchlets fulvous-tomentose. Leaves alternate, thin-chartaceous, oblong-lanceolate, 5~10 cm long, 2~3 cm wide, acute to acuminate at apex, acute to obtuse at base, entire, glabrous to puberulous along midrib above, pale and tomentose along midrib and veins below; petioles 2~4 mm long, tomentose. Dioecious; axillary; calyx deeply lobed; corolla white, shallowly 4-lobed, lobes narrowly ovate or lanceolate; sepals and petals densely yellowish-brown fulvous-villous. Berry ovoid, slightly acute at top, villous, green turning black when mature.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



漿果(未熟) Immature berries

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	48	26.23
2~5	71	38.80
5~10	50	27.32
10~20	13	7.10
20~30	0	0.00
30~60	1	0.55
60~115	0	0.00

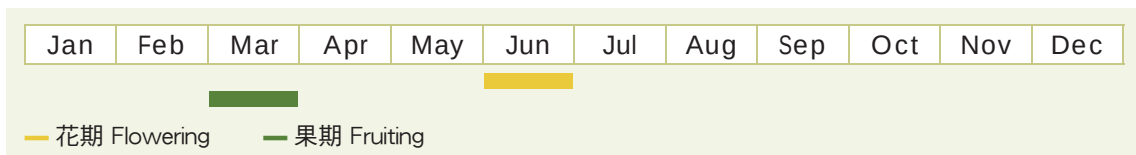
Total basal area = 8438.66 cm²/25 ha

Number of trees/25 ha = 183



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





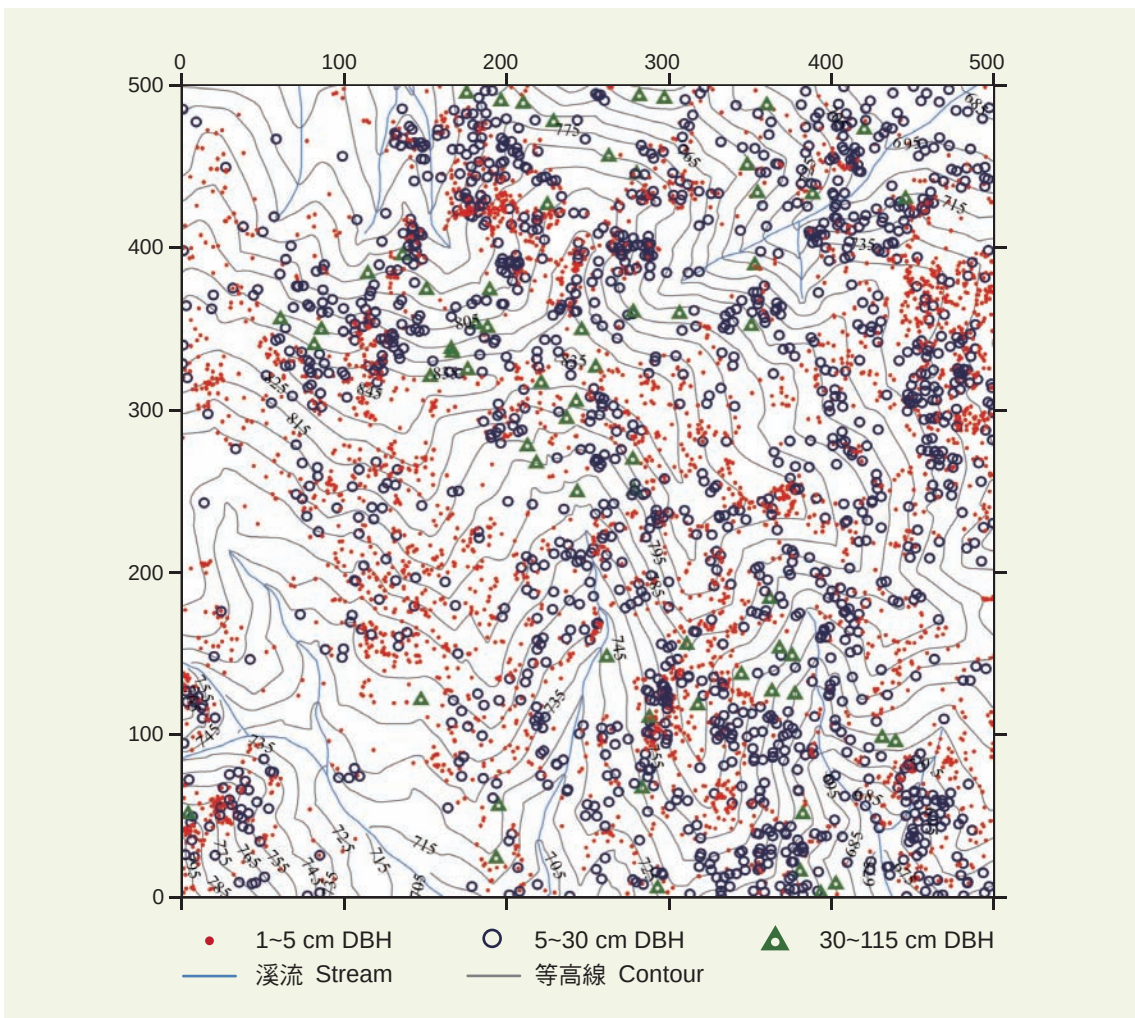
柿樹科

樹冠層級

冠層

描述

樹幹黑色，枝條漸無毛。葉互生，革質，橢圓形至卵狀披針形，長7~10 cm，寬3~5 cm，先端漸尖，基部鈍，葉全緣至稍波浪狀，上表面深綠，下表面淺綠光滑或主脈略被毛。雌雄異株；花單生或2~5朵叢生，腋生；花梗被毛或光滑；花萼4裂，裂片三角形，兩面略被毛至近光滑；花冠4裂，白色，外側光滑。漿果，球狀，黃色。



Ebenaceae

Stratum

Canopy

Description

Trunk black, branchlets glabrescent. Leaves alternate, coriaceous, elliptical to ovate-lanceolate, 7~10 cm long, 3~5 cm wide, acuminate at apex, obtuse at base, margins entire to slightly wavy, dark-green above, pale and glabrous to slightly pubescent along midrib below. Dioecious; solitary or 2~5 in fascicle, axillary; pedicels pubescent or glabrous; calyx 4-lobed, lobes triangular, slightly pubescent to nearly glabrous on both surfaces; corolla 4-lobed, white, glabrous outside. Berry globose, yellow.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flowers

林奕慶 Huan-Ching Lin/攝



漿果(未熟) Immature berries

翁明毅 Ming-I Weng/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	1684	33.67
2~5	1763	35.25
5~10	824	16.48
10~20	549	10.98
20~30	115	2.30
30~60	66	1.32
60~115	0	0.00

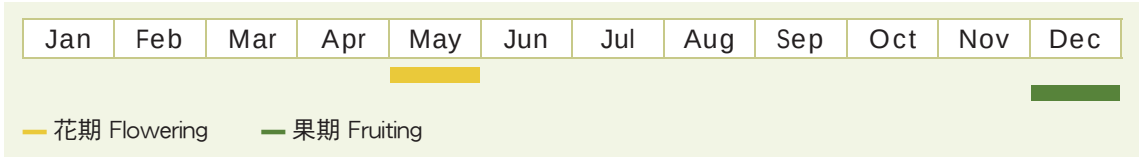
Total basal area = 268190.30 cm²/25 ha

Number of trees/25 ha = 5001



樹皮 Bark

林奕慶 Huan-Ching Lin/攝





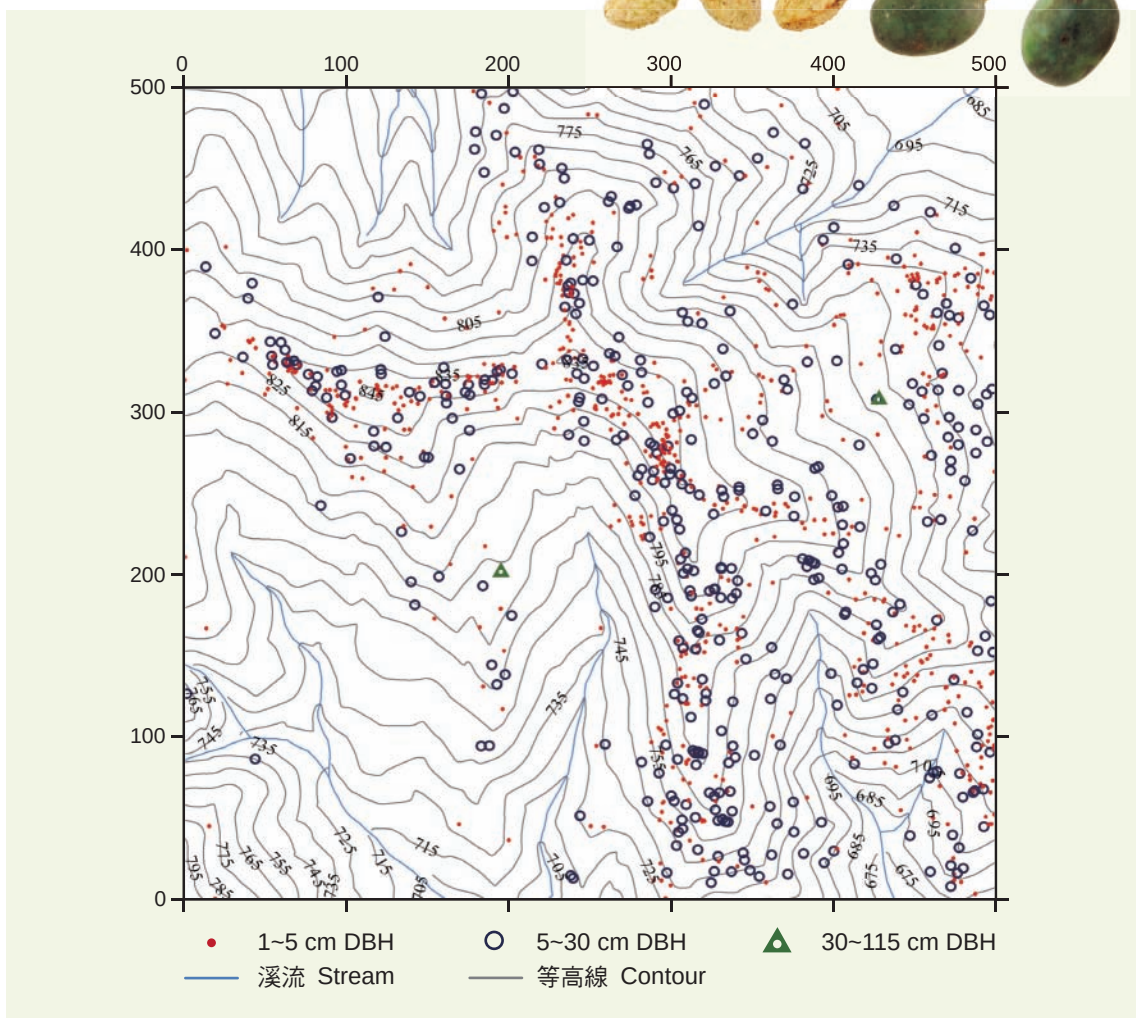
杜英科

樹冠層級

冠層

描述

葉互生，薄革質，橢圓形或長橢圓形，長5~10 cm，寬2~3.5 cm，先端漸尖，基部鈍至近圓，上表面光滑，稍具光澤，下表面略有黑色小瘤，不明顯圓細齒緣，中肋稍凹於上表面，明顯凸出下表面，落葉前轉為紅色；葉柄光滑，長2~3 cm，兩端略膨大。花兩性；總狀花序，腋生，花軸略被毛或漸無毛；花梗漸無毛；花萼卵狀長橢圓形，先端銳尖；花瓣黃綠色，長橢圓形，略被毛。核果，卵球形。



Elaeocarpus japonicus Siebold & Zucc.

Elaeocarpaceae

Stratum

Canopy

Description

Leaves alternate, thin-coriaceous, elliptical or oblong, 5~10 cm long, 2~3.5 cm wide, acuminate at apex, obtuse to subrounded at base, glabrous and slightly shiny above, minutely black-tubercled beneath, margins obscurely crenulate-serrulate, midrib slightly impressed above, prominently elevated beneath, turning red before falling; petioles glabrous, 2~3 cm long, slightly swollen at both tips. Bisexual; inflorescence racemose; axillary, rachis slightly pubescent or glabrescent;

pedicels pubescent; sepals ovate-oblong, acute at apex, petals yellowish-green, oblong, slightly pubescent. Drupe ovoid.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林夙慶 Huan-Ching Lin/攝



核果(未熟) Immature drupes

林夙慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	265	23.47
2~5	446	39.50
5~10	237	20.99
10~20	140	12.40
20~30	39	3.46
30~60	2	0.18
60~115	0	0.00

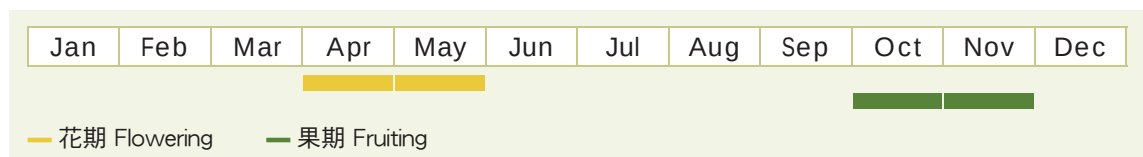
Total basal area = 58092.85 cm²/25 ha

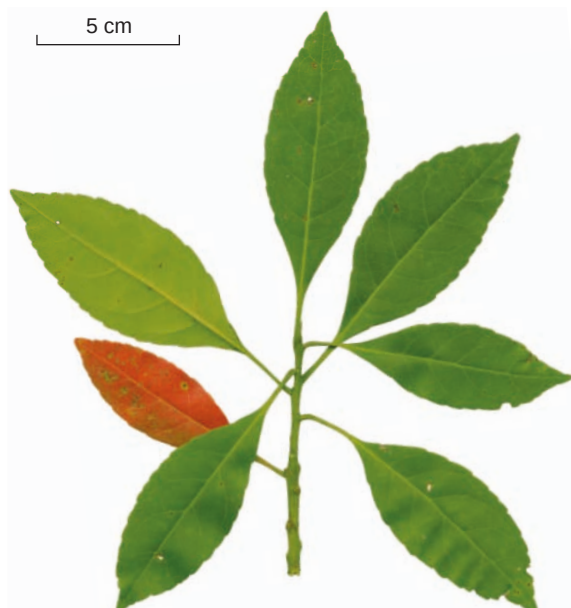
Number of trees/25 ha = 1129



樹皮 Bark

林夙慶 Huan-Ching Lin/攝





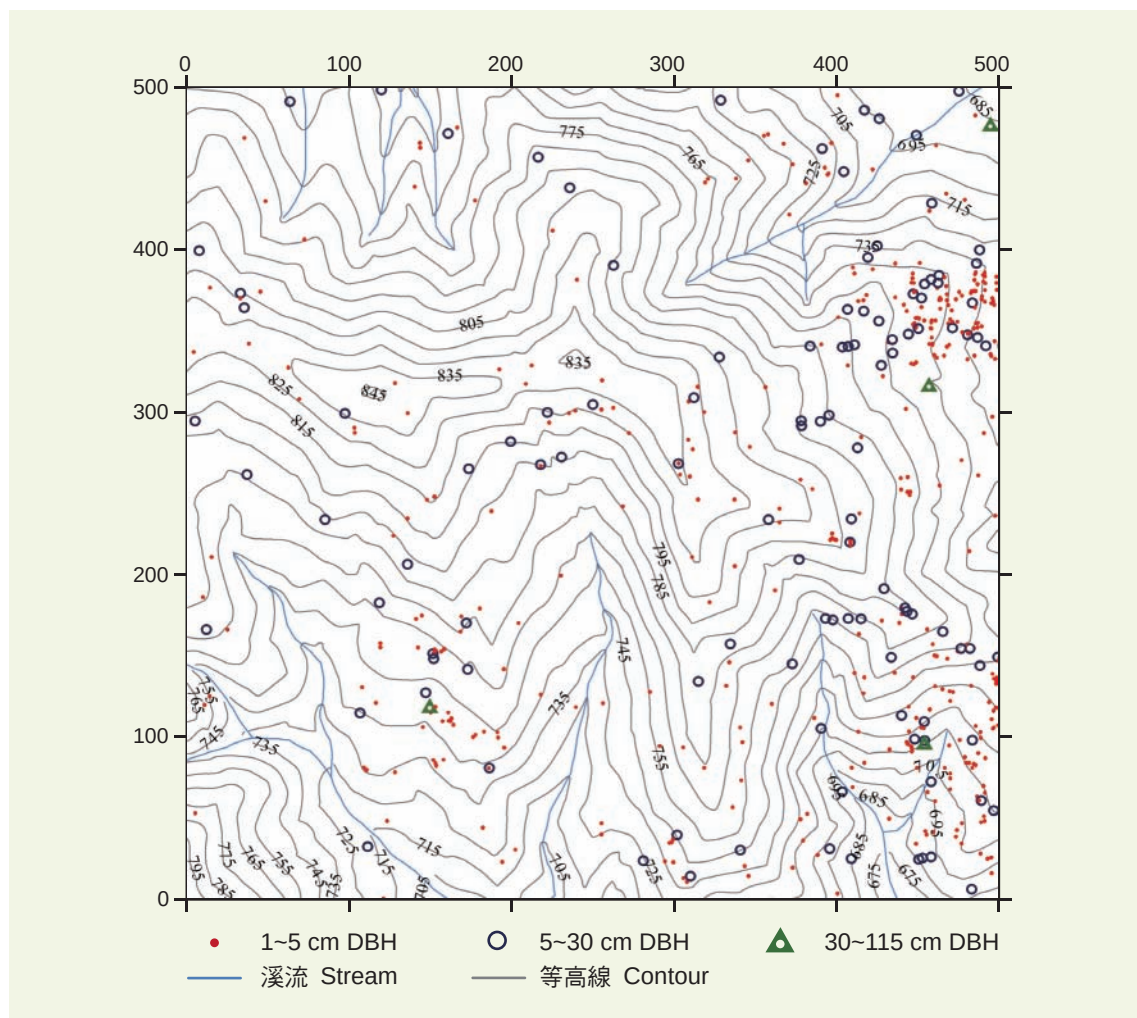
杜英科

樹冠層級

冠層

描述

葉互生，紙質，長橢圓形或披針形至倒披針形，長7~13 cm，寬2~4 cm，先端銳尖至漸尖，基部銳尖到長漸狹，有時寬銳形，光滑，下表面有黑色瘤狀物，葉緣圓鋸齒緣，中肋略凹於上表面，落葉前轉為紅色；葉柄長1.5~2 cm。花兩性；總狀花序，腋生，花序軸疏被毛；花瓣5，白色，倒三角形，剪裂狀，內側基部被直柔毛。核果，橢圓球形，長1.5~2 cm，兩端尖，堅硬，成熟時成黑紫色。



Elaeocarpus sylvestris (Lour.) Poir.

Elaeocarpaceae

Stratum

Canopy

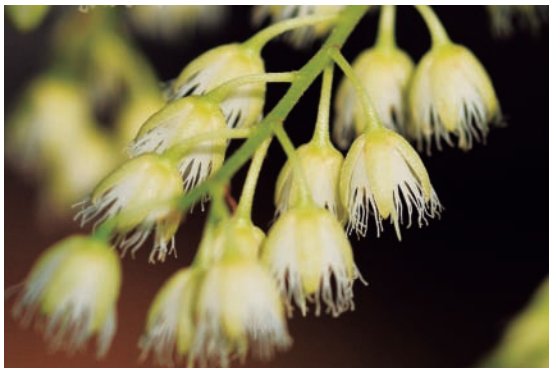
Description

Leaves alternate, chartaceous, oblong or lanceolate to oblanceolate, 7~13 cm long, 2~4 cm wide, acute to acuminate at apex, acute to long-attenuate at base, sometimes broadly acute, glabrous, black-tubercled beneath, margins crenulate, midrib slightly impressed above, turning red before falling; petioles 1.5~2 cm long. Bisexual; inflorescence racemose; axillary, rachis sparsely puberulent; petals 5, white, inverted-triangular, lacinate, pilose at base of inside. Drupe ellipsoid, 1.5~2 cm long, acute at both ends, stone rigid, blackish-purple when mature.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	196	38.36
2~5	194	37.96
5~10	74	14.48
10~20	35	6.85
20~30	8	1.57
30~60	4	0.78
60~115	0	0.00

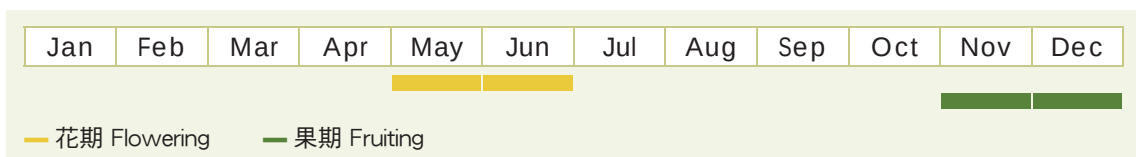
Total basal area = 17043.63 cm²/25 ha

Number of trees/25 ha = 511



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





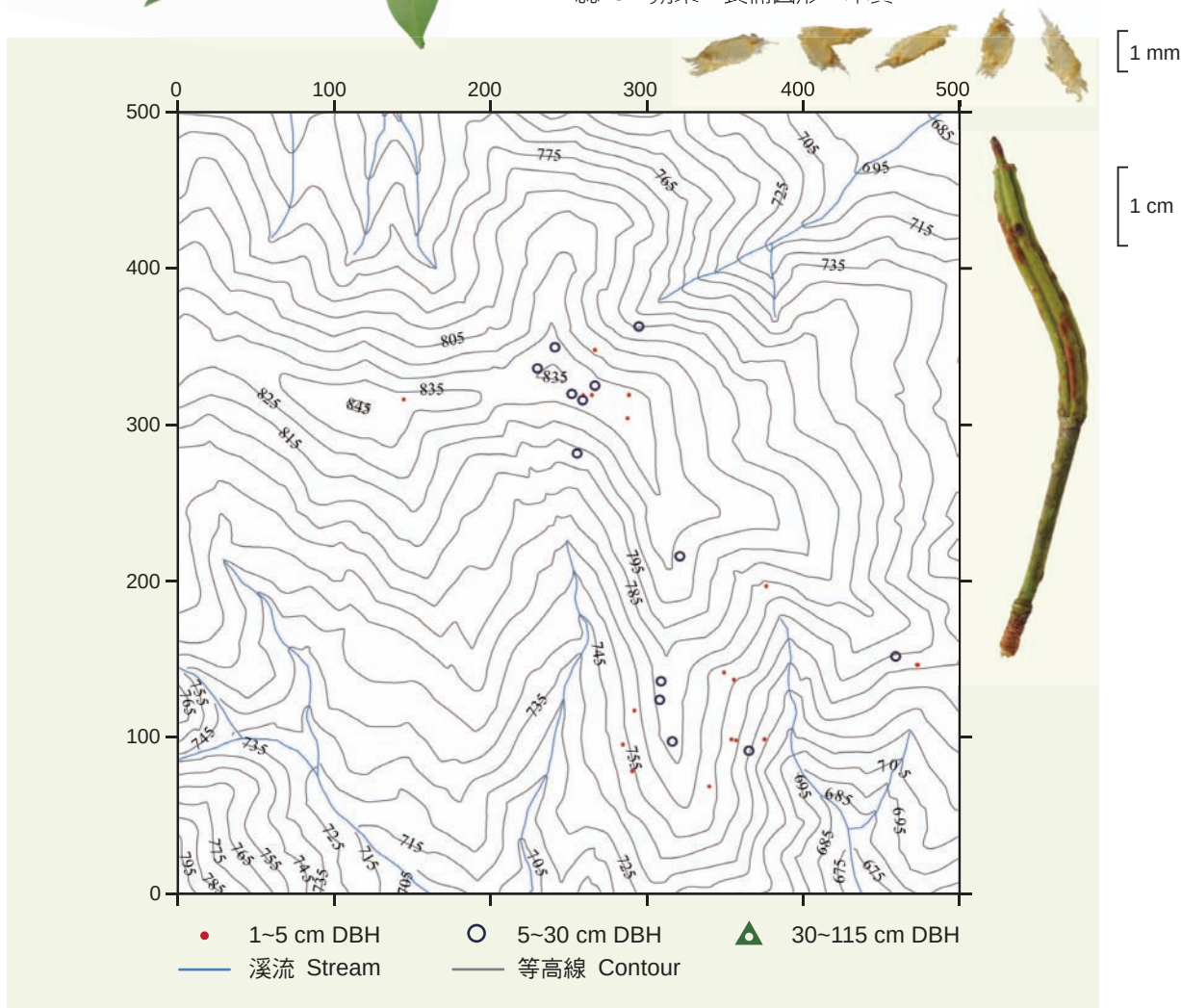
杜鵑花科

樹冠層級

次冠層

描述

枝條細長，堅硬，光滑；冬芽叢生，銳尖；新葉紅褐色。葉近革質，叢生於枝端，光滑，倒披針狀長橢圓形至長橢圓狀披針形，長8~15 cm，寬3~5 cm，先端銳尖或短漸尖，具小突尖，基部狹楔形，葉緣多或少反捲，上表面深綠油亮，下表面淡綠色至灰白；葉柄光滑。花兩性；花2~3朵叢生於近枝條之頂端，花梗光滑；花萼光滑，5齒裂，齒尖不等長且多變；花冠粉紅色，漏斗狀鐘形，5深裂，裂片匙形至倒卵形、圓形；雄蕊10。蒴果，長橢圓形，木質。



Rhododendron leptosantherum Hayata

Ericaceae

Stratum

Sub-canopy

Description

Branches slender, rigid, glabrous; winter buds clustered, acute; young leaves reddish-brown. Leaves subcoriaceous, clustered at ends of branches, glabrous, oblanceolate-oblong to oblong-lanceolate, 8~15 cm long, 3~5 cm wide, apex acute or short-acuminate, mucronulate, base narrow-cuneate, margins more or less recurved, upper surface lustrous dark-green, lower surface pale-green to pallid; petioles glabrous. Bisexual; 2 or 3 flowers in clusters near end of branches; pedicel glabrous; calyx glabrous, 5-toothed, teeth unequal and variable; corolla pink, funnel-form-

campanulate, deeply 5-lobed, lobes spatulate to obovate, rounded; stamens 10. Capsule oblong, woody.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

葉秋好 Chiou-Yu Yeh/攝



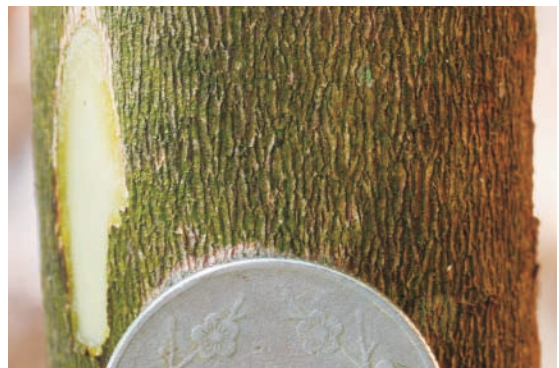
蒴果 Capsules

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	2	6.45
2~5	16	51.61
5~10	9	29.03
10~20	4	12.91
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

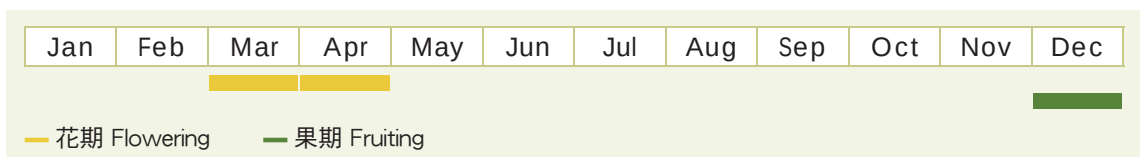
Total basal area = 1282.57 cm²/25 ha

Number of trees/25 ha = 31



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





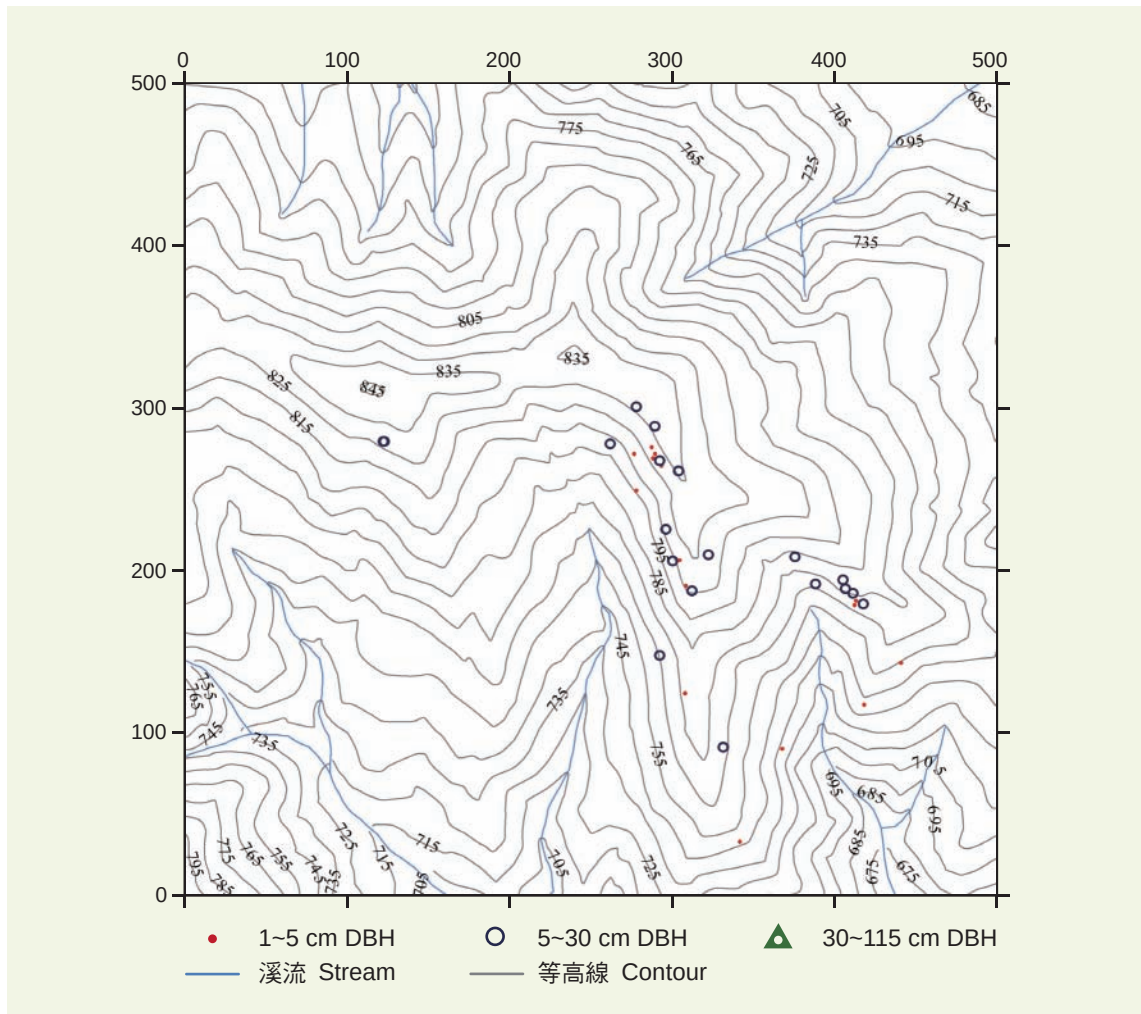
杜鵑花科

樹冠層級

次冠層

描述

枝條直立，近光滑。葉紙質，3~5片叢生枝頂，卵狀菱形，長2.5~6 cm，寬2~3.5 cm，先端鈍形，基部銳尖，葉全緣，上表面綠色，下表面灰白色，兩面無毛或下表面主脈略被短柔毛。花兩性；花先於葉，頂生，2~5朵呈繖形花序，花梗密被平伏粗糙絨毛；花萼5齒裂，外側被毛；花冠漏斗狀，粉紅色，上有紅紫色斑點；雄蕊10。蒴果，圓柱形，被鱗片狀短柔毛。



Rhododendron mariesii Hemsl. & E. H. Wils.

Ericaceae

Stratum

Sub-canopy

Description

Branches erect, nearly glabrous. Leaves chartaceous, 3~5 in fascicle at apex of branch, ovate-rhombic, 2.5~6 cm long, 2~3.5 cm wide, callose-obtuse at apex, acute at base, margins entire, green above, pale below, glabrous on both surfaces or slightly pubescent along midrib below. Bisexual; flowers opening before leaves, terminal, 2~5 in umbels; pedicels densely appressed strigose-tomentose; calyx 5-toothed, hairy outside; corolla funnelform, pink, with reddish-purple spots; stamens 10. Capsule cylindrical, appressed, furfuraceous-pubescent.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

翁明毅 Ming-I Weng/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	2	5.88
2~5	13	38.24
5~10	17	50.00
10~20	1	2.94
20~30	1	2.94
30~60	0	0.00
60~115	0	0.00

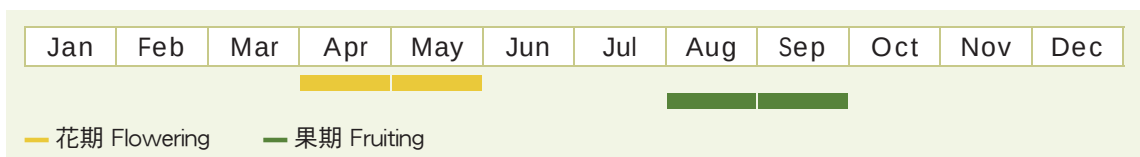
Total basal area = 1718.55 cm²/25 ha

Number of trees/25 ha = 34



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





杜鵑花科

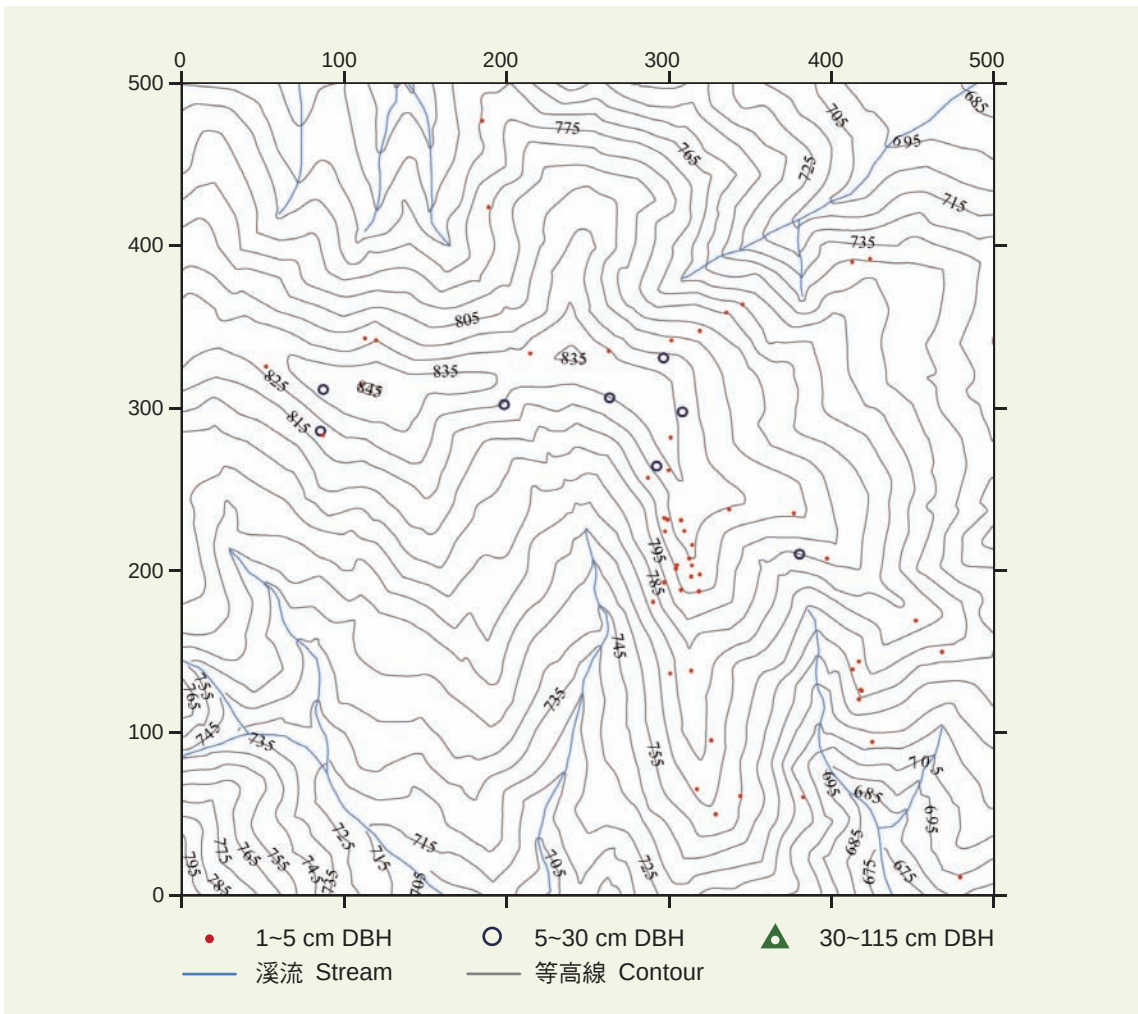
特有種

樹冠層級

次冠層

描述

枝條光滑。葉互生，葉厚紙質，披針形至長橢圓狀披針形，長6~10 cm，寬1.5~3 cm，先端長漸尖至尾狀漸尖，基部銳尖，葉鋸齒緣，兩面光滑且近同色，主側脈凸出上下表面，光滑。花兩性；總狀花序，腋生，光滑；苞片小，錐形，早落；花萼光滑，5裂，裂片三角形，被緣毛；花冠白色，長壺形，光滑，5裂，裂片三角形，被緣毛。漿果，球形，徑5~6 mm。



Ericaceae

Endemic

Stratum

Sub-canopy

Description

Branchlets glabrous. Leaves alternate, thick-chartaceous, lanceolate to oblong-lanceolate, 6~10 cm long, 1.5~3 cm wide, long-acuminate to caudate-acuminate at apex, acute at base, margins serrulate, glabrous on both surfaces and nearly concolorous, midrib and veins raised on both surfaces, glabrous. Bisexual; inflorescence racemes, axillary, glabrous; bracts small, subulate, deciduous; calyx glabrous, 5-lobed, lobes triangular, ciliate; corolla white, long urceolate, glabrous, 5-lobed, lobes triangular, ciliate. Berry globose, 5~6 mm across.



枝條 Branches

李碧鳳 Bi-Fong Lee/攝



花 Flowers

翁明毅 Ming-I Weng/攝



漿果 Berries

李碧鳳 Bi-Fong Lee/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	13	21.31
2~5	37	60.66
5~10	10	16.39
10~20	1	1.64
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

Total basal area = 1064.22 cm²/25 ha

Number of trees/25 ha = 61



樹皮 Bark

翁明毅 Ming-I Weng/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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— 花期 Flowering

— 果期 Fruiting



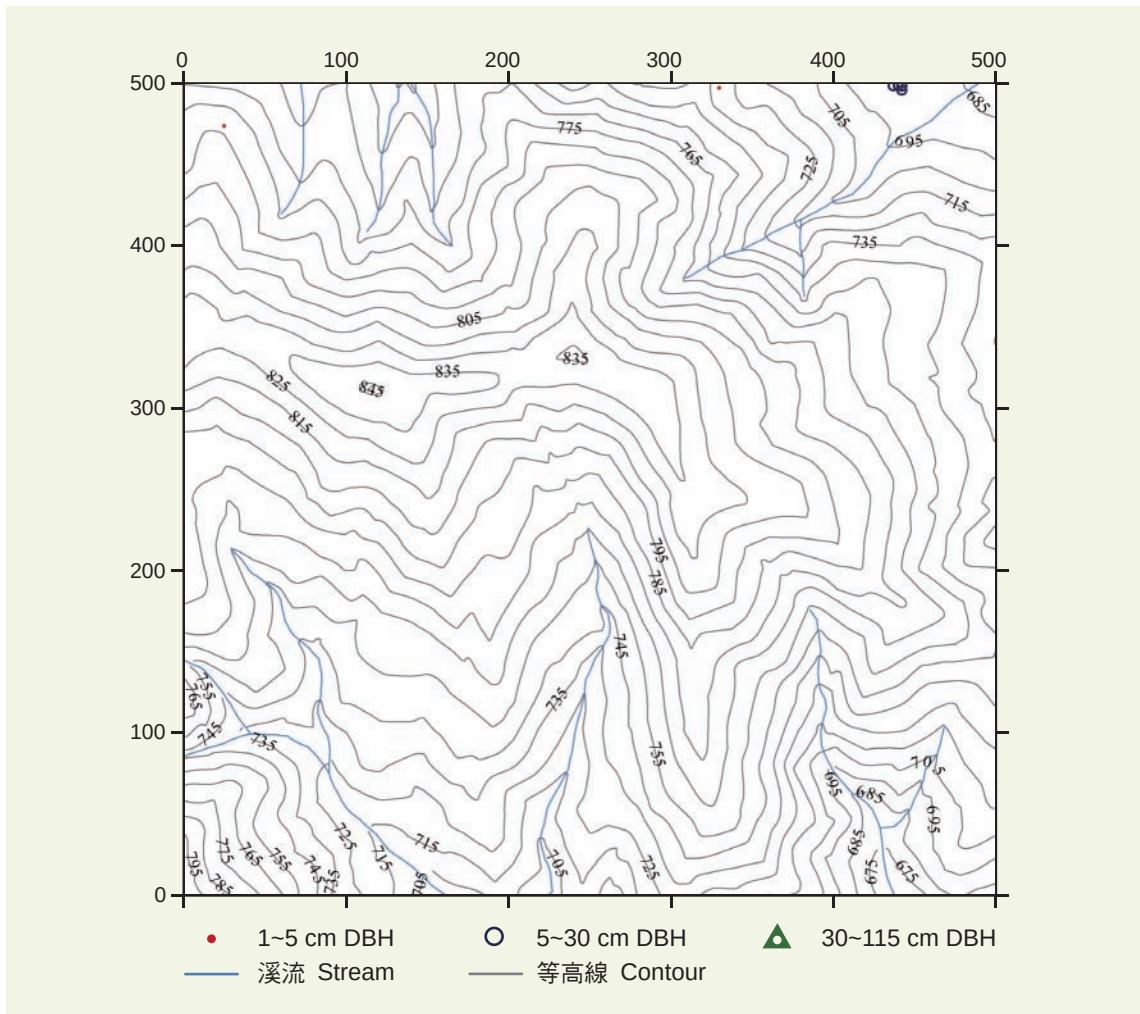
大戟科

樹冠層級

次冠層

描述

葉互生，大型，闊心形，紙質，長20~35 cm，寬15~30 cm，先端三裂或不裂，基部具兩個有柄的杯狀腺體；葉柄長8~16 cm。雌雄異株；圓錐花序，頂生；萼片綠色，筒形；花冠白色，5枚；雄花具雄蕊8~10枚，花絲初開為淡綠色，逐漸轉為紅色；雌花花柱分三叉，每叉再分裂，成六條柱頭。蒴果，圓形殼果狀，果皮具皺紋，果實成熟後顏色由綠轉黑褐；種子有毒。



Euphorbiaceae

Stratum

Sub-canopy

Description

Leaves alternate, large, broadly cordiform, chartaceous, 20~35 cm long, 15~30 cm wide, apex 3-lobed or entire, 2 cup-shaped glands with stalk at base; petioles 8~16 cm long. Dioecious; inflorescence a panicle, terminal; calyx green, cylindrical; corolla 5, white; staminate flowers stamens 8~10, filaments light-green when young, gradually turning red; style of pistillate flowers 3-forked, each fork bifurcated, stigmas 6. Capsule globose, pericarp firm with wrinkles, turning from green to blackish-brown when mature. Seeds poisonous.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

葉秋好 Chiou-Yu Yeh & 翁明毅 Ming-I Weng/攝



蒴果 Capsules

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	2	33.33
2~5	0	0.00
5~10	1	16.67
10~20	3	50.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

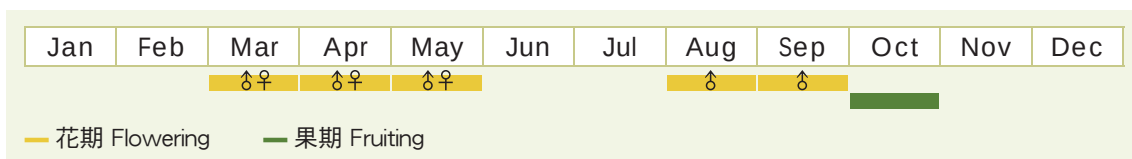
Total basal area = 624.06 cm²/25 ha

Number of trees/25 ha = 6



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





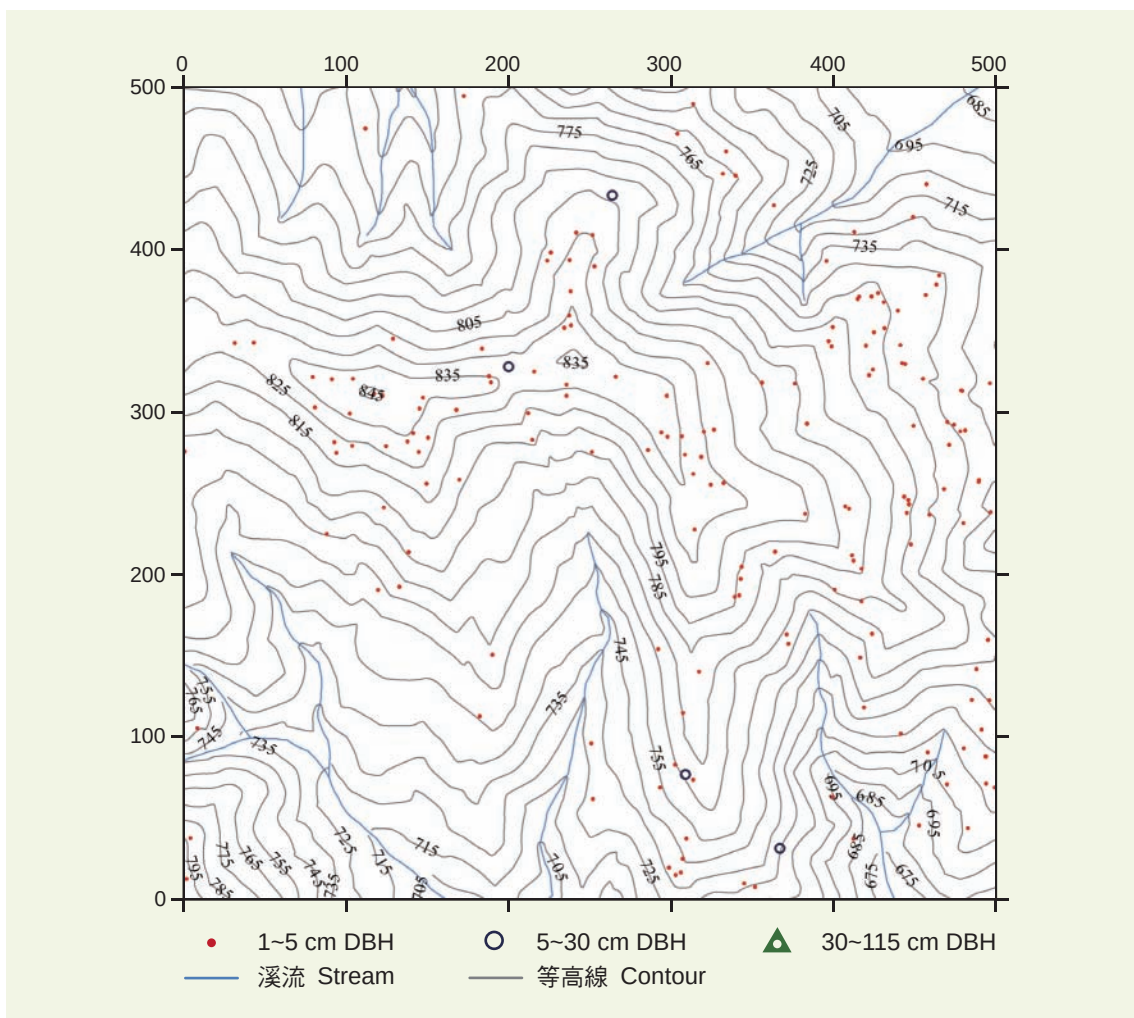
大戟科

樹冠層級

次冠層

描述

枝條疏被粗毛。葉互生，紙質，披針形或橢圓狀披針形，長5~9 cm，寬1.5~2.5 cm，先端漸尖，基部鈍，葉全緣，上表面光滑，下表面脈上稀被粗毛。雌雄異株；總狀花序，頂生，被粗毛；雄花具花梗，苞片披針形，漸尖，光滑，萼片4，披針狀卵形，光滑，雄蕊4；雌花具花梗，苞片卵形至披針形，萼片4裂，柱頭4~6裂。核果，卵圓形，具宿存花柱。



Euphorbiaceae

Stratum

Sub-canopy

Description

Branches thinly hirsute. Leaves alternate, chartaceous, lanceolate or oblong-lanceolate, 5~9 cm long, 1.5~2.5 cm wide, acuminate at apex, obtuse at base, margins entire, glabrous above, slightly hirsute along nerves below. Dioecious; inflorescence a raceme at terminal, hirsute; staminate flowers pedicellate, bracts lanceolate, acuminate, glabrous, sepals 4, lanceolate-ovate, glabrous, stamens 4; pistillate flowers pedicellate, bracts ovate to lanceolate, calyx 4-lobed, stigmas 4~6 lobed. Drupe ovoid, with persistent style.



枝條 Branches

林炎慶 Huan-Ching Lin/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



核果 Drupes

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	83	46.11
2~5	93	51.67
5~10	3	1.67
10~20	1	0.55
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

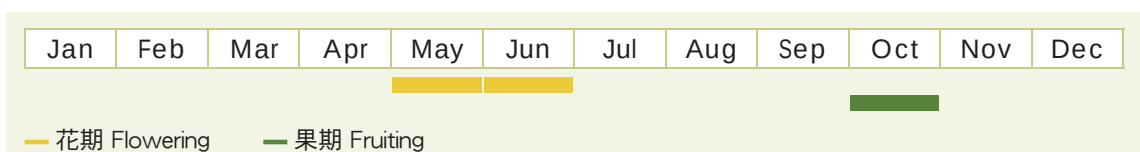
Total basal area = 971.27 cm²/25 ha

Number of trees/25 ha = 180



樹皮 Bark

林炎慶 Huan-Ching Lin/攝



5 cm



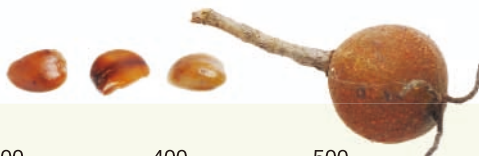
大戟科

樹冠層級

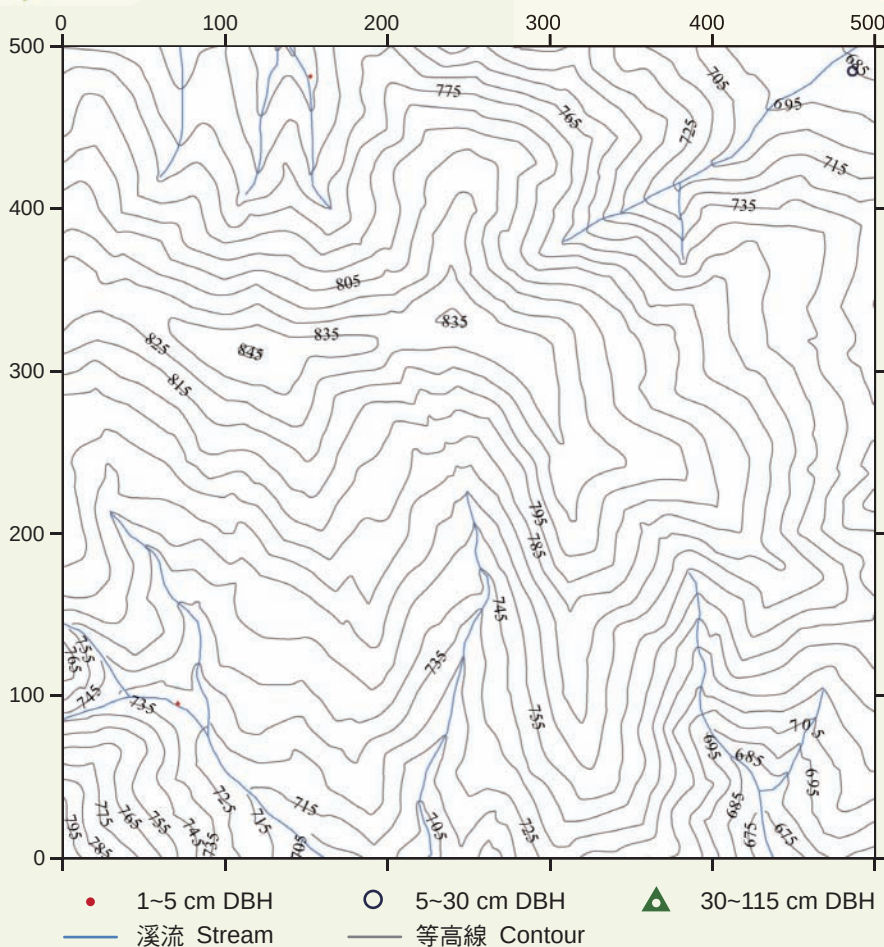
次冠層

描述

樹皮紅褐色，呈片狀剝落；枝條直立，光滑。三出複葉，互生，小葉卵形或卵狀長橢圓形，革質，長6~12 cm，寬3~9 cm，先端尾狀突尖，基部銳尖至鈍，葉緣具細圓鋸齒。雌雄異株；花黃綠色，腋生；雄圓錐花序，長9~18 cm，分枝多，花萼5，雄蕊5；雌圓錐花序，鬆散少分枝，有時成簡單總狀，雌蕊花柱3。核果，球形，未成熟為黃綠色，熟時為黃褐色。



1 cm



Euphorbiaceae

Stratum

Sub-canopy

Description

Bark reddish-brown, exfoliated. Branches terete, glabrous. Leaves 3-foliolate, alternate, leaflets ovate or ovate-oblong, coriaceous, 6~12 cm long, 3~9 cm wide, caudate-cuspidate at apex, acute or obtuse at base, margins crenulate. Dioecious; flowers yellowish-green, axillary; staminate inflorescence a panicle 9~18 cm long, many branches, calyx 5, stamens 5; pistillate inflorescence a panicle, looser and less branched, sometimes reduced to simple racemes, styles 3. Drupe globose, yellowish-green turning yellowish-brown when mature.



植株 Entire plant

李碧鳳 Bi-Fong Lee/攝



花 Flowers

林奕慶 Huan-Ching Lin/攝



核果 Drupes

翁明毅 Ming-I Weng/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	1	33.33
2~5	1	33.33
5~10	1	33.33
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

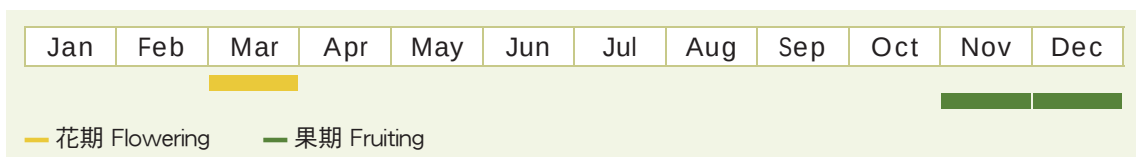
Total basal area = 54.77 cm²/25 ha

Number of trees/25 ha = 3



樹皮 Bark

林奕慶 Huan-Ching Lin/攝





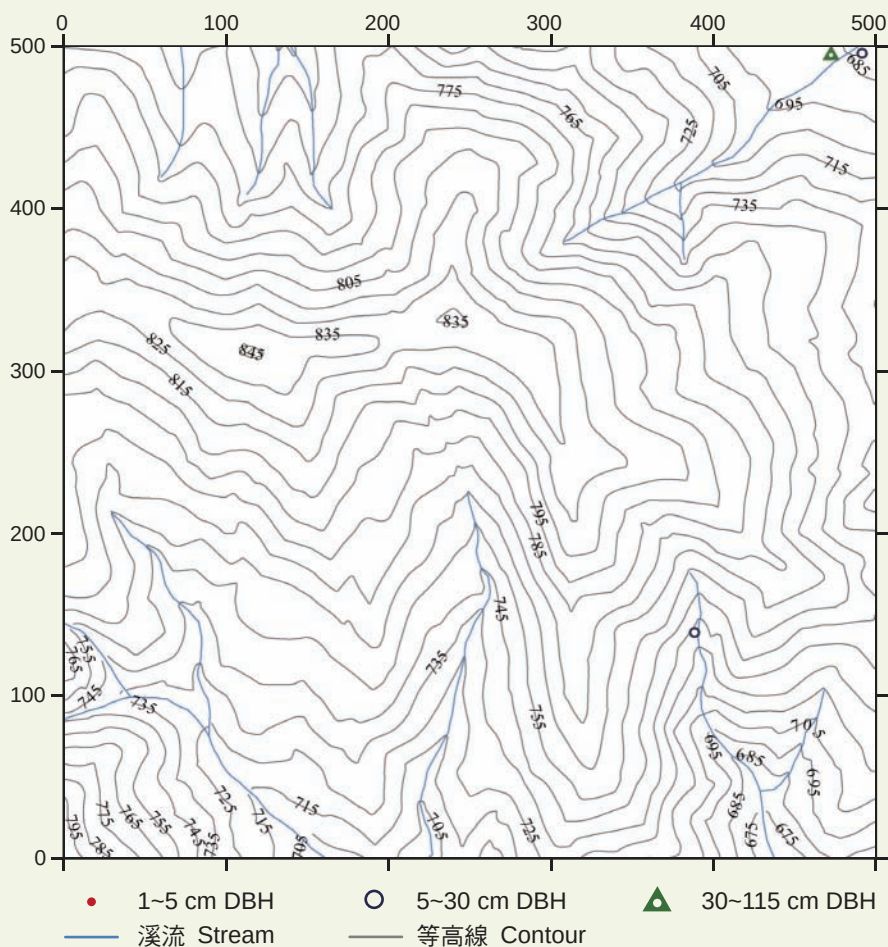
大戟科

樹冠層級

次冠層

描述

枝條細長且柔軟，略下垂，被直柔毛。葉互生，紙質，長橢圓形，長3~6 cm，寬2~3.5 cm，先端鈍，基部銳尖至鈍，全緣；葉柄粗短，長2~3 mm。雌雄異株；花黃白色，叢生且無柄，腋生，花瓣5且較萼片小；雄花雄蕊5枚，花絲與退化雌蕊基部合生；雌花子房2室，花柱2。核果，卵圓形，長5~7 mm，寬5 mm，成熟時由綠轉黑色。



Bridelia tomentosa Blume

Euphorbiaceae

Stratum

Sub-canopy

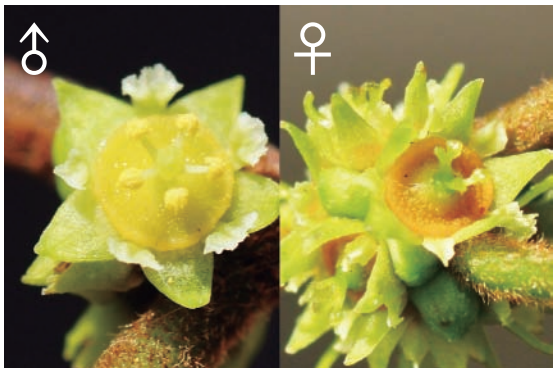
Description

Branches slender, soft, slightly pendulous, pilose. Leaves alternate, chartaceous, oblong, 3~6 cm long, 2~3.5 cm wide, obtuse at apex, acute to obtuse at base, entire; petioles stout, 2~3 mm long. Dioecious; flowers yellowish-white, clustered, sessile; petals 5, smaller than sepals; staminate flowers with 5 stamens, filaments connate with base of pistillode; ovary of pistillate flowers 2-celled, styles 2. Drupes ovoid, 5~7 mm long, 5 mm across, green turning black when mature.



植株 Entire plant

林炎慶 Huan-Ching Lin/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



核果 Drupes

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	0	0.00
2~5	0	0.00
5~10	1	33.33
10~20	1	33.33
20~30	0	0.00
30~60	1	33.33
60~115	0	0.00

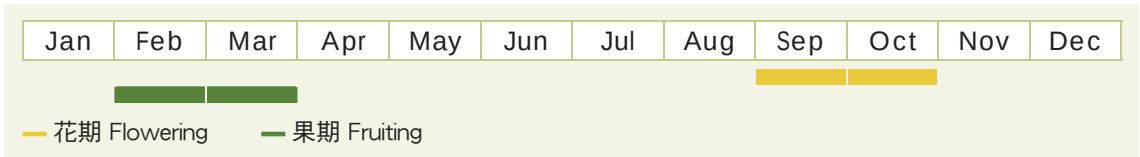
Total basal area = 1211.69 cm²/25 ha

Number of trees/25 ha = 3



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





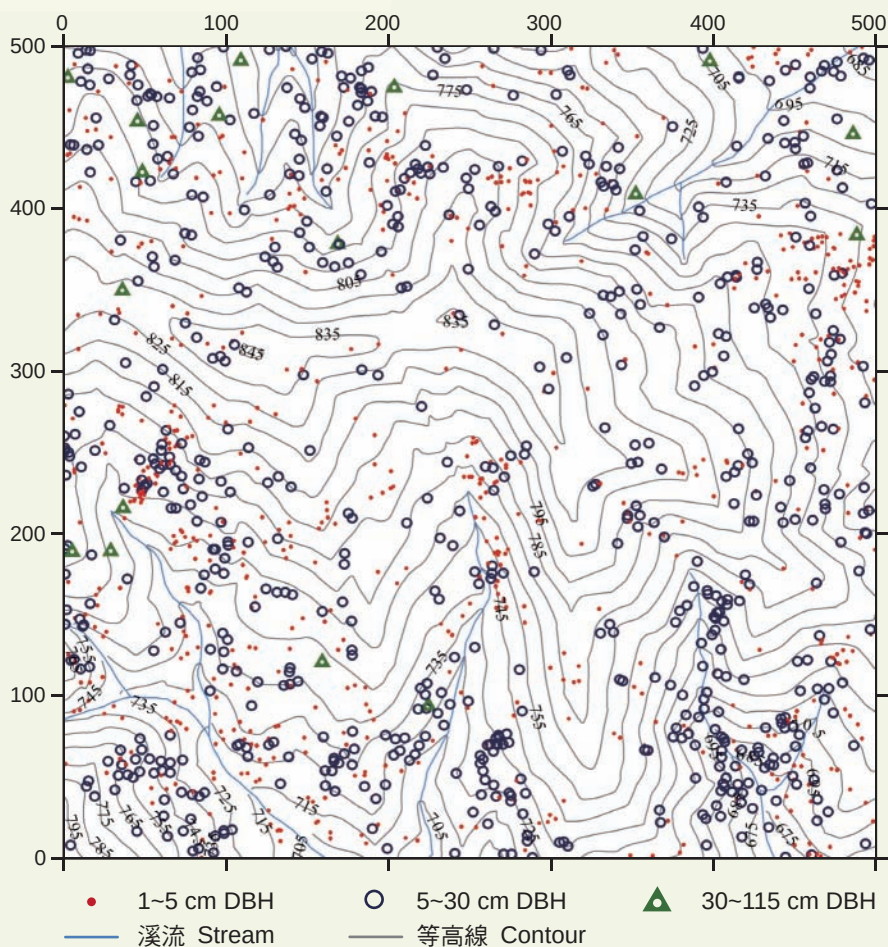
大戟科

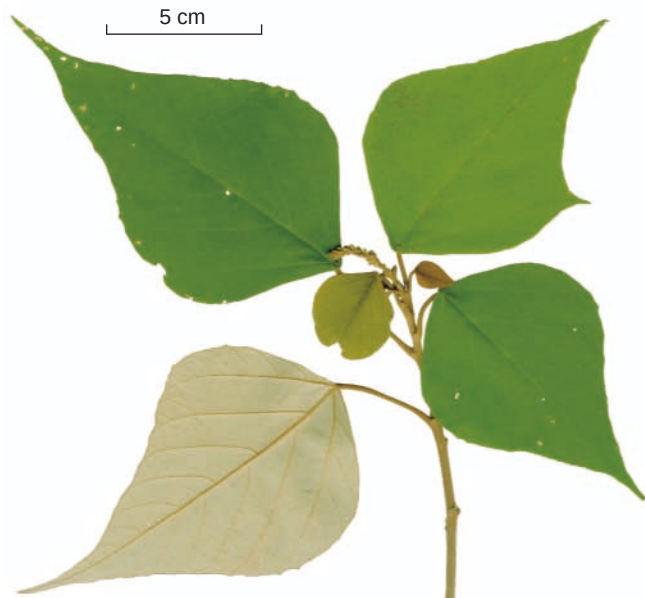
樹冠層級

冠層

描述

小枝被絹毛或糙伏毛。葉互生，長橢圓形或長橢圓狀披針形，先端鈍或銳尖，基部銳尖或楔形，略歪，長3~12 cm，寬2~4.5 cm；上表面綠色至深綠色，光滑或近光滑，下表面白色或灰色，被白色短柔毛；葉柄被糙伏毛；托葉三角形或披針形。雌雄同株，單性花，黃色；腋生，5~10朵叢生。蒴果，扁球形，具多條縱溝，被短柔毛，明顯3~4瓣開裂。種子紅色。





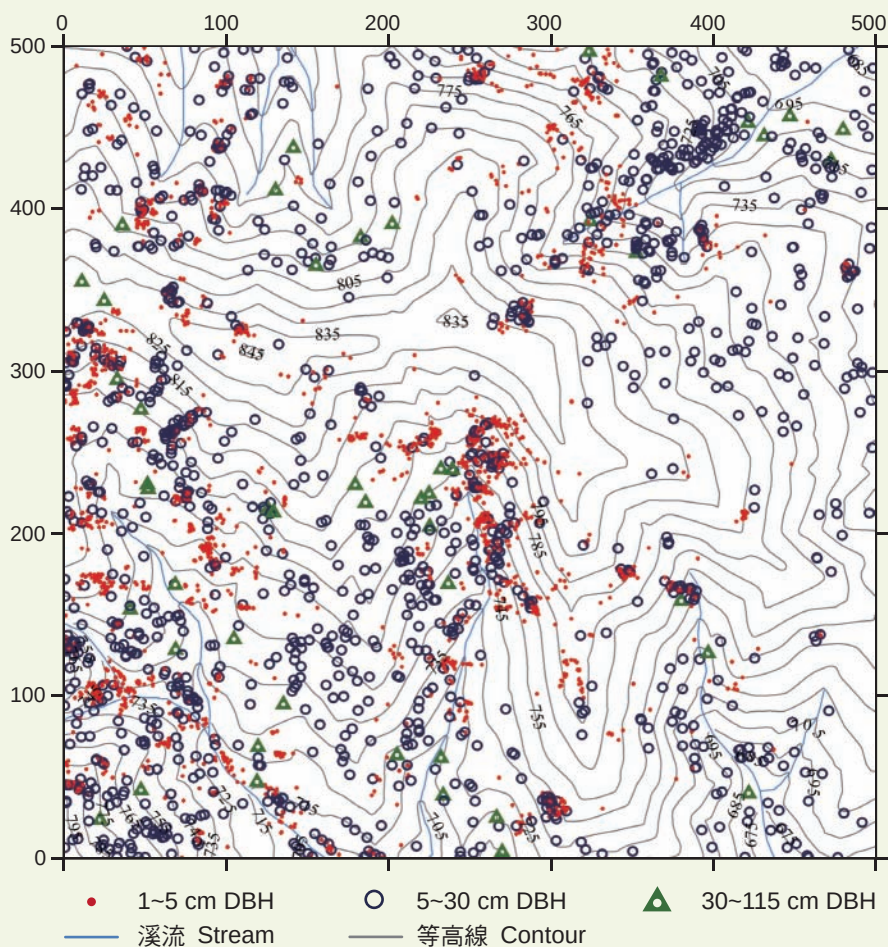
大戟科

樹冠層級

冠層

描述

葉下表面和花序被平伏白色或鏽色絨毛。葉互生，紙質，菱形或菱狀卵形，長10~20 cm，寬7~16 cm，先端銳尖驟凸，基部楔形，葉全緣、近全緣或3淺裂。雌雄異株；頂生，具分枝或不分枝的穗狀花序；雄花無花瓣，萼片3，雄蕊多數；雌花萼片合生成鐘形，花柱三裂。蒴果，3室，具絨毛及軟質角狀之刺。種子近球形，黑色，具光澤。



Mallotus paniculatus (Lam.) Müll. Arg.

Euphorbiaceae

Stratum

Canopy

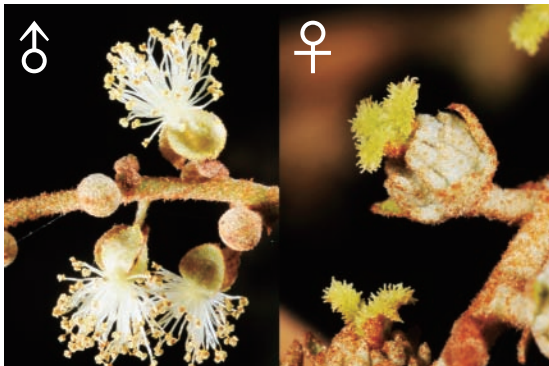
Description

Lower surfaces of leaves and inflorescences appressedly white or rusty-tomentose. Leaves alternate, chartaceous, rhombic to rhombic-ovate, 10~20 cm long, 7~16 cm wide, apex acute-cuspidate, cuneate at base, margins entire, subentire, or sometimes 3-lobed. Dioecious; inflorescence spikes with or without branches, terminal; staminate flowers without petals, sepals 3, stamens numerous; sepals of pistillate flowers connate to campanulate, stigmas 3-lobed. Capsule 3-celled, tomentose and muricate with soft horn-like processes. Seeds subglobose, black, lustrous.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



蒴果 Capsules

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	959	25.28
2~5	1461	38.51
5~10	534	14.07
10~20	505	13.31
20~30	287	7.56
30~60	48	1.27
60~115	0	0.00

Total basal area = 303455.79 cm²/25 ha

Number of trees/25 ha = 3794



樹皮 Bark

林炎慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

— 花期 Flowering

— 果期 Fruiting



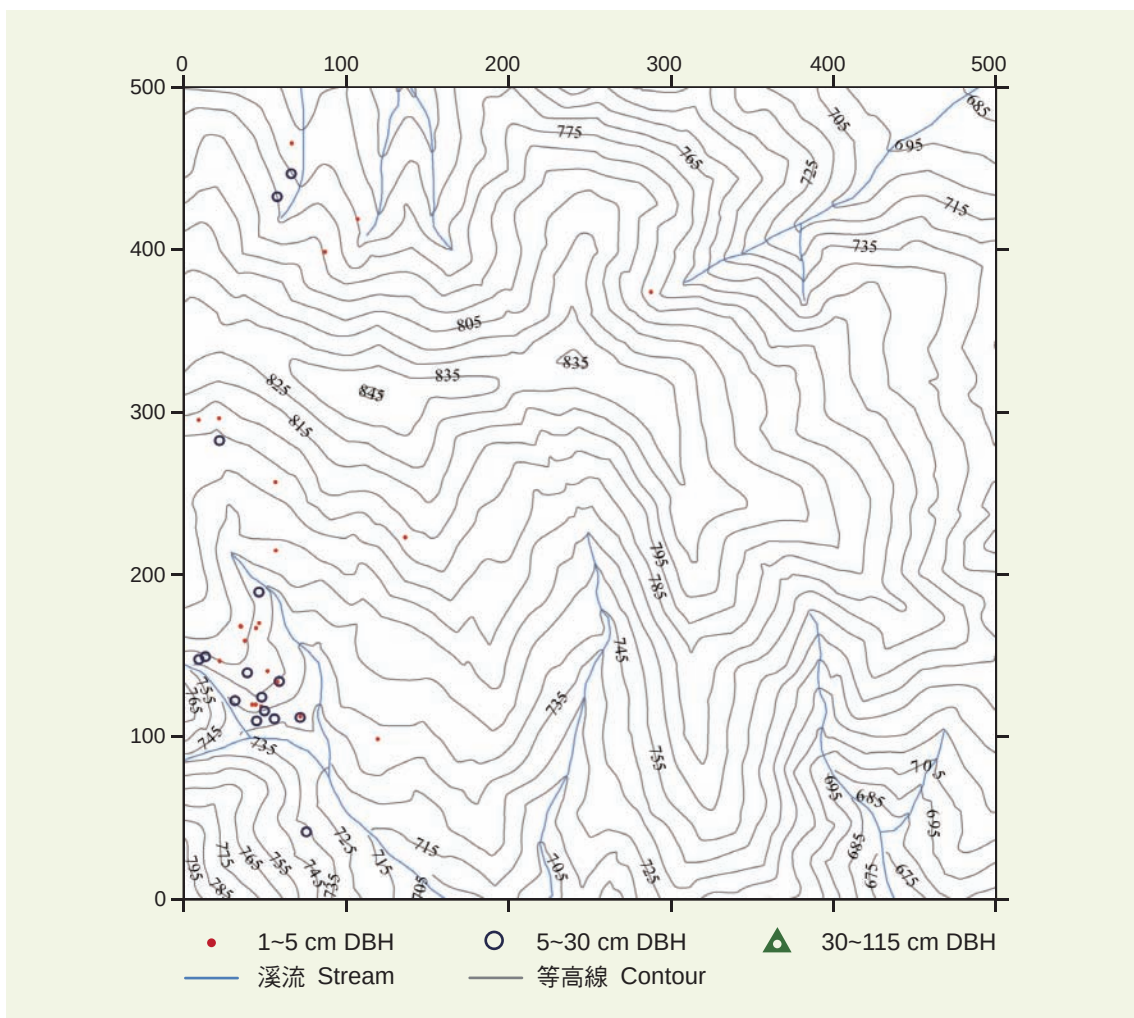
大戟科

樹冠層級

次冠層

描述

小枝條、幼葉及花序被鏽色或黃褐色毛。葉互生，厚紙質，卵形或卵狀披針形，長7~20 cm，寬3~5 cm，先端漸尖，基部銳尖，三出脈，葉全緣或具波狀鋸齒，下表面粉白、被短柔毛及鮮紅色腺體。雌雄同株，單性花；總狀花序，長4~5 cm；腋生或頂生，花黃色；雄花雄蕊多數；雌花柱頭3裂。蒴果，扁球形，具三條縱溝，赭紅色，被紅色線點。



Mallotus philippensis (Lam.) Müll. Arg.

Euphorbiaceae

Stratum

Sub-canopy

Description

Branchlets, young leaves, and inflorescence rusty- or tawny-pubescent. Leaves alternate, thick-chartaceous, ovate or ovate-lanceolate, 7~20 cm long, 3~5 cm wide, apex acuminate, base acute, trinerved, margins entire or sinuate-toothed, lower surfaces subglaucous, puberulous and covered with scarlet glands. Monoecious, unisexual; inflorescence racemes, 4~5 cm long, axillary or terminal; flowers yellow; stamens of staminate flowers numerous; styles of pistillate flowers 3-lobed. Capsule depressed-globose, trisulcate, covered with red stellate-tomentum.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



蒴果 Capsules

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	7	18.92
2~5	14	37.84
5~10	12	32.43
10~20	4	10.81
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

Total basal area = 1746.78 cm²/25 ha

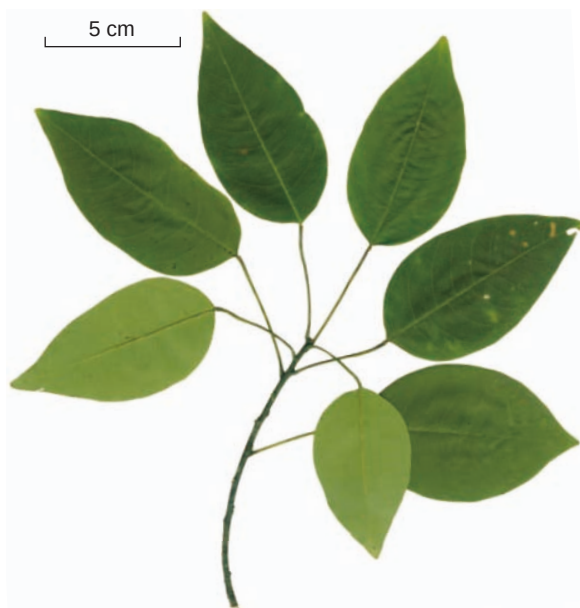
Number of trees/25 ha = 37



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





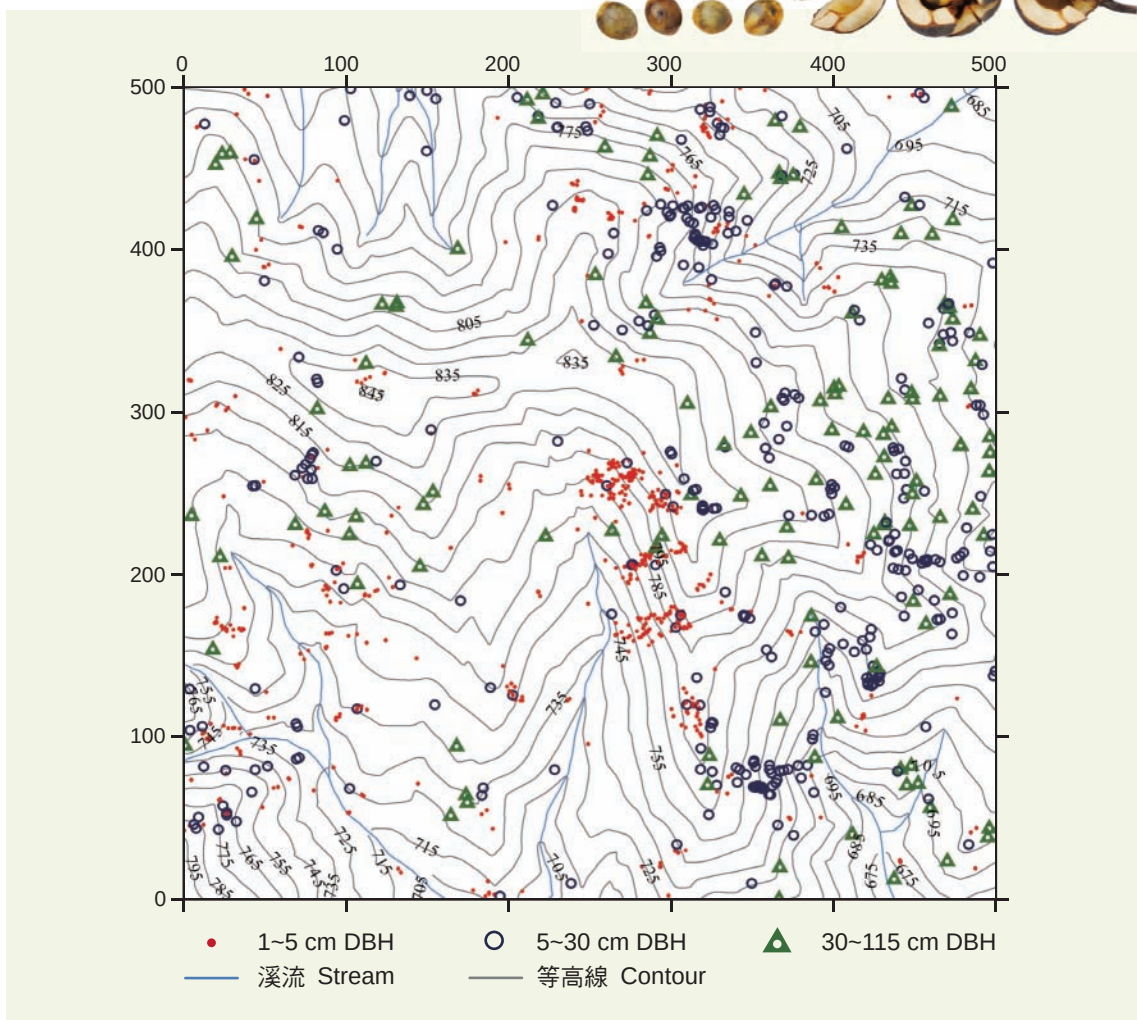
大戟科

樹冠層級

冠層

描述

枝條細長，光滑。葉互生，膜質，長橢圓形或卵狀長橢圓形，長5~12 cm，寬2.5~6 cm，先端漸尖至鈍，上表面綠色，下表面粉白或白色，全緣；葉柄長4~6 cm，常呈紅色至紅紫色，先端有兩腺點。雌雄同株，單性花；頂生，總狀花序，長4~5 cm；花綠色或黃綠色；雄花雄蕊2~3；雌花柱頭3裂。蒴果，扁球形，黑色，開裂後種子留存於中軸上，種子近球形。



Euphorbiaceae

Stratum

Canopy

Description

Branches slender, glabrous. Leaves alternate, membranous, oblong or ovate-oblong, 5~12 cm long, 2.5~6 cm wide, apex acuminate or obtuse, green above, glaucous or white beneath, entire; petioles 4~6 cm long, often red to reddish-purple, biglandular at apex. Monoecious, unisexual; inflorescence racemes, 4~5 cm long; terminal; flowers green or yellowish-green; staminate flowers with 2 or 3 stamens; styles of pistillate flowers 3-lobed. Capsule depressed-globose, black, eventually dehiscent, leaving seeds on columella. Seeds subglobose.



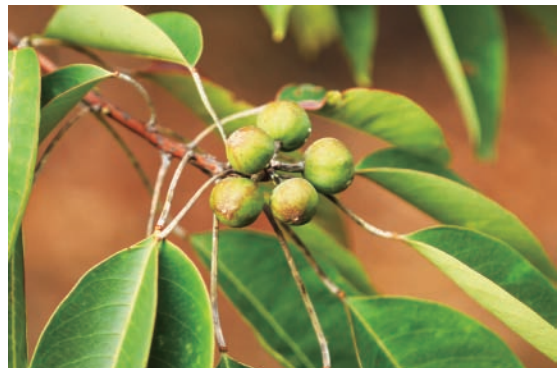
植株 Entire plant

林炎慶 Huan-Ching Lin/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



蒴果 Capsules

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	345	29.34
2~5	355	30.19
5~10	86	7.31
10~20	150	12.76
20~30	106	9.01
30~60	133	11.31
60~115	1	0.08

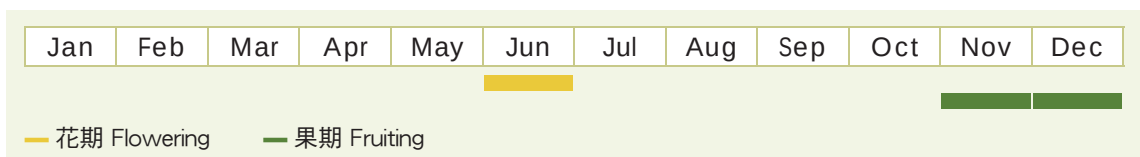
Total basal area = 243234.13 cm²/25 ha

Number of trees/25 ha = 1176



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





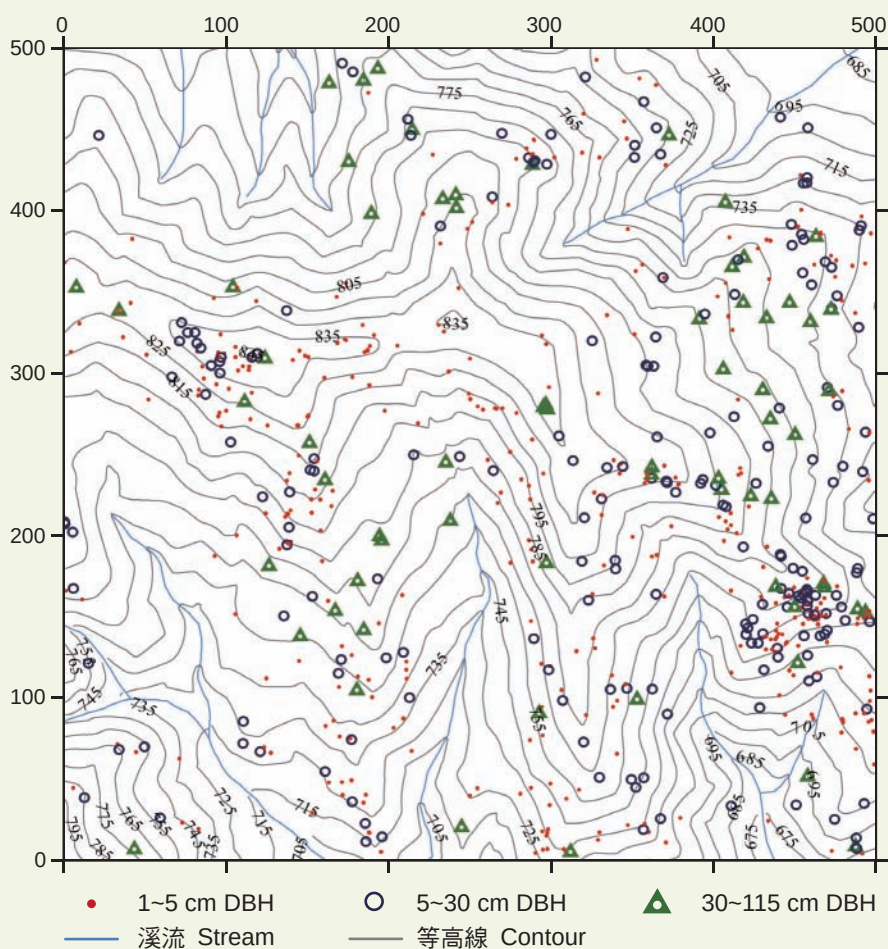
殼斗科

樹冠層級

冠層

描述

小枝條具多數皮孔。葉互生，革質，卵狀長橢圓形，長4.5~10 cm，寬2~4 cm，先端尾狀，基部略歪形，全緣或近頂端為齒狀鋸齒緣，光滑，下表面銀白色或淡褐色。雌雄同株，單性花；雄花多朵形成葇荑花序，腋生，雄蕊12枚；雌花1~3朵簇生再形成葇荑花序，花柱3，柱頭點狀。殼斗上有瘤狀短刺並被絨毛，成熟時殼斗裂開；每殼斗內1顆堅果，卵圓形。



Fagaceae

Stratum

Canopy

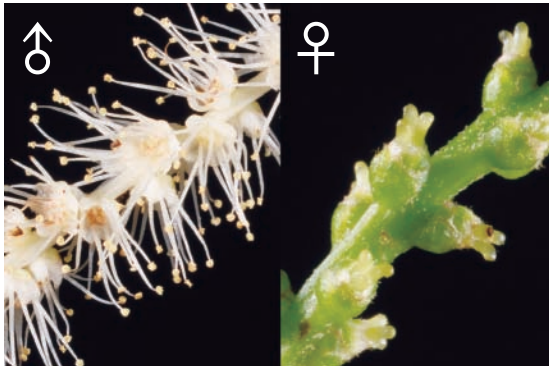
Description

Branchlets with numerous lenticels. Leaves alternate, coriaceous, ovate-oblong, 4.5~10 cm long, 2~4 cm wide, caudate at apex, slightly oblique at base, margins entire or dentate-serrate toward apex, glabrous, silvery-white and brown-tinged beneath. Monoecious, unisexual; staminate inflorescences catkins with many flowers, axillary, stamens 12; pistillate inflorescences catkins with cluster of 1~3 flowers, styles 3, stigmas pointed. Cupule tuberculate-spined and tomentose above, splitting when mature. 1 nut per cupule, ovoid.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



堅果 Nut

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	215	33.23
2~5	163	25.19
5~10	70	10.82
10~20	82	12.68
20~30	49	7.57
30~60	57	8.81
60~115	11	1.70

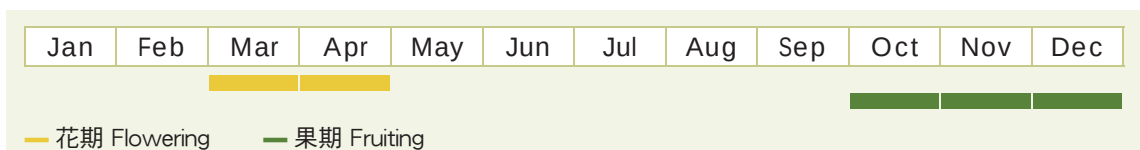
Total basal area = 165768.58 cm²/25 ha

Number of trees/25 ha = 647



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





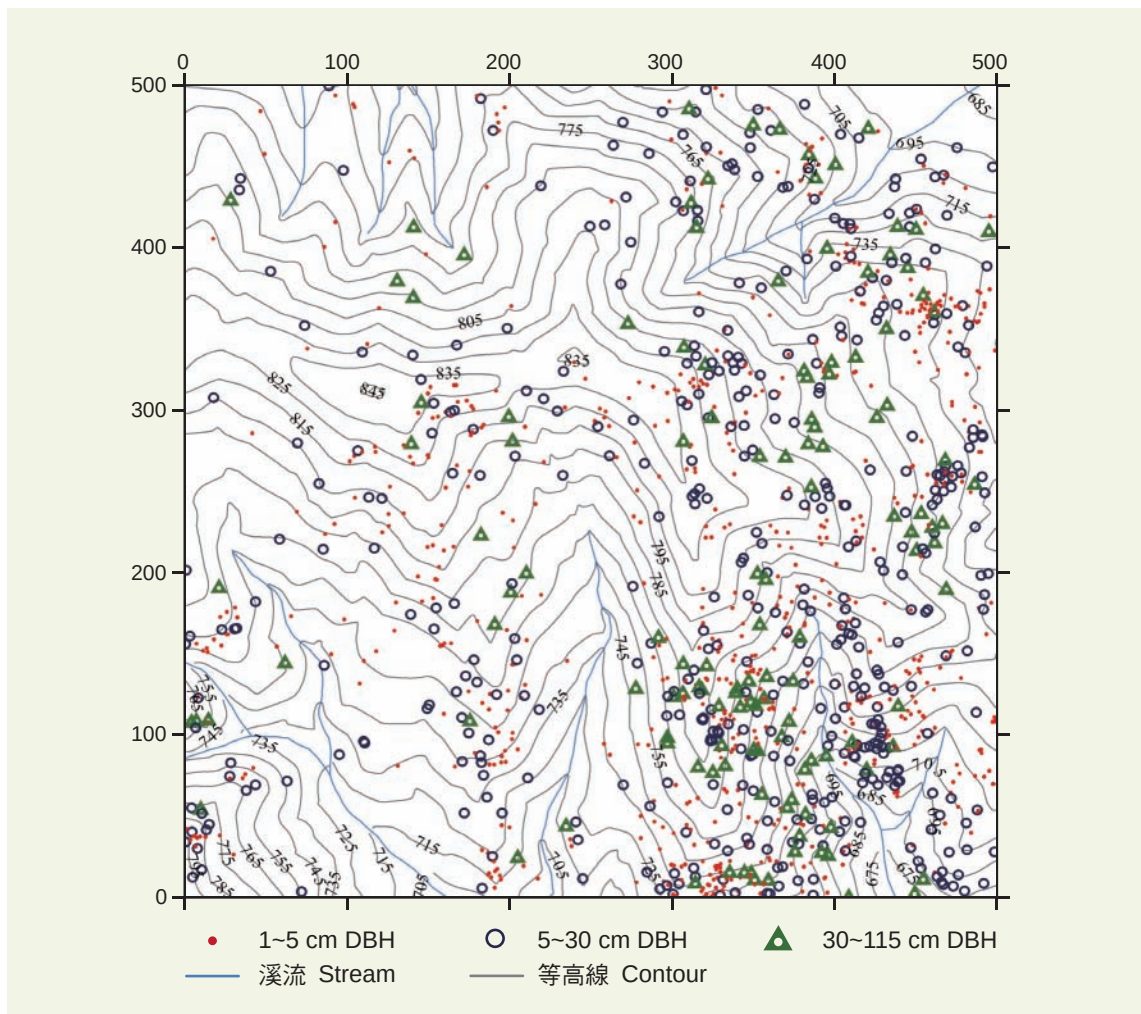
殼斗科

樹冠層級

冠層

描述

枝條灰白色，被鏽色毛。葉互生，革質，橢圓狀披針形，長8~13 cm，寬2~4 cm，葉全緣，少有鋸齒，先端漸尖，基部銳尖至鈍形，上表面亮綠色，下表面被赭紅褐色毛，側脈不明顯。雌雄同株，單性花；雄花序呈細長葇荑花序，腋生，雄蕊12枚，花藥縱裂；雌花花柱3，柱頭點狀。果實無柄，球形；殼斗外密被針刺，2分岔；每殼斗內有1堅果，疏被毛。



Fagaceae

Stratum

Canopy

Description

Branchlets grayish-white, rusty-haired. Leaves alternate, coriaceous, oblong-lanceolate, 8~13 cm long, 2~4 cm wide, entire, rarely remotely serrate, acuminate at apex, acute to obtuse at base, shiny green above, reddish-brown hairy below, lateral veins obscure. Monoecious, unisexual; staminate catkins slender, axillary, stamens 12, anthers longitudinally dehiscent; pistillate flowers with 3 styles, stigmas pointed. Fruit sessile, globose; cupule with spines outside, 2-branched; 1 nut per cupule, sparsely hairy.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



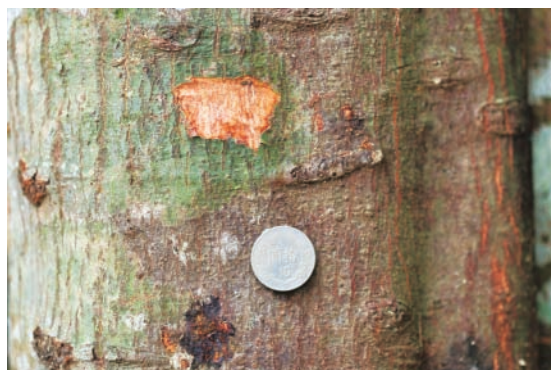
堅果 Nuts

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	363	28.43
2~5	326	25.53
5~10	176	13.78
10~20	173	13.55
20~30	110	8.61
30~60	116	9.08
60~115	13	1.02

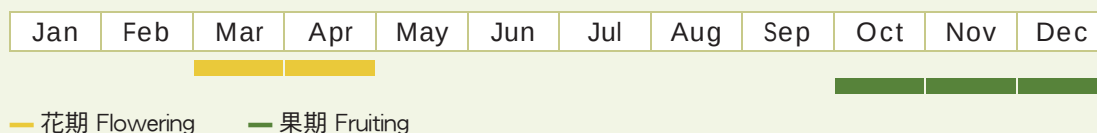
Total basal area = 319732.25 cm²/25 ha

Number of trees/25 ha = 1277



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





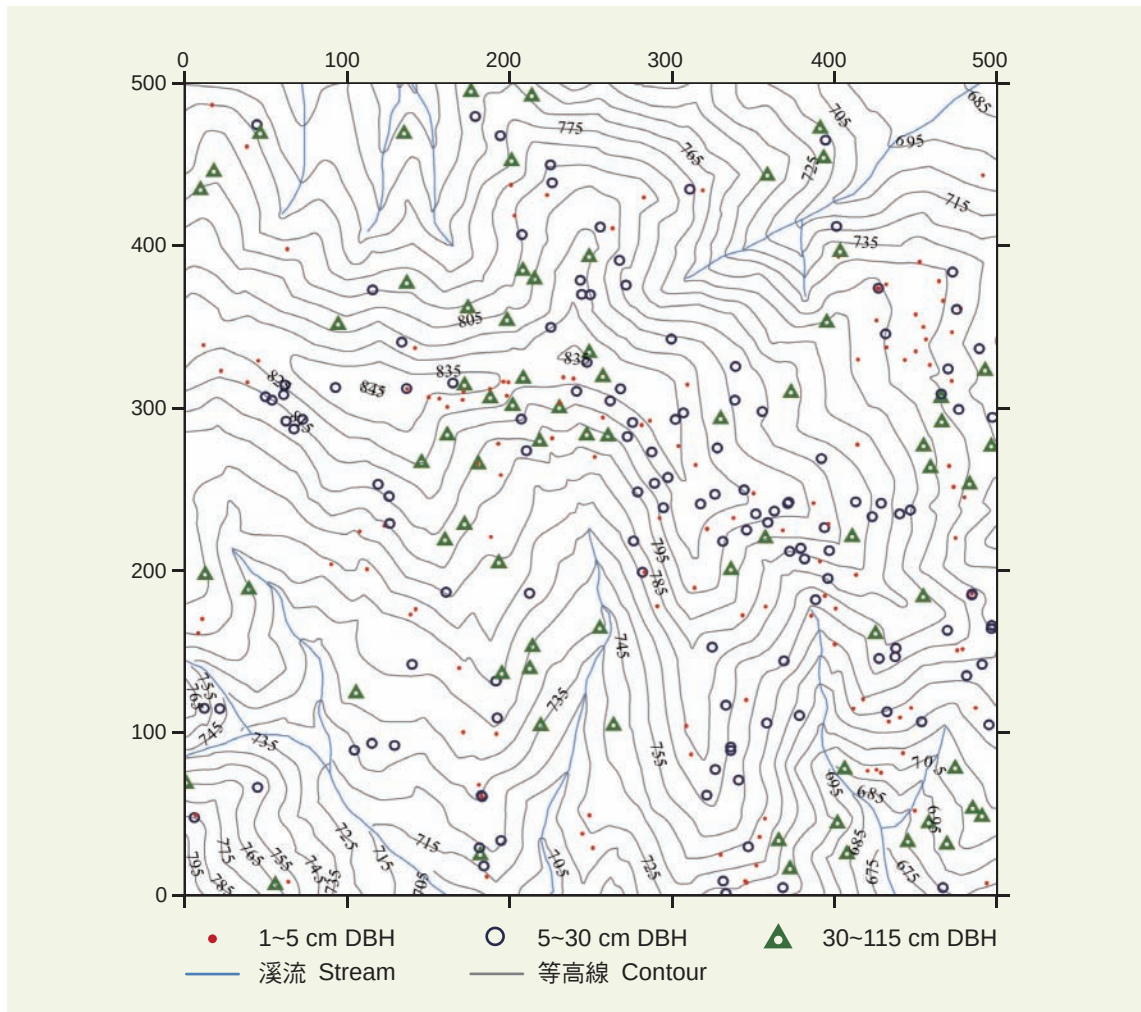
殼斗科

樹冠層級

冠層

描述

樹皮灰褐色，呈長條狀剝落。葉互生，革質，長卵圓形或卵形，長7~12 cm，寬3~6 cm，先端漸尖，基部鈍狀至圓形，略歪形，全緣或先端有鋸齒，上表面亮綠色，下表面黃綠色，略帶銀色光澤。雌雄同株，單性花，腋生；雄花為柔荑花序，外表光滑，內部有絨毛；雌花1~4朵簇生再集成柔荑花序。殼斗球形或扁球形，裂成4瓣，密生直刺；堅果1，球形或闊扁卵球形，有稀少的絨毛。



Castanopsis kawakamii Hayata

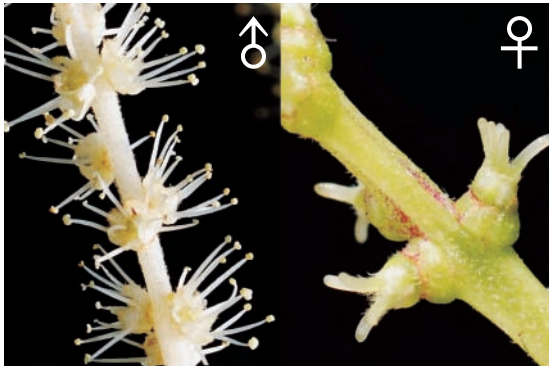
Fagaceae

Stratum

Canopy

Description

Bark gray with linear flaking. Leaves alternate, coriaceous, long-ovate or ovate, 7~12 cm long, 3~6 cm wide, acuminate at apex, obtuse to rounded at base, slightly oblique, margins entire or serrate at apex, bright-green above, yellowish-green below, with slight silver luster. Monoecious, unisexual, axillary; staminate inflorescence a catkin, glabrous outside, hairy inside; pistillate flowers 1~4 clustered in catkin. Fruiting involucre globose to compressed-globose, splitting into 4 lobes, straight spines fascicled; nut 1, globose to broadly compressed-ovoid, sparsely tomentose.



花 Flowers

林奐慶 Huan-Ching Lin/攝



枝葉 Stems and leaves

翁明毅 Ming-I Weng/攝



堅果 Nuts

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	62	18.73
2~5	65	19.64
5~10	54	16.31
10~20	47	14.20
20~30	31	9.37
30~60	52	15.71
60~115	20	6.04

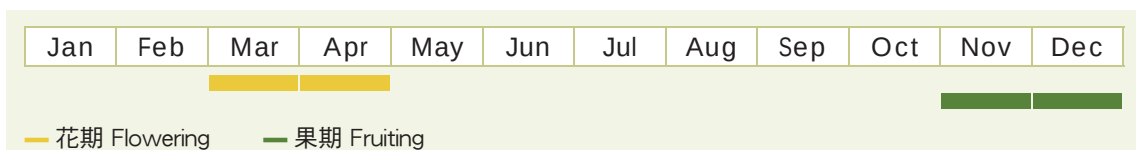
Total basal area = 220732.61 cm²/25 ha

Number of trees/25 ha = 331



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





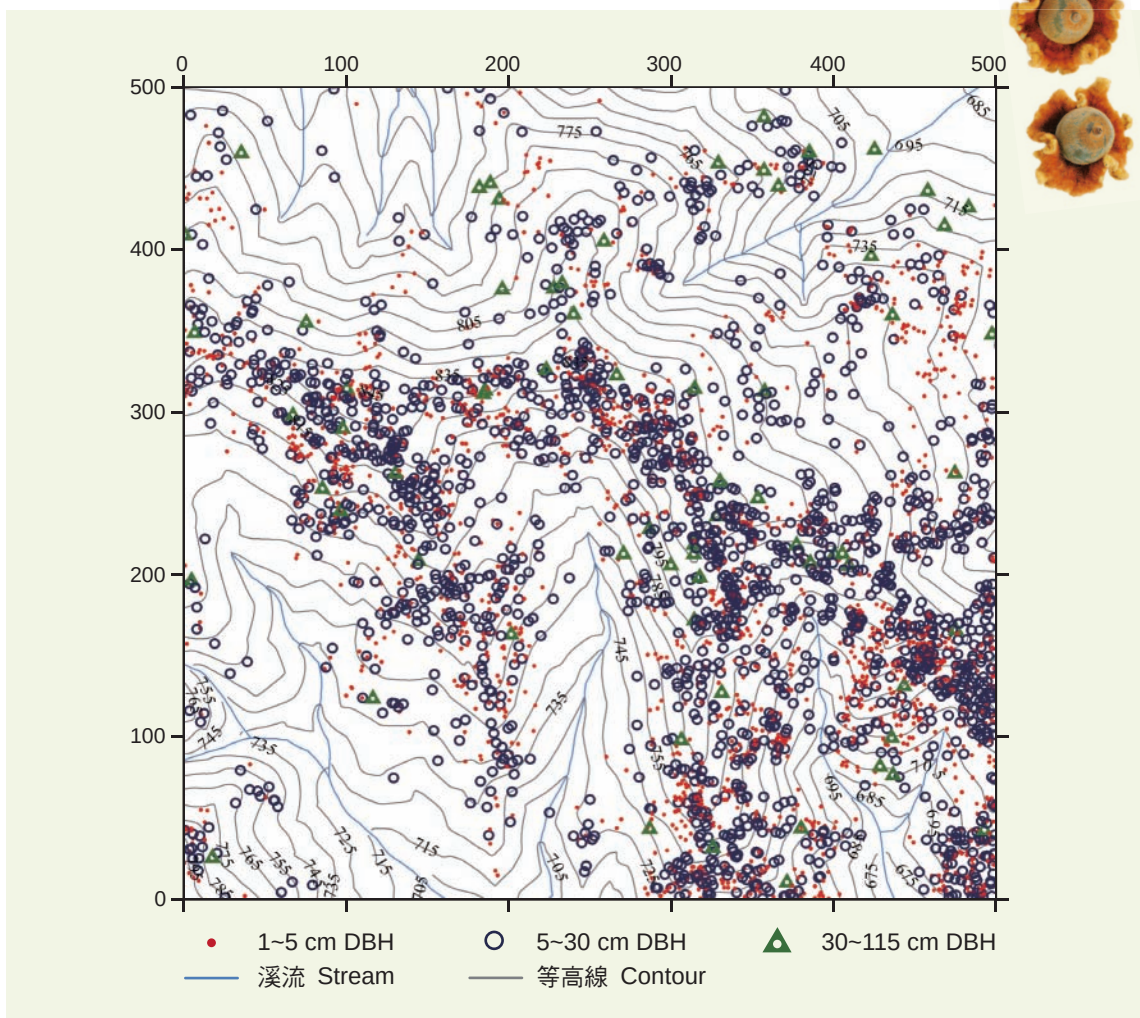
殼斗科

樹冠層級

冠層

描述

枝條暗褐色，新生枝條密被黃色毛，初生葉密被紫紅色毛，漸轉為黃色。葉互生，革質，披針形、闊倒披針形至長橢圓形，長7~13 cm，寬2~3.5 cm，先端漸尖或銳尖，基部銳尖或楔形，全緣或上半部疏生鋸齒。雌雄同株，單性花，近頂生；雄花為葇荑或穗狀花序，花萼內面光滑，邊緣及外面密被毛茸；雌花柱頭4裂，子房密被毛茸。殼斗像杯狀，木質，不規則波浪狀緣或邊緣平整，外殼密生金黃色絨毛；堅果橢圓球形，褐紫藍色。



99



殼斗科

樹冠層級

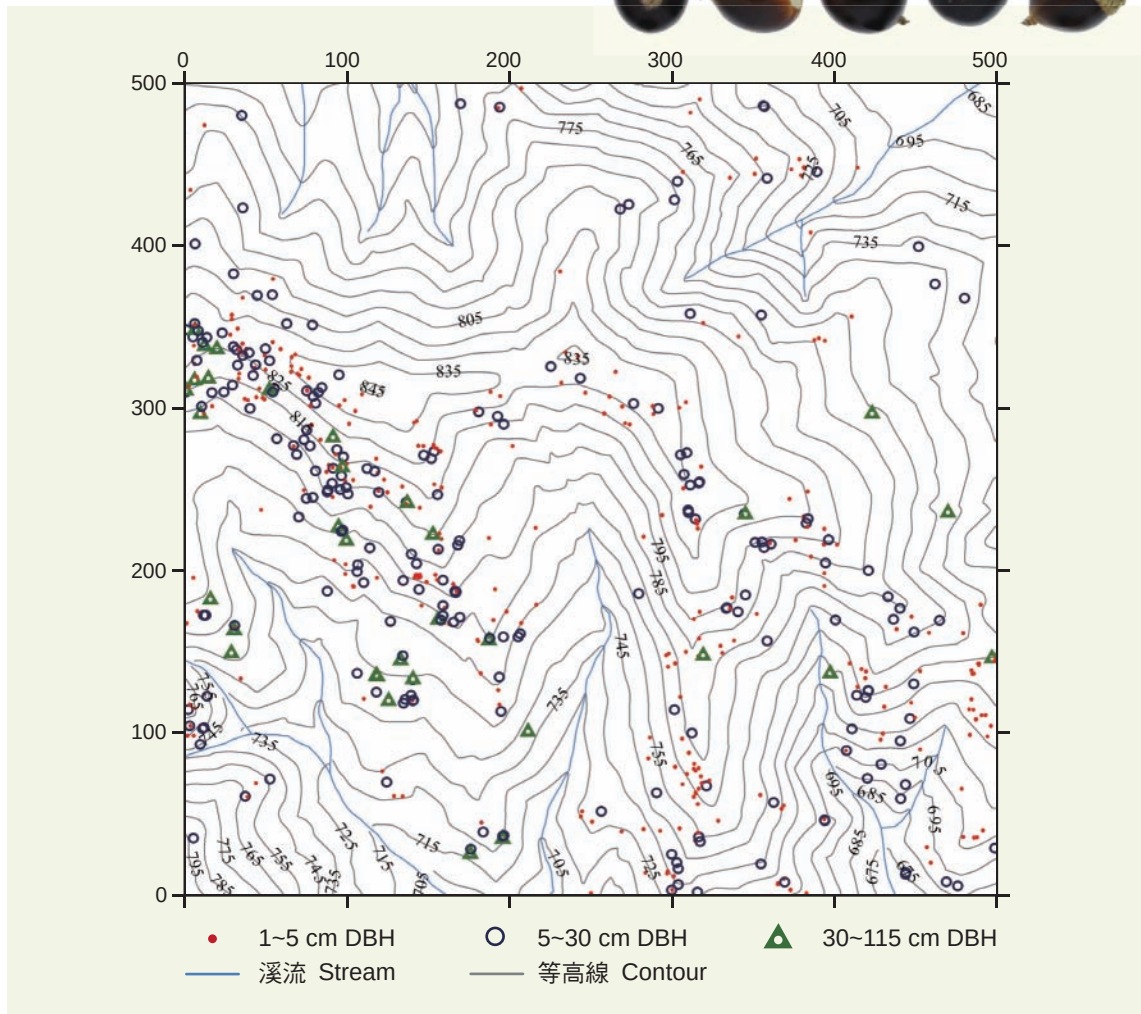
冠層

描述

樹皮具深縱溝裂，枝條褐色。葉互生，革質，長橢圓形，長4.5~9 cm，寬1.5~3 cm，先端漸尖至尾狀，基部銳尖至鈍形並歪斜不對稱，全緣或前半部鋸齒緣，兩面光滑，葉下表面具金屬光澤。雌雄同株，單性花；近頂生，葇荑花序，下垂；雄花花被片6，半裂，外側光滑，內側被毛；雌花花柱3，柱頭點狀。殼斗杯狀，表面呈覆瓦狀鱗片排列，有毛；堅果1，卵圓形。



1 cm



Limlia uraiana (Hayata) Masam. & Tomiya

Fagaceae

Stratum

Canopy

Description

Bark with deep longitudinal furrows, branchlets brownish. Leaves alternate, coriaceous, oblong, 4.5~9 cm long, 1.5~3 cm wide, acuminate to caudate at apex, acute to obtuse and very oblique or asymmetrical at base, margins entire or serrate on upper surface, glabrous on both surfaces, metallic lustrous below. Monoecious, unisexual; inflorescence a catkin, subterminal, drooping; perianths of staminate flowers 6-cleft, glabrous outside, hairy inside; pistillate flowers with 3

styles, stigmas pointed. Cupule cup-shaped, scaly imbricate outside, pubescent; nut 1, ovoid.



植株 Entire tree

林炎慶 Huan-Ching Lin/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



堅果 Nuts

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	144	25.76
2~5	163	29.16
5~10	91	16.28
10~20	78	13.95
20~30	48	8.59
30~60	28	5.01
60~115	7	1.25

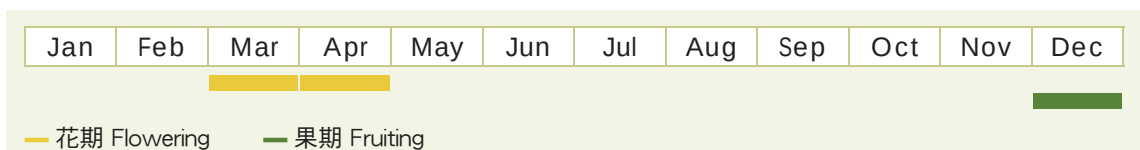
Total basal area = 119629.11 cm²/25 ha

Number of trees/25 ha = 559



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





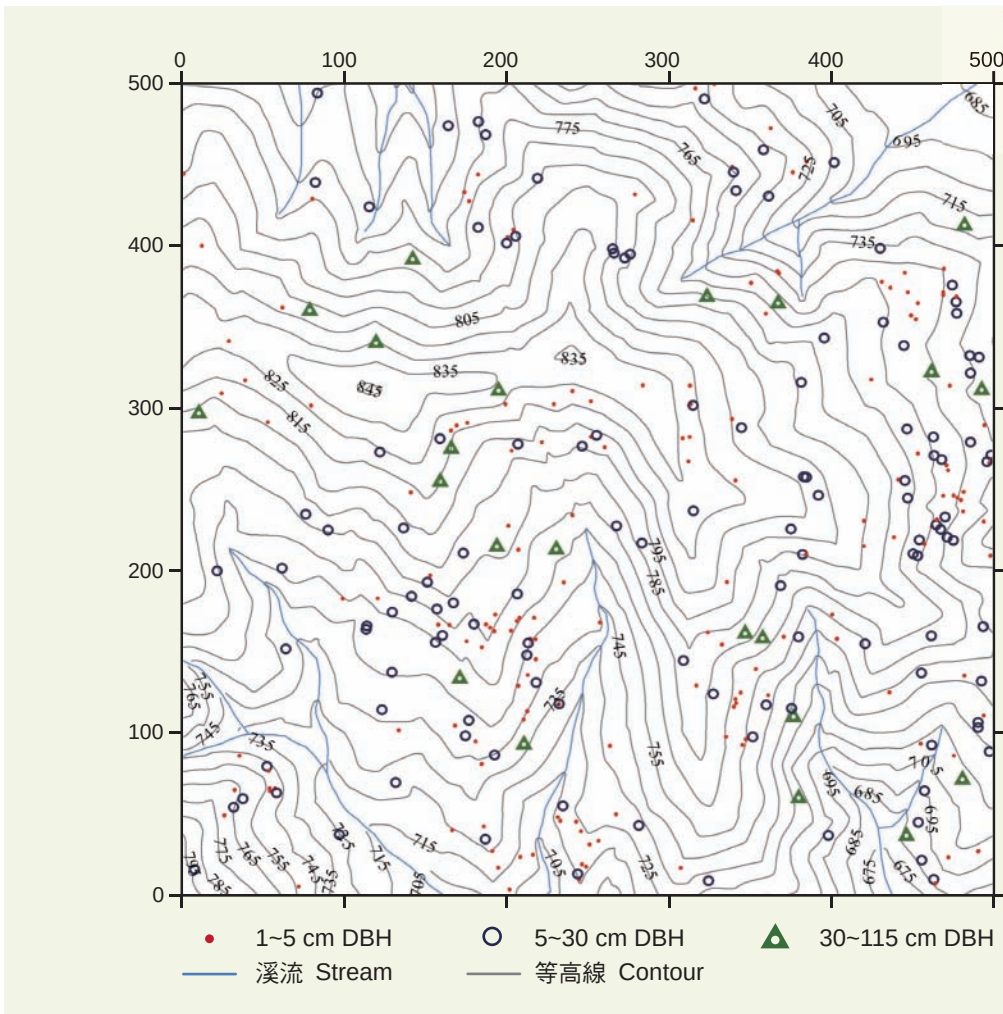
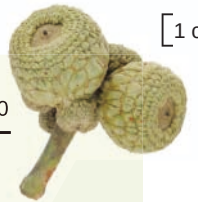
殼斗科

樹冠層級

冠層

描述

樹皮淺縱溝裂；枝條光滑。葉互生，革質，披針狀長橢圓形，長8~20 cm，寬2.5~4.5 cm，先端漸尖，基部銳尖或鈍，全緣或微波浪狀，下表面鏽色光澤，上表面中脈稍凸起，下表面側脈極明顯，10~13對。雌雄同株，單性花；近頂生，葇荑花序，密被金黃褐色毛，雌雄花常同花序；雄花位於花序先端，密生小花；雌花常2~5朵位於花序基部。殼斗球形或闊倒卵球形，1~3個叢生，頂端截平，外表灰褐色；堅果幾乎全為殼斗所包被，球形。



Lithocarpus amygdalifolius (Skan ex Forbes & Hemsl.) Hayata

Fagaceae

Stratum

Canopy

Description

Bark with shallow longitudinal furrows; branchlets glabrous. Leaves alternate, coriaceous, lanceolate-oblong, 8~20 cm long, 2.5~4.5 cm wide, acuminate at apex, acute to obtuse at base, margins entire or somewhat wavy, rusty lustrous below, midrib more or less prominent above, lateral veins more distinct below, 10~13 pairs. Monoecious, unisexual; inflorescence a catkin, nearly terminal, with golden-brown pubescence; often staminate and pistillate on same inflorescence; staminate at top, densely flowered; pistillate flowers usually 2~5 in cluster at base. Cupule globose

or broadly obovoid, 1~3 in a cluster, truncate at apex, grayish-brown outside; nuts almost enclosed by cupule, globose.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



堅果 Nuts

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	79	25.32
2~5	85	27.24
5~10	67	21.48
10~20	42	13.46
20~30	17	5.45
30~60	15	4.81
60~115	7	2.24

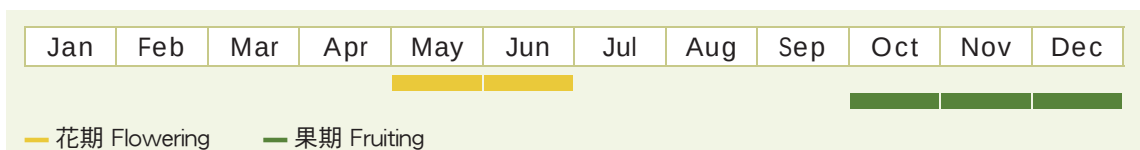
Total basal area = 76272.22 cm²/25 ha

Number of trees/25 ha = 312



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





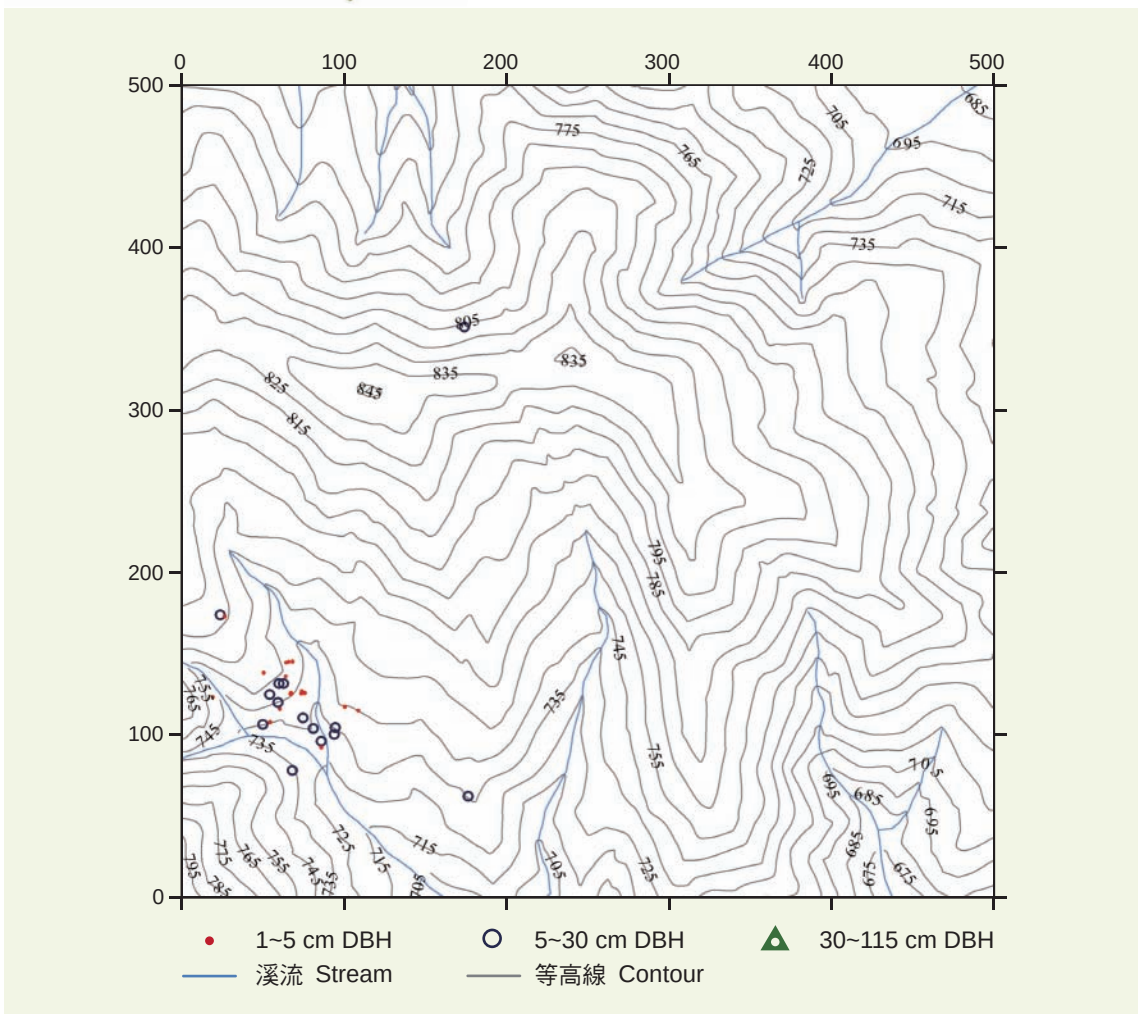
殼斗科 特有種

樹冠層級

次冠層

描述

樹皮灰褐色。葉互生，革質，橢圓形、長橢圓形至卵形，長9~16 cm，寬3~5 cm，先端漸尖，基部鈍狀或銳尖，全緣，兩面中脈凸起，側脈11~14對；葉柄長約1.5 cm。雌雄同株，單性花；腋生或近頂生，穗狀或柔荑花序；雄花位於花序先端，3朵叢生；雌花位於花序基部，3朵叢生，花柱3。殼斗杯狀，鱗片合生成6~7個同心環，被絨毛；堅果橢圓形，先端圓而有小突尖。



Endemic



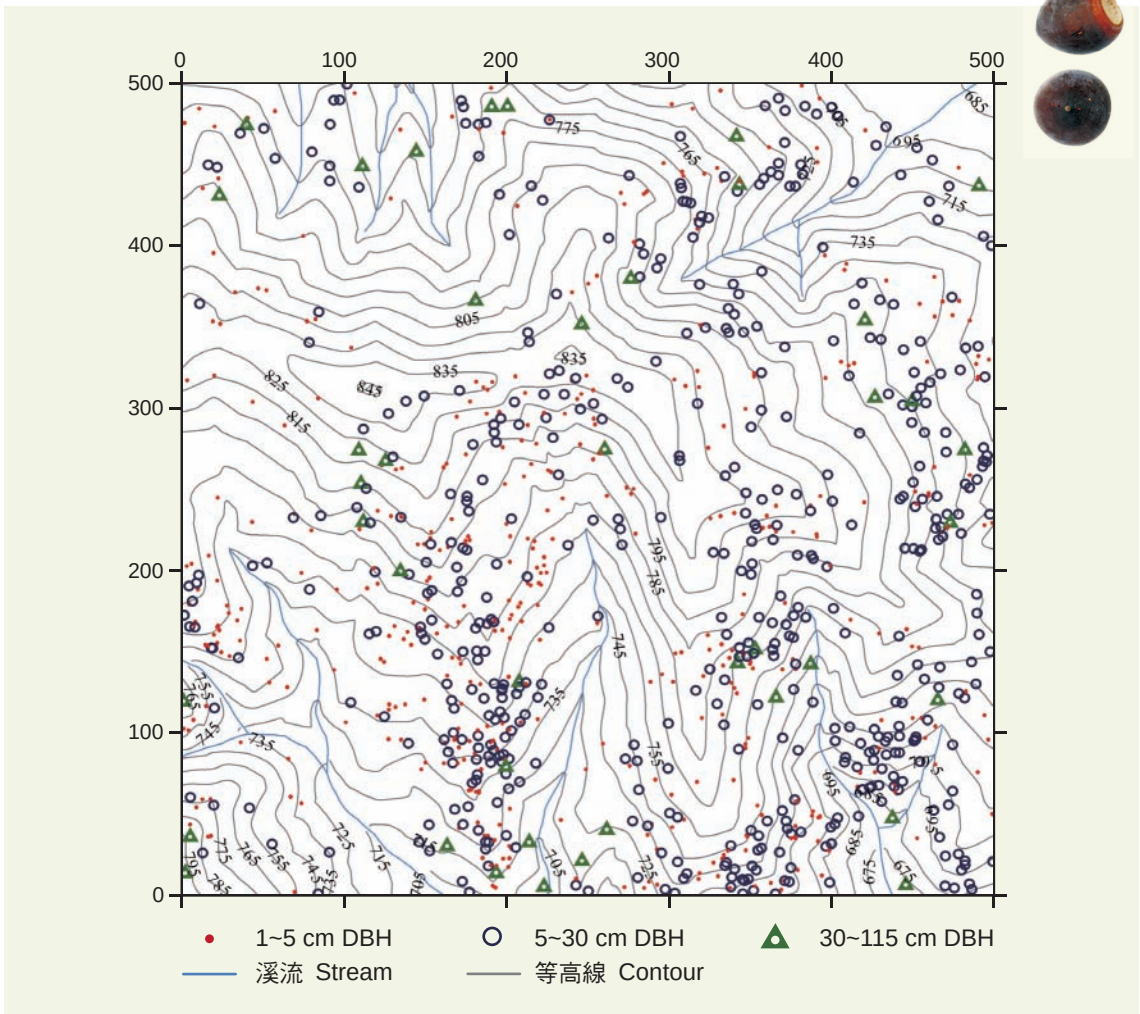
殼斗科

樹冠層級

冠層

描述

樹皮粗糙，具細縱紋；枝條具5稜。葉互生，革質，橢圓形，長8~15 cm，寬3~6 cm，先端漸尖，基部楔形或圓形，近乎全緣，有時近頂端稍有波浪狀，兩面同色光滑，側脈8~10對，於上表面凸起；葉柄長2~4 cm。雌雄同株，單性花；頂生，葇荑花序呈總狀排列；雄花位於花序先端，花被具5~6裂片，雄蕊8~12；雌花位於花序基部，2~3朵叢生。殼斗無柄，皿形，鱗片覆瓦狀排列，外被絨毛；堅果闊圓錐狀球形，先端尖頭，基部平截。



Fagaceae

Stratum

Canopy

Description

Bark rough, with fine longitudinal cracks; branchlets 5-angled. Leaves alternate, coriaceous, elliptical, 8~15 cm long, 3~6 cm wide, acuminate at apex, cuneate or rounded at base, nearly entire, sometimes wavy toward apex, concolorous, glabrous on both surfaces, lateral veins 8~10 pairs, convex above; petioles 2~4 cm long. Monoecious, unisexual; terminal; inflorescence a catkin in raceme; staminate flowers at top, perianths 5- or 6-lobed, stamens 8~12; pistillate flowers at base, 2 or 3 flowers in cluster. Cupule sessile, dish-shaped, scales

imbricate, tomentose outside; nuts broadly conic-globose, apiculate at summit, truncate at base.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



堅果 Nuts

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	186	18.86
2~5	254	25.76
5~10	210	21.30
10~20	214	21.70
20~30	81	8.22
30~60	41	4.16
60~115	0	0.00

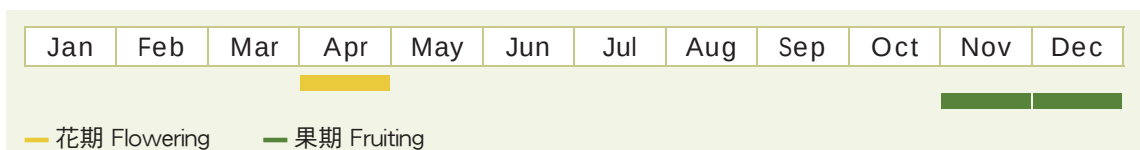
Total basal area = 134227.21 cm²/25 ha

Number of trees/25 ha = 986



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





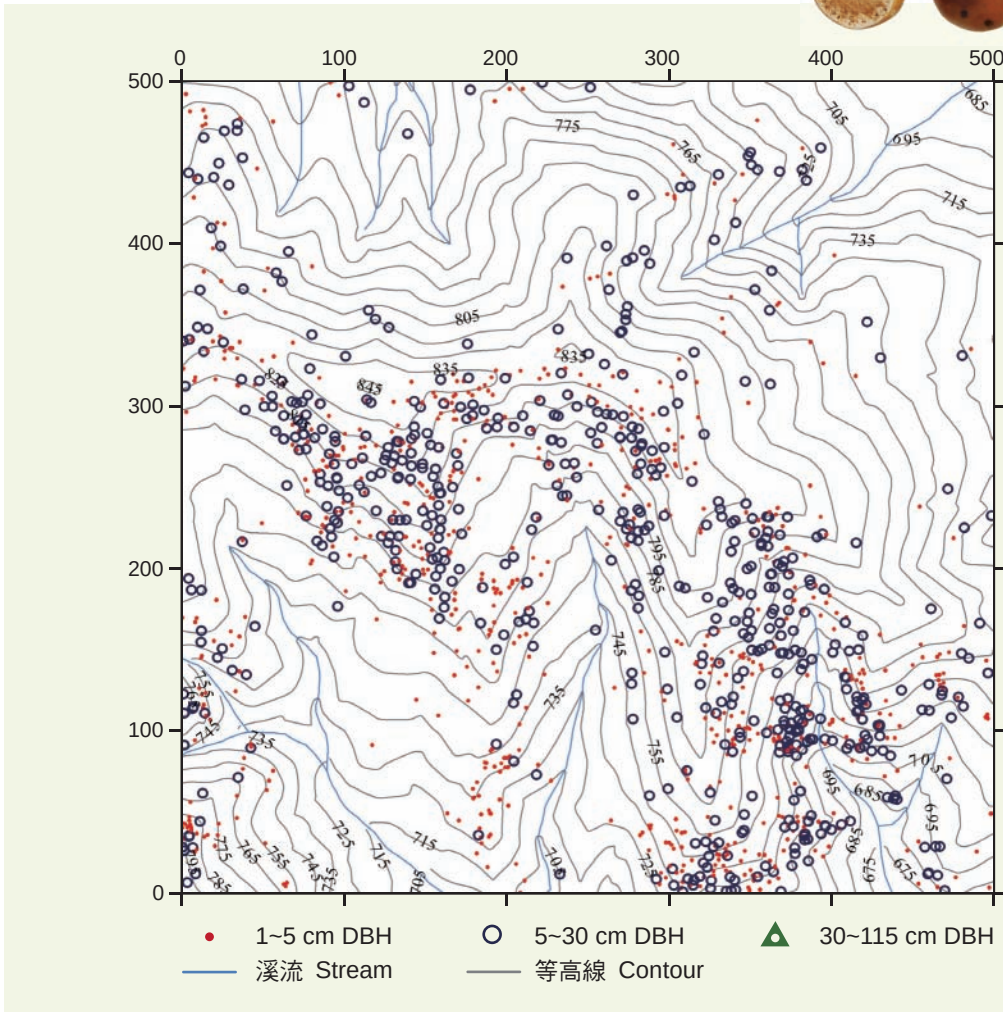
殼斗科 特有種

樹冠層級

次冠層

描述

樹皮具縱溝裂。葉互生，革質，長橢圓形至倒卵形，長3~8 cm，寬2~3 cm，先端漸尖至尾狀，基部楔形至鈍形，葉緣前半部鋸齒緣，側脈約7對，基部常有星狀毛；葉柄長0.9~1.1 cm。雌雄同株，單性花；頂生，直立穗狀花序，雌雄花常同花序；雄花位於花序先端，花被片6裂，雄蕊12；雌花位於花序基部，花被片6裂，花柱3。殼斗淺碟形，鱗片覆瓦狀排列；堅果為壓縮球形或半球形，長1.5~2.4 cm，寬2~3.3 cm。



Endemic

Sub-canopy

Bark with longitudinal furrows. Leaves alternate, coriaceous, oblong to obovate, 3–8 cm long, 2–3 cm wide, acuminate to caudate at apex, cuneate to obtuse at base, margins serrate from middle toward apex, lateral veins ca. 7 pairs, often stellate hairy at base; petioles 0.9–1.1 cm long. Monoecious, unisexual; inflorescence a vertical spike, terminal; staminate and pistillate flowers often on same inflorescence; staminate flowers at top, perianths 6-lobed, stamens 12; pistillate flowers at base, perianths 6-lobed, styles 3. Cupule

shallowly dish-shaped, scales imbricate; nuts depressed rounded or dome-shaped, 1.5~2.4 cm long, 2~3.3 cm across.



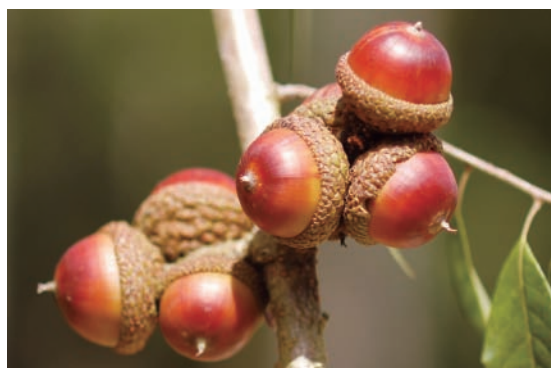
枝條 Branches

葉秋妤 Chiou-Yu Yeh/攝



花 Flowers

林煥慶 Huan-Ching Lin/攝



堅果 Nuts

林煥慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	336	25.46
2~5	401	30.38
5~10	327	24.77
10~20	250	18.94
20~30	6	0.45
30~60	0	0.00
60~115	0	0.00

Total basal area = 118601.23 cm²/25 ha

Number of trees/25 ha = 1320



樹皮 Bark

林煥慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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— 花期 Flowering

— 果期 Fruiting



殼斗科

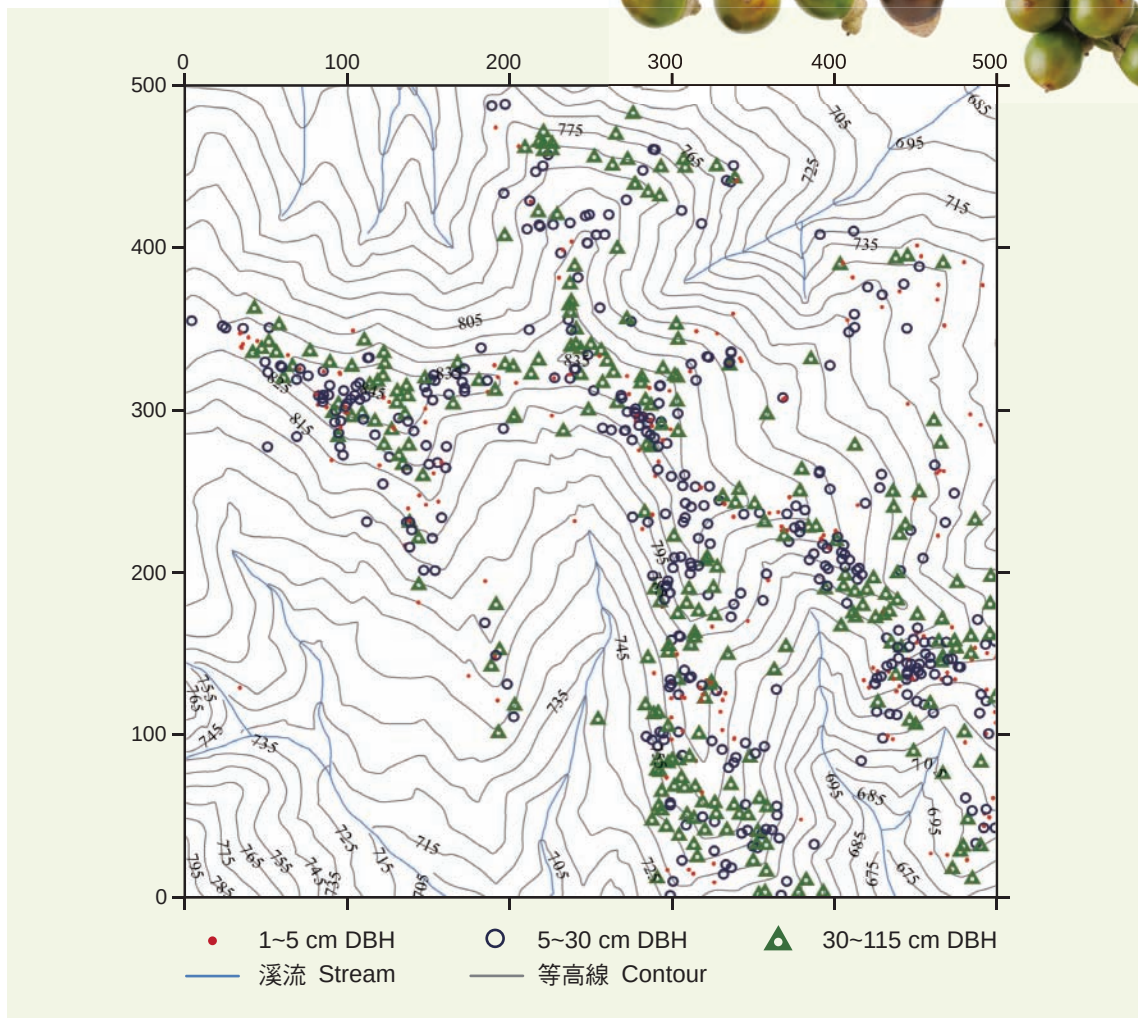
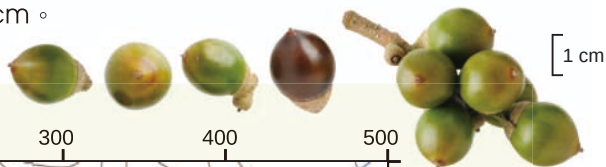
特有種

樹冠層級

冠層

描述

枝條具皮孔；新生枝條光滑。葉互生，革質，披針形至長橢圓狀卵形，長10~19 cm，寬2.5~4.5 cm，先端尾狀漸尖，基部楔形或漸狹，全緣，中脈兩面凸起；葉柄長0.5~1 cm。雌雄同株，單性花；頂生，葇荑花序；雄花花被片6裂，雄蕊12；雌花生於花序基部，花被片6裂，花柱3，柱頭點狀。殼斗淺皿形，鱗片覆瓦狀排列或為不規則同心環；堅果長菱形或扁球形，長1.4~1.7 cm，徑1~1.6 cm。



Pasania nantoensis (Hayata) Schottky

Fagaceae

Endemic

Stratum

Canopy

Description

Branches with lenticels; young branchlets glabrous. Leaves alternate, coriaceous, lanceolate to oblong-ovate, 10~19 cm long, 2.5~4.5 cm wide, caudate-acuminate at apex, cuneate to acuminate at base, entire, midrib very prominent above; petioles 0.5~1 cm long. Monoecious, unisexual; inflorescence a catkin, terminal; perianths of staminate flowers 6-lobed, stamens 12; pistillate flowers at base of inflorescence, perianths 6-lobed; styles 3, stigmas pointed. Cupule dish-shaped, scales

imbricate or irregularly concentric rings; nuts rhomboid or depressed-globose, 1.4~1.7 cm long, 1~1.6 cm across.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



堅果 Nuts

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	74	9.01
2~5	128	15.59
5~10	92	11.21
10~20	153	18.64
20~30	113	13.76
30~60	202	24.60
60~115	59	7.19

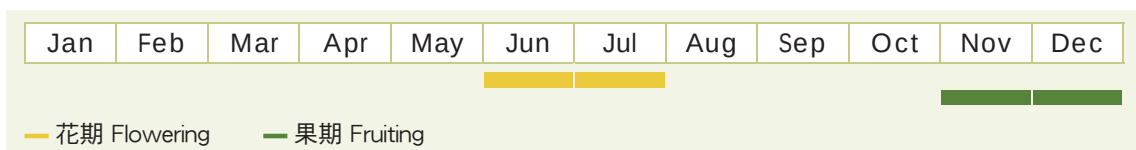
Total basal area = 728858.79 cm²/25 ha

Number of trees/25 ha = 821



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





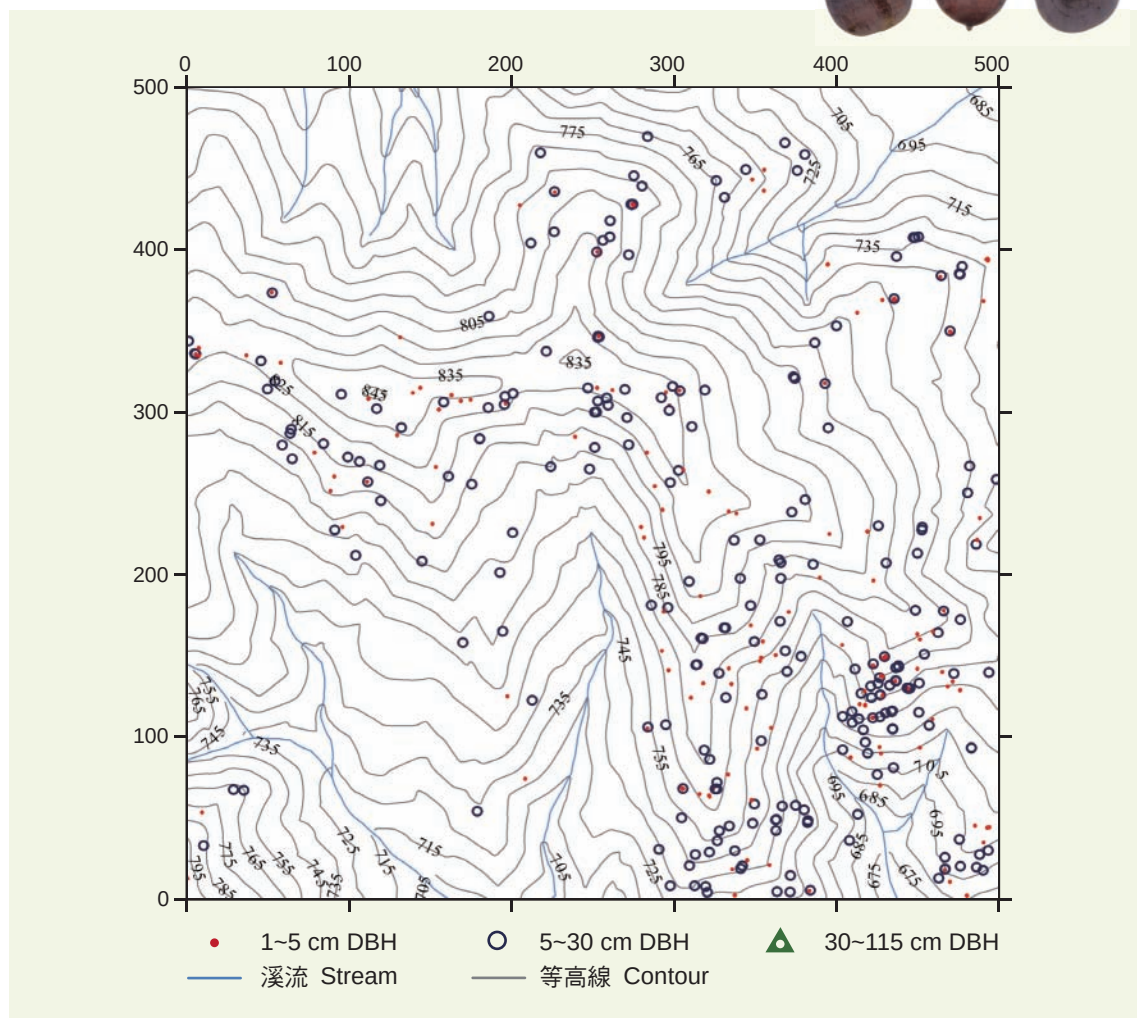
殼斗科

樹冠層級

次冠層

描述

樹皮灰褐色，光滑。葉互生，革質，菱形、橢圓形至卵狀長橢圓形，長6~15 cm，寬2.5~4 cm，先端漸尖，基部銳形，全緣，葉下表面灰綠色，且略帶金屬光澤；葉柄長1~2 cm。雌雄同株，單性花；頂生及腋生，直立柔荑花序；雄花花被片6裂，雄蕊12；雌花3~5朵叢生；花被片6裂，花柱3，基部有毛，柱頭點狀。殼斗淺皿形，鱗片覆瓦狀排列；堅果菱狀球形至扁球形，長1.2~1.7 cm，徑1.5~1.8 cm。



Pasania synbalanos (Hance) Schottky

Fagaceae

Stratum

Sub-canopy

Description

Bark grayish-brown, glabrous. Leaves alternate, coriaceous, rhombic, elliptical to ovate-oblong, 6~15 cm long, 2.5~4 cm wide, acuminate at apex, acute at base, margins entire, grayish-green below with slight metallic luster; petioles 1~2 cm long. Monoecius, unisexual; inflorescence vertical catkins, terminal, and axillary; perianths of staminate flowers 6-lobed; stamens 12. Pistillate flowers 3~5 in clusters, perianths 6-lobed, styles 3, hairy at base, stigmas pointed. Cupule, shallow

dish-shaped, scales imbricate; nuts rhomboid-globose to impressed-globose, 1.2~1.7 cm long, 1.5~1.8 cm across.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin & 葉秋好 Chiou-Yu Yeh/攝



堅果 Nuts

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	54	13.37
2~5	101	25.00
5~10	135	33.42
10~20	108	26.73
20~30	6	1.48
30~60	0	0.00
60~115	0	0.00

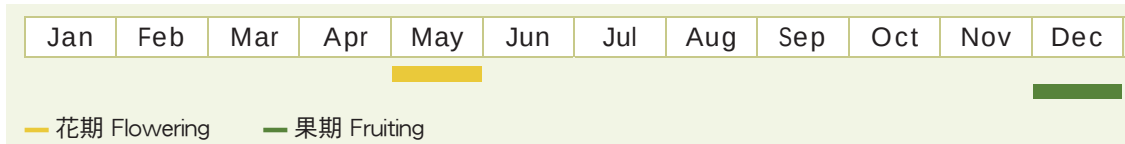
Total basal area = 52884.01 cm²/25 ha

Number of trees/25 ha = 404



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





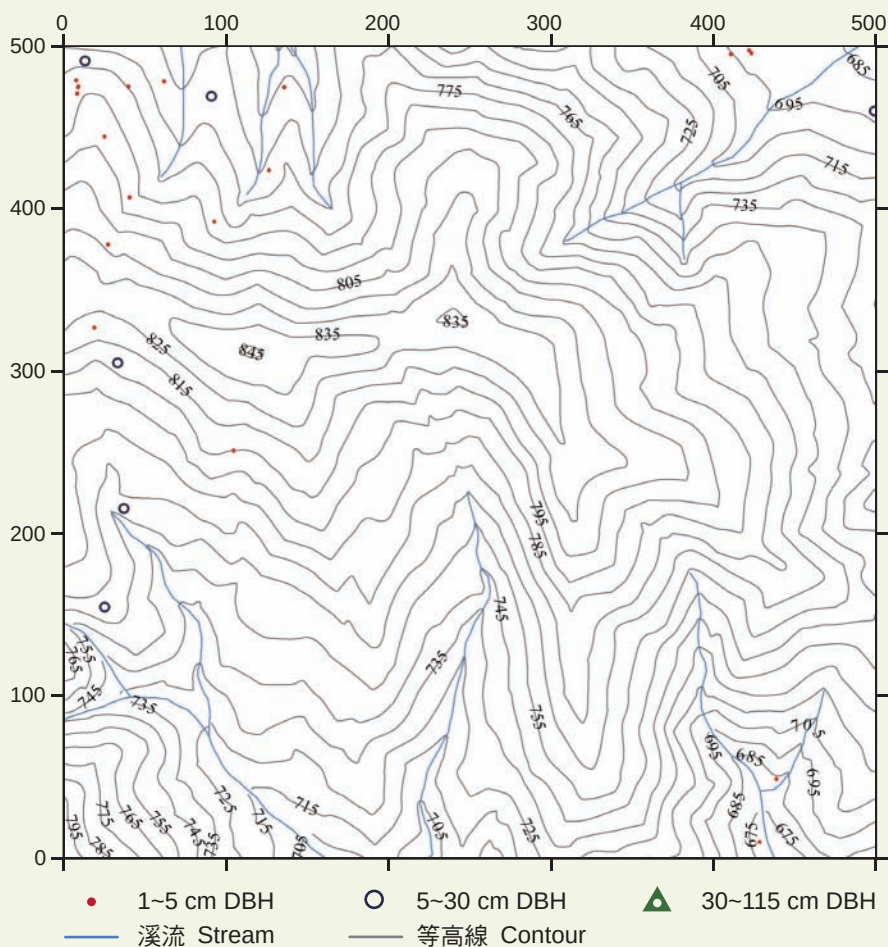
大風子科

樹冠層級

次冠層

描述

樹幹有倒U形葉痕；小枝呈之字形。葉互生，呈兩列排列，紙質或薄革質，長橢圓形或卵狀長橢圓形，長8~17.5 cm，寬4~7 cm，先端銳尖或短漸尖，基部鈍至圓，兩面光滑，具圓鋸齒緣。花兩性；多叢生葉腋；萼片5，覆瓦狀，先端鈍或圓；無花瓣；雄蕊8，單列，與退化雄蕊互生，花絲光滑或被短絨毛；子房上位，光滑或被短絨毛，花柱1。蒴果略肉質，有稜，2~3瓣裂。種子多數，肉質多果肉，紅或橘紅色假種皮。



Casearia membranacea Hance

Flacourtiaceae

Stratum

Sub-canopy

Description

Trunk with reversed U-shaped leaf scars, twigs often zig-zagged. Leaves alternate, distichous, chartaceous or thin-coriaceous, oblong or ovate-oblong, 8~17.5 cm long, 4~7 cm wide, acute or short acuminate at apex, obtuse to rounded at base, glabrous on both surfaces, margins serrate-crenate. Bisexual; axillary, usually fascicled; sepals 5, imbricate, apex obtuse or rounded; corolla absent; stamens 8 uniseriate, alternating with staminode; filaments glabrous or pubescent; ovary superior, glabrous or pubescent, style 1.

Capsules, slightly fleshy, angular, 2- or 3-valved. Seeds usually several, fleshy to pulpy, red or orange-red aril.



植株 Entire plant

李碧鳳 Bi-Fong Lee/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



莖 Stem

翁明毅 Ming-I Weng/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	14	56.00
2~5	5	20.00
5~10	2	8.00
10~20	4	16.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

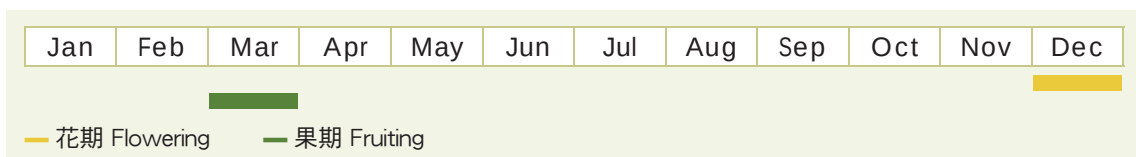
Total basal area = 695.15 cm²/25 ha

Number of trees/25 ha = 25



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





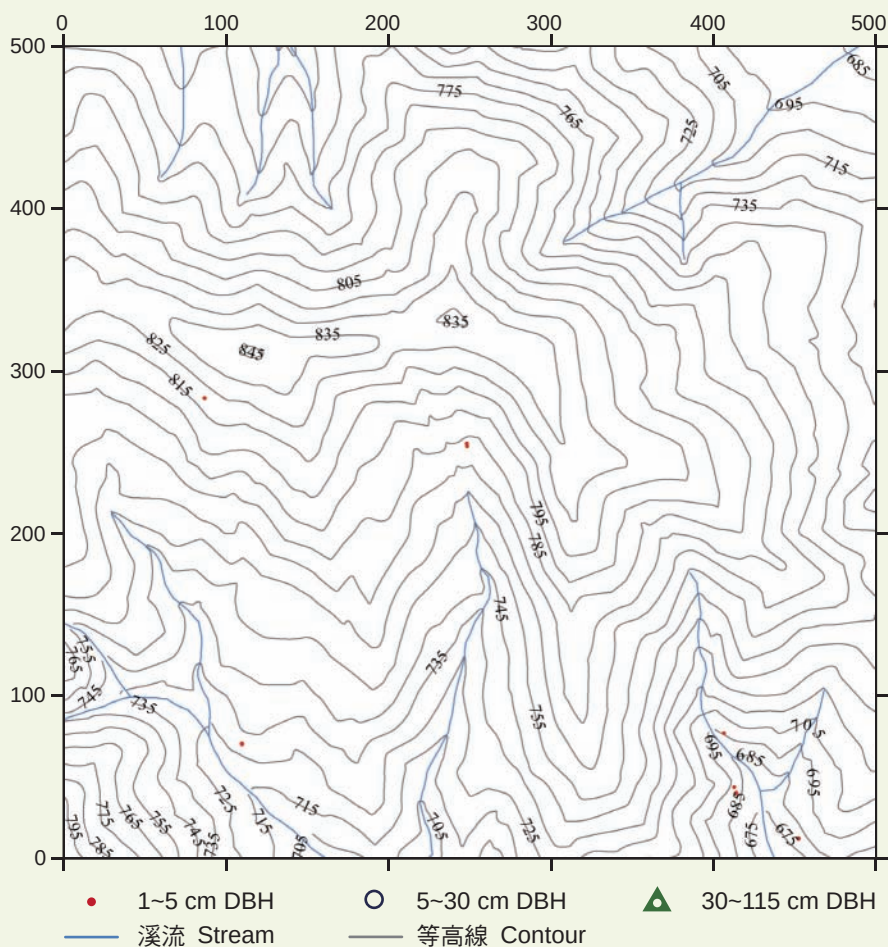
大風子科

樹冠層級

次冠層

描述

小枝被短柔毛或近光滑。葉互生，膜質至紙質，卵形至橢圓形，長7~15 cm，寬4~6 cm，先端鈍形至銳尖，基部楔形，細鈍鋸齒緣，光滑。花兩性；頂生或腋生，圓錐狀總狀花序，具短柔毛；花白色至淡綠色，徑0.6~1 cm；花萼6~8，線形；花瓣6~8，線狀長橢圓形，先端圓形，長3~4 mm，邊緣具緣毛，半透明狀，具脈紋；花盤具腺點，圓球形，與花萼對生；雄蕊6~8；子房1室，花柱4，胚珠多數。蒴果，褐色，花被片宿存。



Homalium cochinchinensis (Lour.) Druce

Flacourtiaceae

Stratum

Sub-canopy

Description

Branchlets puberulous to nearly glabrous. Leaves alternate, membranaceous to chartaceous, ovate to elliptical, 7~15 cm long, 4~6 cm wide, obtuse to acute at apex, cuneate at base, serrate-crenate, glabrous. Bisexual; inflorescence a raceme in a panicle, terminal or axillary, puberulous; flowers white to light-green, 0.6~1 cm across; sepals 6~8, linear; petals 6~8, linear-oblong, apex rounded, 3~4 mm long, ciliate, translucent, strongly nerved; disk glandular, globose, opposite to sepals; stamens 6~8; ovary 1-celled, styles 4; ovules numerous. Capsule brown, perianths persistent.



植株 Entire tree

翁明毅 Ming-I Weng/攝



花 Flowers

林奂慶 Huan-Ching Lin/攝



蒴果 Capsules

林奂慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	6	60.00
2~5	4	40.00
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

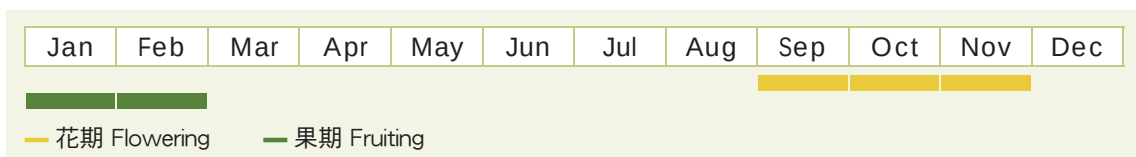
Total basal area = 41.58 cm²/25 ha

Number of trees/25 ha = 10



樹皮 Bark

林奂慶 Huan-Ching Lin/攝





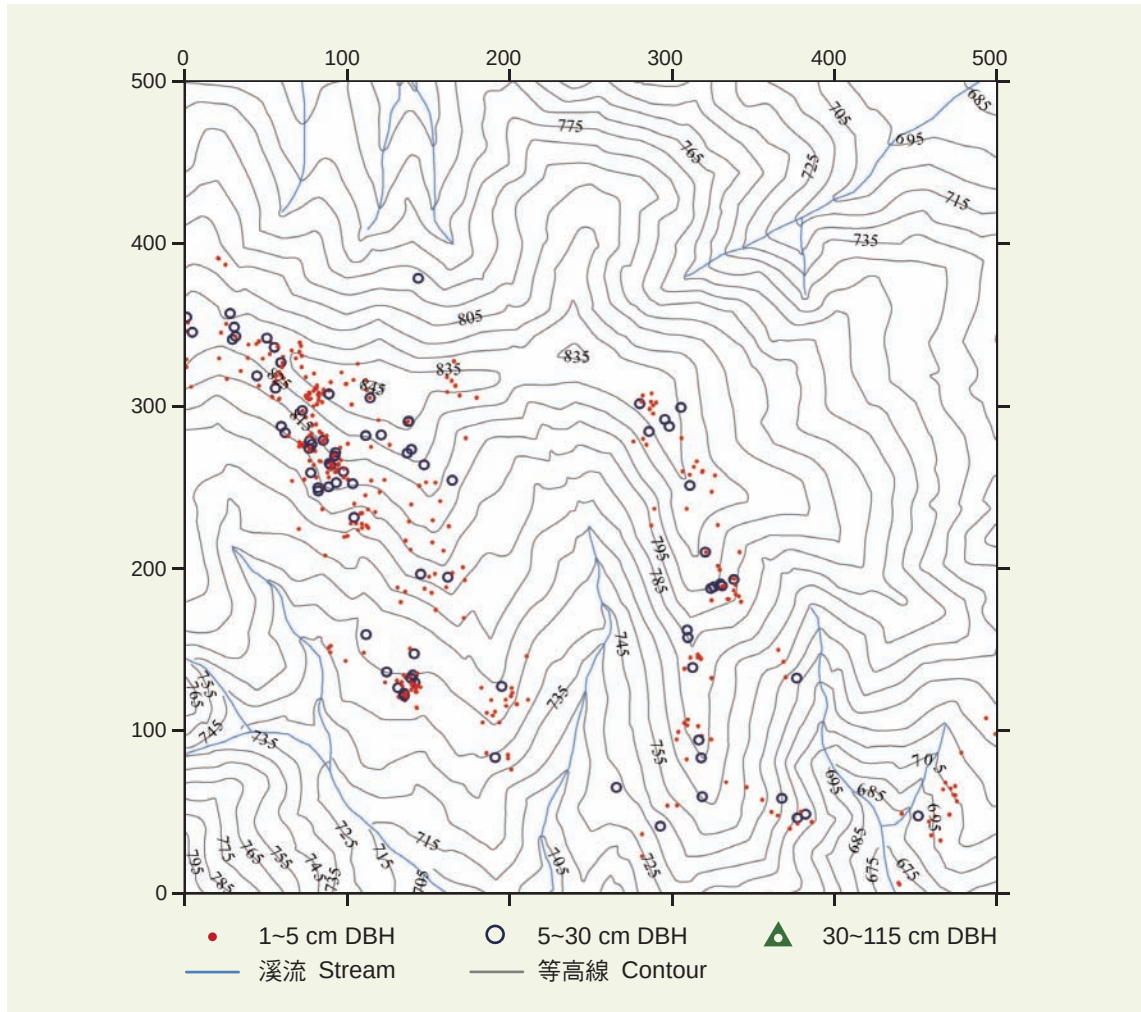
金縷梅科

樹冠層級

次冠層

描述

小枝灰色或褐色，光滑或幼枝散被屑狀鱗片。幼葉密被屑狀鱗片。葉互生，革質，橢圓狀卵形，長3~8 cm，寬1.5~4 cm，先端銳尖至鈍，基部銳尖至漸尖，全緣，側脈6~7對，主脈及側脈下凹於葉上表面，凸出下表面。花兩性或單性；腋生，短總狀花序；無花瓣，花柱2。蒴果1~3粒於一果序，卵圓形，長6~9 mm，被淡褐色柔毛。種子褐色，橢圓形，具光澤。



Hamamelidaceae

Stratum

Sub-canopy

Description

Branchlets grayish or brownish, glabrous or scattered lepidote when young. Young leaves densely lepidote. Leaves alternate, coriaceous, elliptical-ovate, 3~8 cm long, 1.5~4 cm wide, acute or obtuse at apex, acute or acuminate at base; entire, lateral veins 6 or 7, midrib and lateral veins impressed above, raised below. Bisexual or unisexual; inflorescence a short panicle, axillary; lacking petals, styles 2. Capsules 1~3 in each infructescence, ovoid, 6~9 mm long, entirely enclosed, with brownish hairs. Seeds brown, ellipsoid, lustrous.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



兩性花 Bisexual flowers

林炎慶 Huan-Ching Lin/攝



蒴果 Capsules

葉秋好 Chiou-Yu Yeh/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	216	48.76
2~5	143	32.28
5~10	48	10.83
10~20	22	4.97
20~30	14	3.16
30~60	0	0.00
60~115	0	0.00

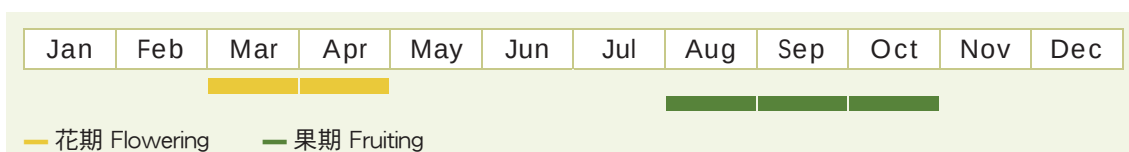
Total basal area=13839.22 cm²/25 ha

Number of trees/25 ha = 443



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





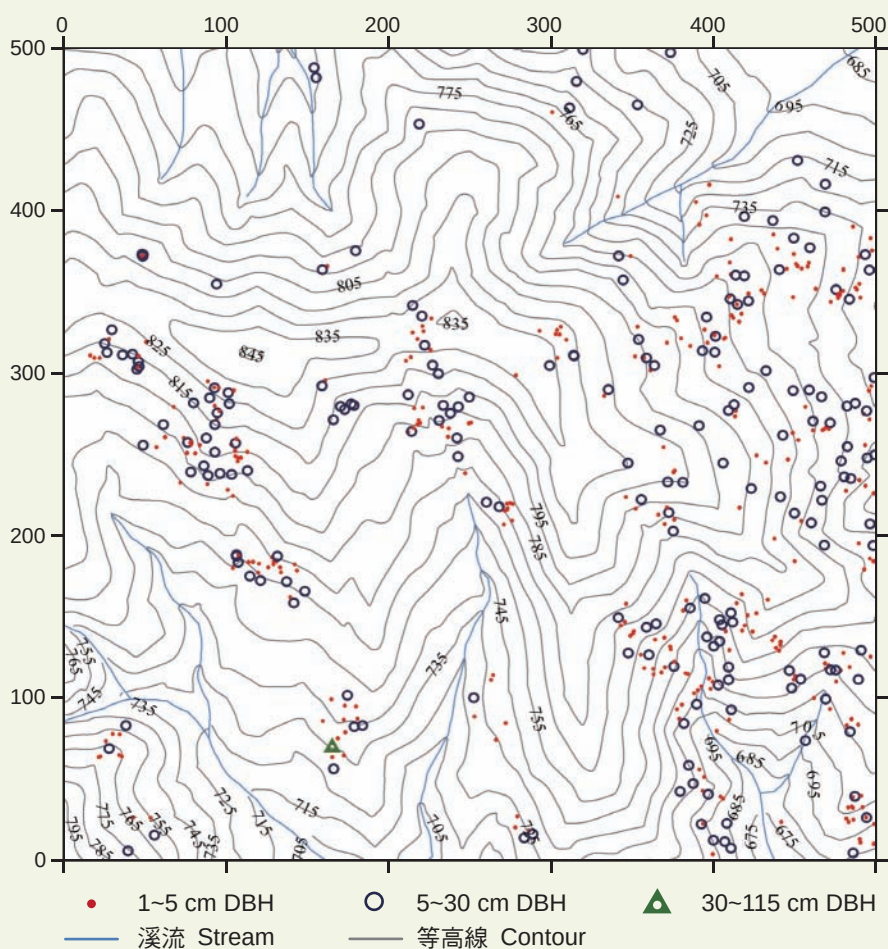
金縷梅科

樹冠層級

冠層

描述

樹皮光滑。葉互生，革質，披針形，長8~15 cm，寬2.5~4 cm，先端漸尖，基部銳尖，全緣或先端呈1~2粗齒牙狀；葉柄長5~10 mm。花兩性；頂生，總狀花序，長約2 cm，密被屑狀鱗片；苞片長橢圓形；花黃色，花瓣5；花柱2，黃色，花柱先端及柱頭深紫色。蒴果，卵圓形，褐色，長約1.5 cm，光滑。種子卵圓形，黑色光亮。



Eustigma oblongifolium Gardn. & Champ.

Hamamelidaceae

Stratum

Canopy

Description

Bark smooth. Leaves alternate, coriaceous, lanceolate, 8~15 cm long, 2.5~4 cm wide, apex acuminate, acute at base, margins entire or coarsely 1 or 2 dentate toward apex; petioles 5~10 mm long. Bisexual; inflorescences racemes, ca. 2 cm long, terminal, densely furfuraceous; bracts oblong; flowers yellow, petals 5; styles 2, yellow, apex of style and stigma dark-purple. Capsule ovoid, brown, ca. 1.5 cm long, glabrous. Seeds ovoid, black and shiny.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



蒴果 Capsules

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	120	23.48
2~5	190	37.18
5~10	119	23.29
10~20	77	15.07
20~30	4	0.78
30~60	1	0.20
60~115	0	0.00

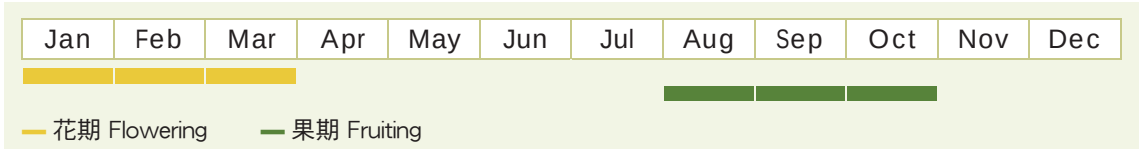
Total basal area=25989.60 cm²/25 ha

Number of trees/25 ha = 511



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





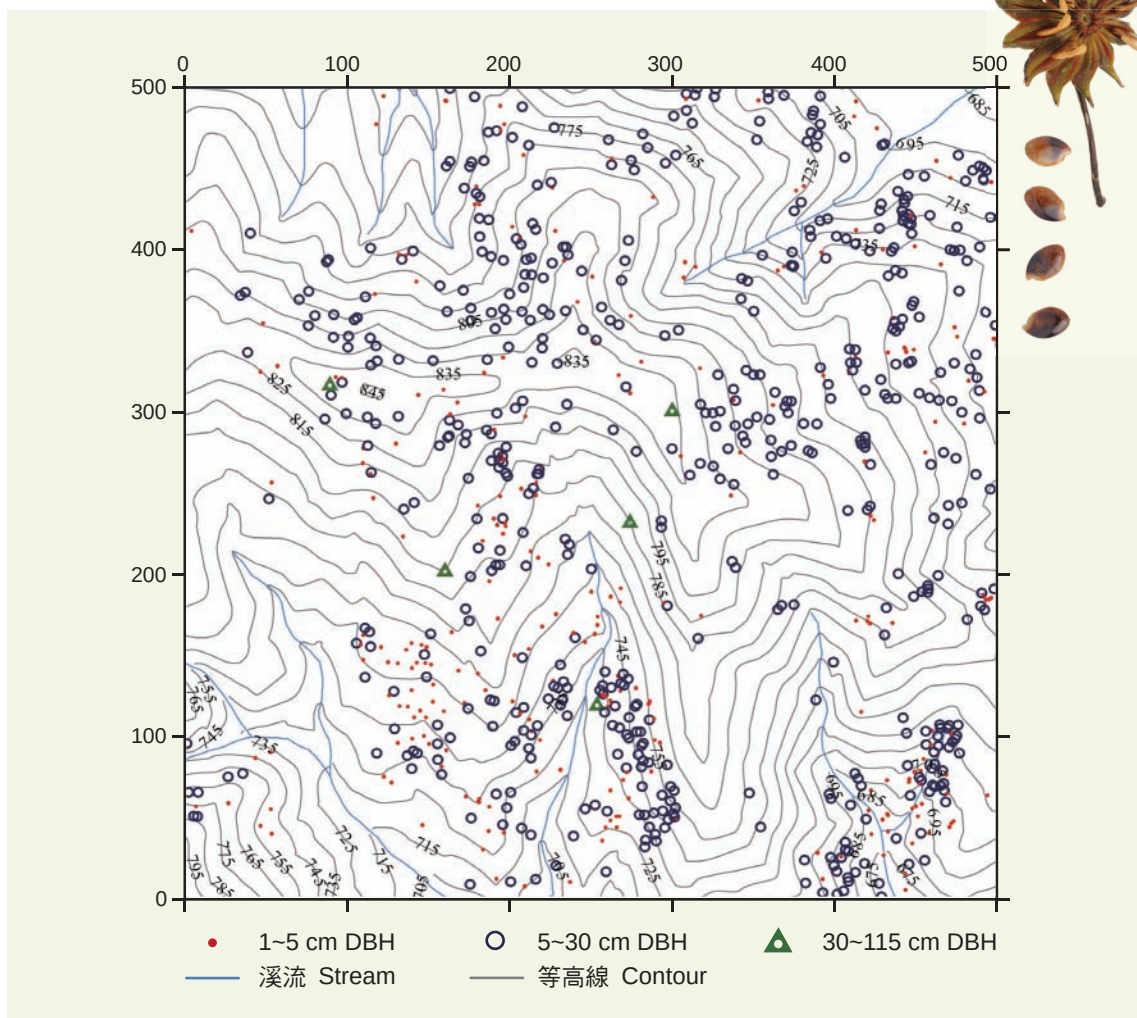
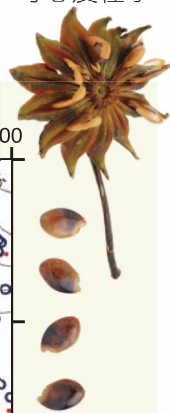
八角科 特有種

樹冠層級

冠層

描述

葉互生、近對生或叢生，革質或薄革質，窄橢圓形、披針形或倒卵狀橢圓形，長8~13 cm，寬3~5 cm，先端漸尖，基部楔形，葉緣稍反捲，葉脈凹陷於上表面，下表面葉脈突出。花兩性；單花或簇生，腋生或近頂生；花梗長1.5~4 cm；花被片14~21，紅色，倒卵形或圓形，向內凹，肉質；雄蕊3輪；心皮12~14。蓇葖果12~14，合生成星狀構造，先端呈喙狀，成熟後各自從縫線單側裂開。每心皮種子1枚，黃褐色。



Illicium arborescens Hayata

Illiciaceae

Endemic

Stratum

Canopy

Description

Leaves alternate, subopposite, or clustered, coriaceous or thin-coriaceous, narrowly elliptical, lanceolate, or obovate-elliptical, 8~13 cm long, 3~5 cm wide, apex acuminate, cuneate at base, margins slightly recurved, costa impressed on upper surface, prominent on lower surface. Bisexual; solitary or fascicled, axillary or subterminal; pedicels 1.5~4 cm long; perianths with 14~21 segments, reddish, obovate or orbicular, concave, carnose; stamens 3-seriate; carpels 12~14. Follicles

12~14, connate to star-shaped, apex rostrum dehiscent along a single side. one seed per carpel, yellowish-brown.



枝條 Branches

李碧鳳 Bi-Fong Lee/攝



花 Flowers

李碧鳳 Bi-Fong Lee/攝



蓇葖果 Follicle

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	96	11.69
2~5	165	20.10
5~10	236	28.75
10~20	291	35.44
20~30	28	3.41
30~60	5	0.61
60~115	0	0.00

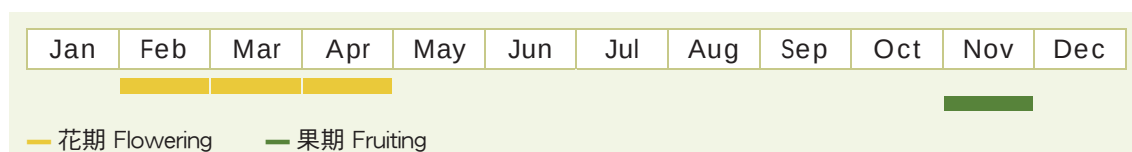
Total basal area=76331.92 cm²/25 ha

Number of trees/25 ha = 821



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





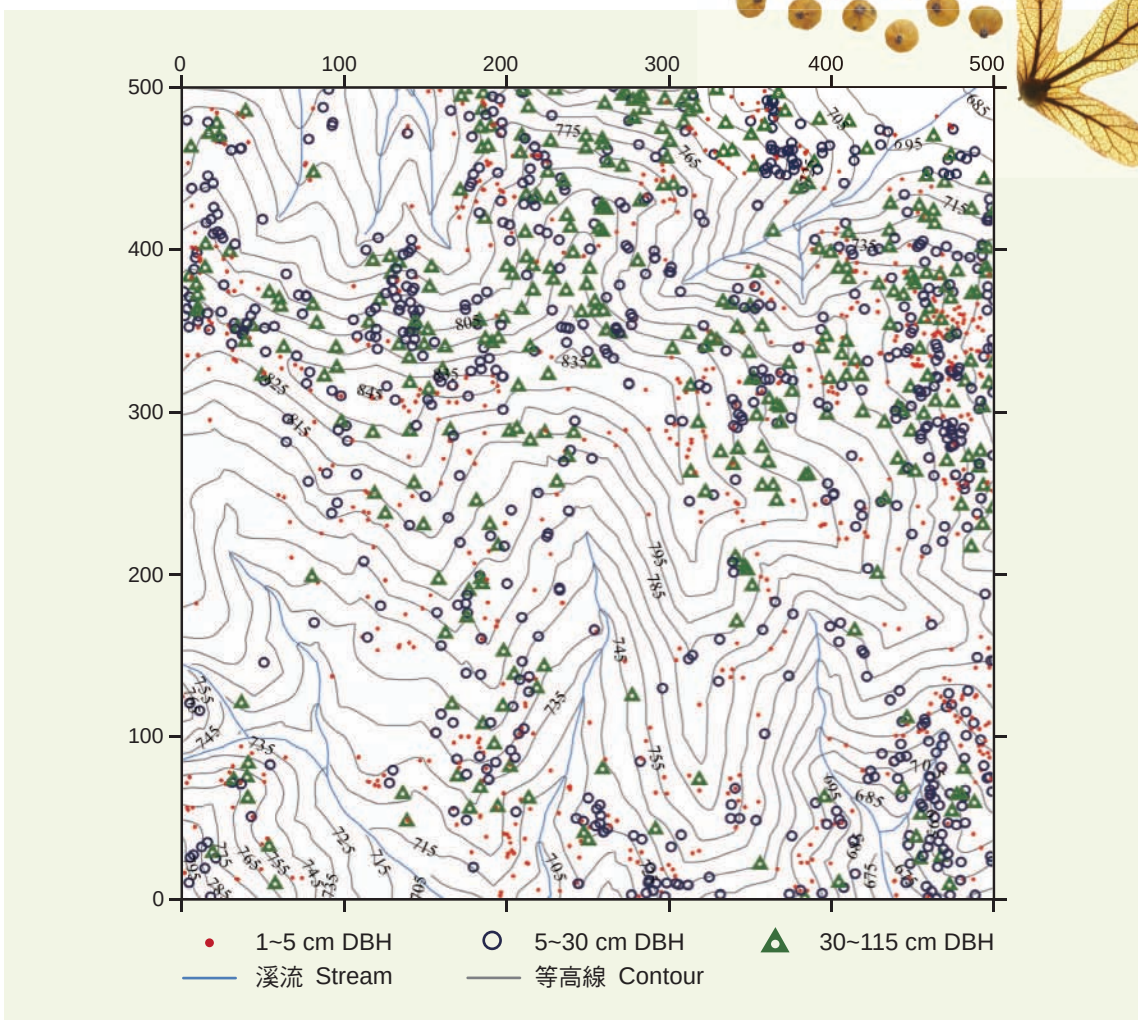
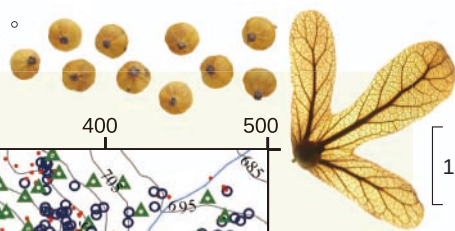
胡桃科

樹冠層級

冠層

描述

葉偶數羽狀複葉，長7~40 cm；小葉2~5對，革質，披針狀橢圓形至長橢圓形，長5~22 cm，寬2~6 cm，全緣，先端銳形或漸尖，基部歪基，側脈約7~15對；小葉柄長0.5~1.5 cm。雌雄同株，單性花，頂生；雄花為圓錐狀柔荑花序；雄花無柄或近無柄，花被片4裂，雄蕊10~12；雌花為單一柔荑花序或與雄花序排成圓錐花序；雌花具花梗，苞片3，花被片4裂。小堅果，球形，徑約3 mm，苞片3裂，呈翅狀。



Engelhardia roxburghiana Wall.

Juglandaceae

Stratum

Canopy

Description

Leaves even-pinnate, 7~40 cm long; leaflets 2~5 pairs, coriaceous, lanceolate-elliptical to oblong, 5~22 cm long, 2~6 cm wide, entire, acute or acuminate at apex, oblique at base, lateral veins 7~15 pairs; petiolules 0.5~1.5 cm long. Monoecious, unisexual, terminal; staminate inflorescence a panicleate catkin; staminate flowers sessile or subsessile, perianths 4-parted, stamens 10~12; pistillate inflorescence catkins or combined with staminate inflorescence in an androgynous

panicle; pistillate flowers pedicelled, bracts 3-lobed, perianths 4-parted. Nutlets globose, ca. 3 mm across; bracts 3-lobed, wing-shaped.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



翅果 Samaras

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	354	20.01
2~5	381	21.54
5~10	184	10.40
10~20	251	14.19
20~30	254	14.36
30~60	325	18.37
60~115	20	1.13

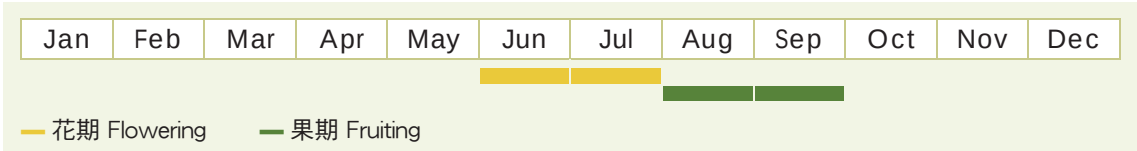
Total basal area=705495.47 cm²/25 ha

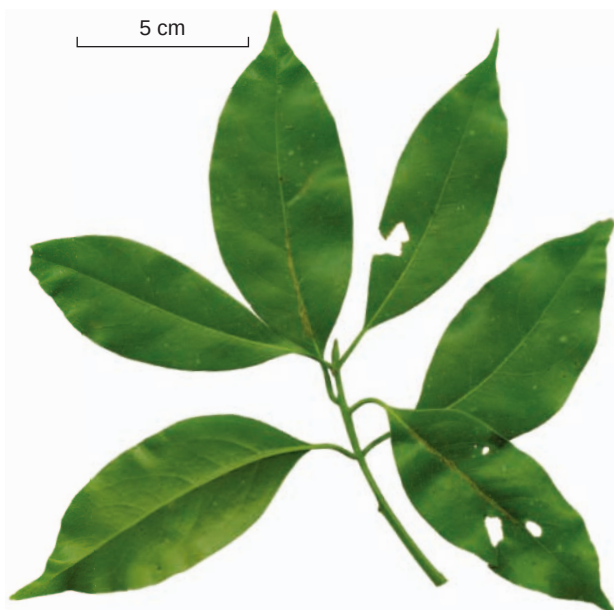
Number of trees/25 ha = 1769



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





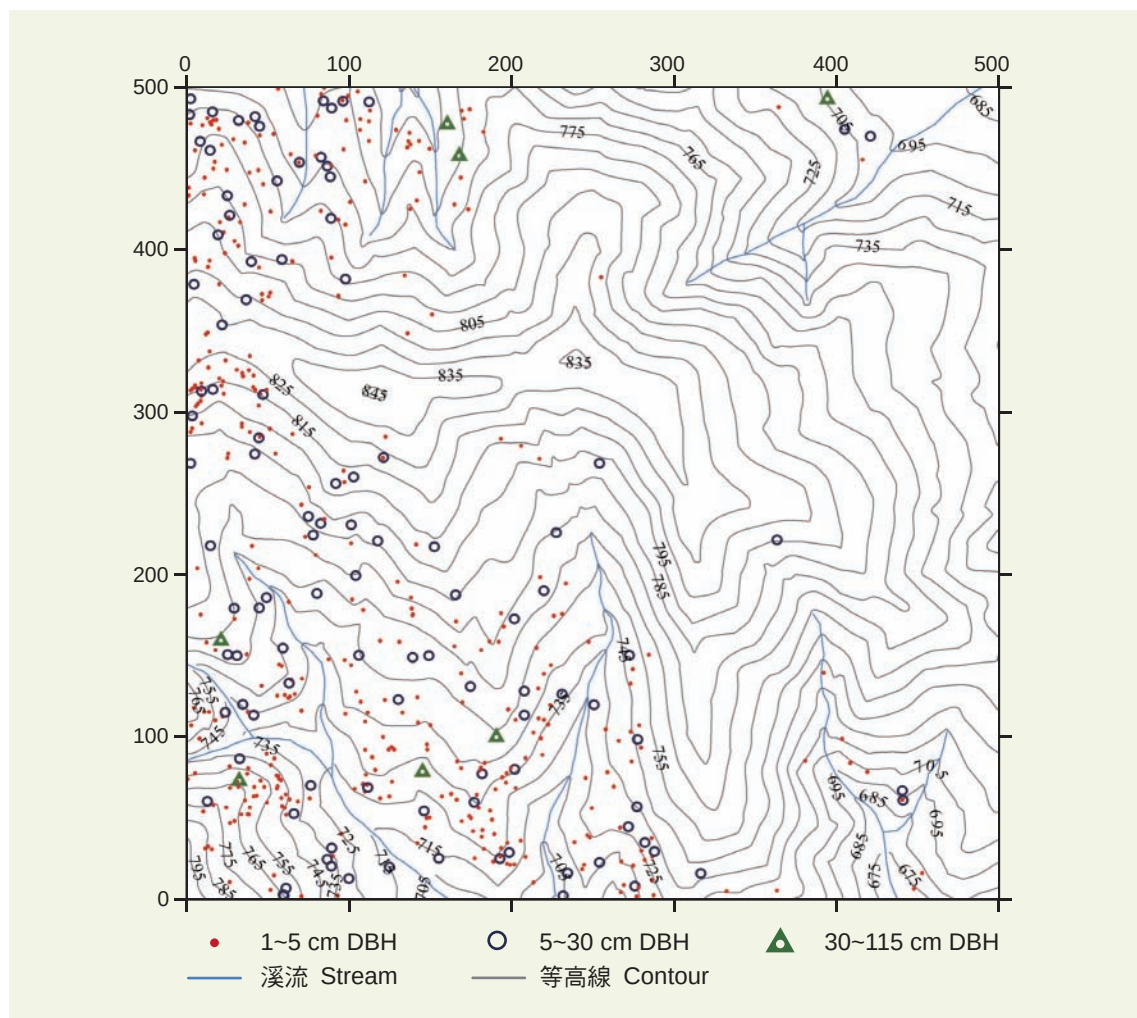
樟科

樹冠層級

冠層

描述

樹皮光滑，常呈不規則片狀剝落；芽光滑。葉對生或近對生，革質，卵形至長橢圓形，長7~15 cm，寬3~4.5 cm，先端漸尖或短尾狀，基部鈍，兩面皆綠色油亮且光滑無毛，細網狀脈明顯；葉柄長1~1.5 cm。花兩性；短圓錐花序，腋生；花小，黃白色；花被片6，卵形至長橢圓形，光滑無毛；可孕雄蕊9；子房卵球形，光滑。核果，橢圓形，長1.5~2.5 cm，成熟時由綠色轉紫黑色。



Lauraceae

Stratum

Canopy

Description

Bark glabrous, often irregularly exfoliated; bud glabrous. Leaves opposite or subopposite, coriaceous, ovate to oblong, 7~15 cm long, 3~4.5 cm wide, acuminate or short-caudate at apex, obtuse at base, green, lustrous; glabrous and fine veinlets reticulate on both surfaces; petioles 1~1.5 cm long. Bisexual; inflorescence short-paniculate, axillary; flowers small, yellowish-white; tepals 6, ovate to oblong, glabrous; fertile stamens 9; ovary globose, glabrous. Drupe ellipsoid, 1.5~2.5 cm long, green turning purplish-black when mature.



枝葉 Stems and leaves

李碧鳳 Bi-Fong Lee/攝



花 Flowers

伍淑惠 Shu-Hui Wu/攝



葉背 Underside of leaves

李碧鳳 Bi-Fong Lee/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	144	28.86
2~5	242	48.50
5~10	73	14.63
10~20	24	4.81
20~30	9	1.80
30~60	4	0.80
60~115	3	0.60

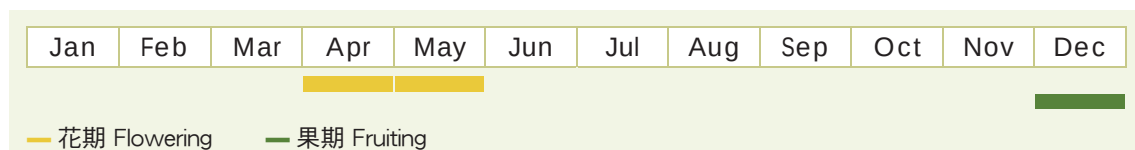
Total basal area=28661.46 cm²/25 ha

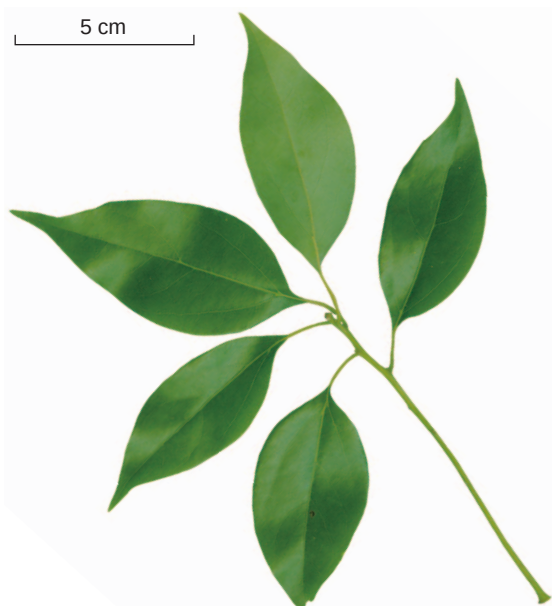
Number of trees/25 ha = 499



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





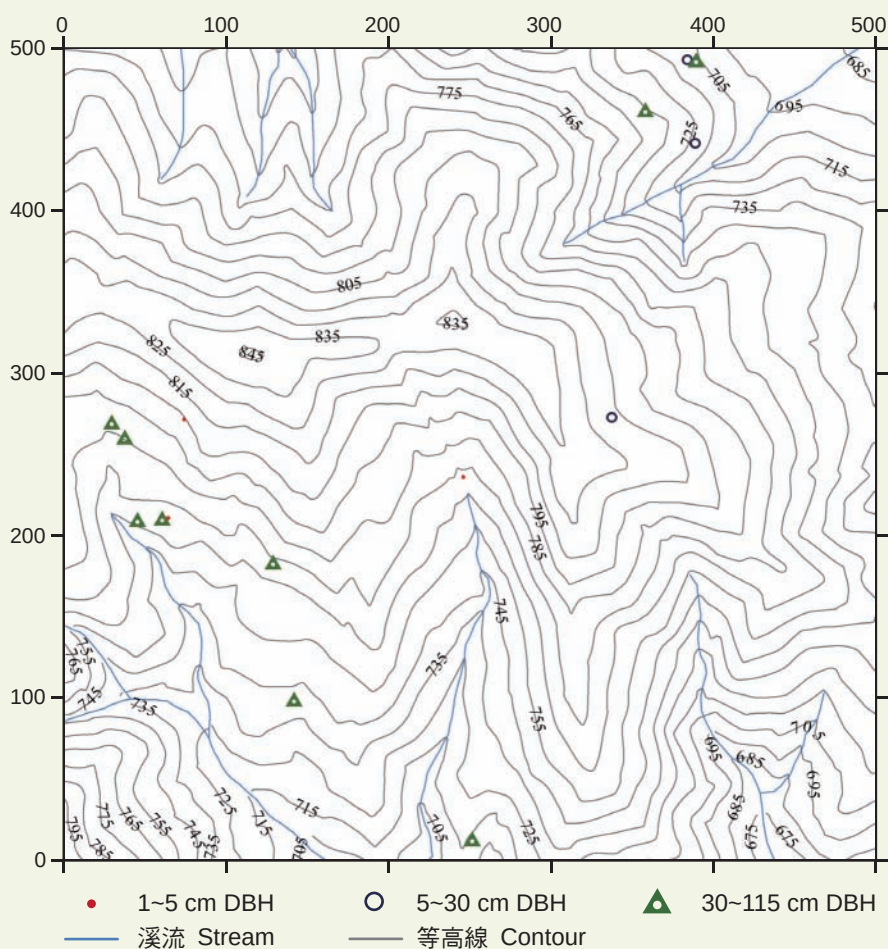
樟科

樹冠層級

冠層

描述

植株具芳香味；樹皮深縱裂；芽卵球形，被毛。葉互生，紙質，卵形至橢圓形，長5~10 cm，寬2.5~4 cm，先端銳尖至漸尖，基部鈍，葉全緣或波狀，上表面深綠色且光亮無毛，下表面略被白粉，三出脈，小脈網狀；葉柄長1~1.5 cm。花兩性；圓錐花序，腋生；花被片6，卵形，黃綠色，外部無毛，內部有毛；可孕雄蕊9；子房卵形，光滑。核果，扁球形，紫黑色。



Lauraceae

Stratum

Canopy

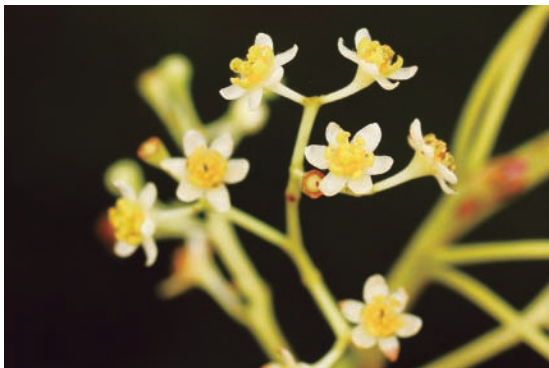
Description

Trees with aromatic camphor odor; bark deeply furrowed; buds ovoid, pubescent. Leaves alternate, chartaceous, ovate to elliptical, 5~10 cm long, 2.5~4 cm wide, acute to acuminate at apex, obtuse at base, entire to undulate, deep-green, polished and glabrous above, glaucous below, trinerved, veinlets reticulate; petioles 1~1.5 cm long. Bisexual; inflorescence a panicle, axillary; tepals 6, ovate, yellowish-green, glabrous outside, pubescent inside; fertile stamens 9; ovary ovoid, glabrous. Drupe compressed-globose, violet-black.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	1	6.67
2~5	2	13.33
5~10	0	0.00
10~20	3	20.00
20~30	0	0.00
30~60	2	13.33
60~115	7	46.67

Total basal area=38838.90 cm²/25 ha

Number of trees/25 ha = 15



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





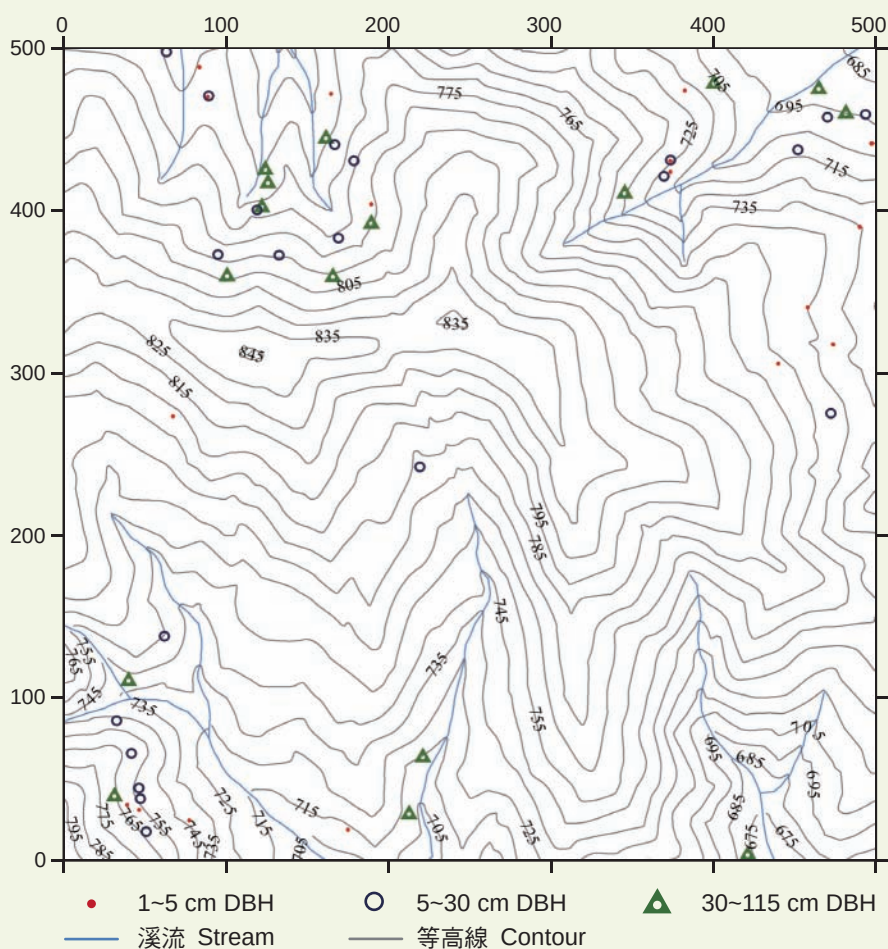
樟科

樹冠層級

冠層

描述

植株具芳香味；樹皮深縱裂；芽卵形，外面具柔毛。葉互生，厚紙質，長橢圓形至闊橢圓形，長8~15 cm，寬4~7 cm，先端短漸尖，基部銳尖至鈍，上表面綠黃色且光亮無毛，下表面側脈腋有毛，具不明顯三出脈；葉柄長1~2.5 cm，光滑。花兩性；頂生或腋生，聚繖狀圓錐花序；鐘形花，花被片6，略相等，長橢圓形，外部無毛，內部有毛。核果，橢圓球形，長1.2~1.5 cm，徑1 cm，無毛。





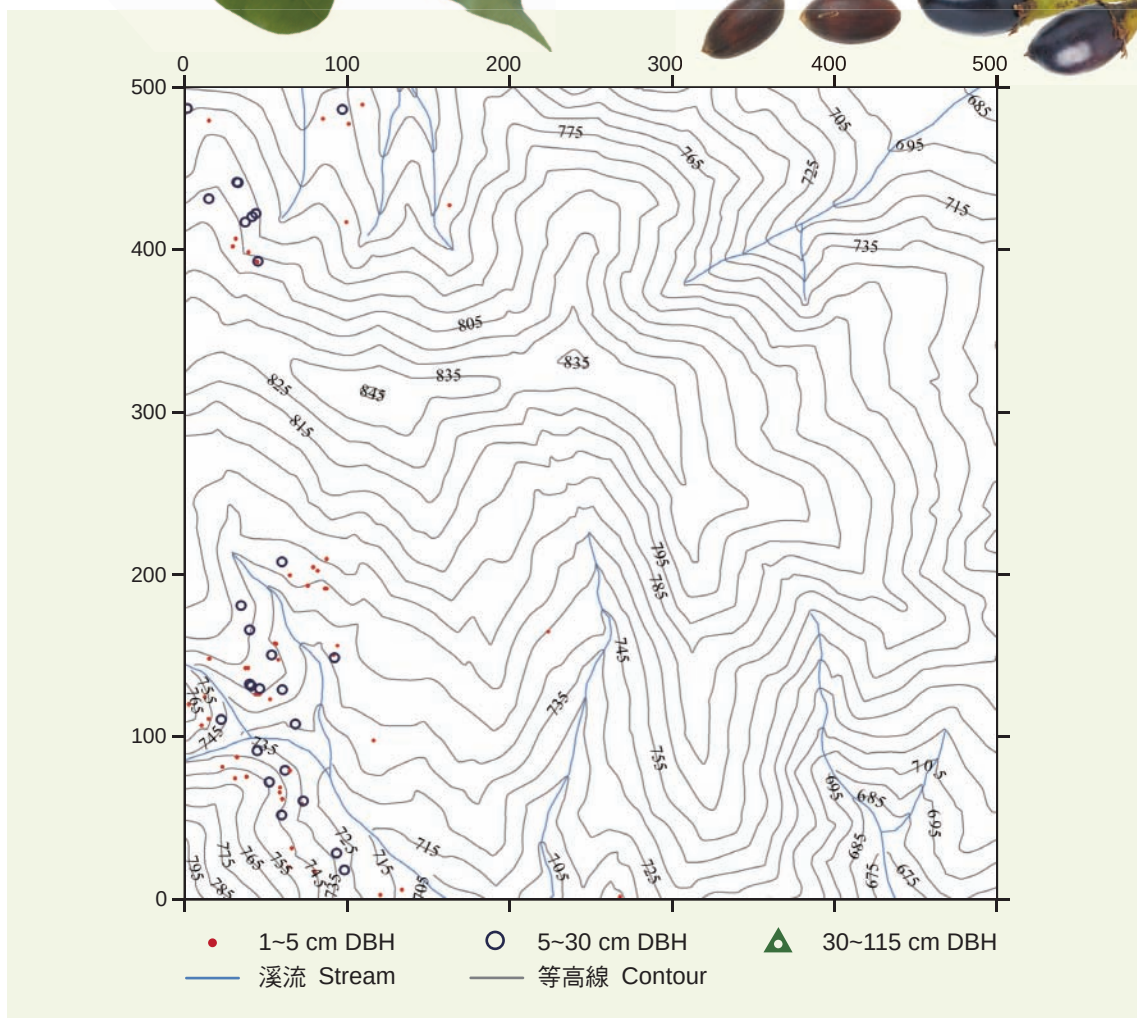
樟科 特有種

樹冠層級

次冠層

描述

全株具肉桂香味；小枝無毛。葉互生或近對生，革質，卵形至卵狀橢圓形，先端銳尖至漸尖，基部鈍至近圓，長8~15 cm，寬3~7 cm，上表面光亮無毛，下表面顏色較淡且近光滑，三出脈且突出葉兩面；葉柄長約1 cm，光滑。花兩性；腋生或頂生，聚繖花序，長4~7 cm；花梗細長，略被絨毛；花被片6，長橢圓形，外略被絨毛，內被粗毛；子房橢圓球形，無毛。核果，橢圓形，長約10 mm，徑約5 mm，紫黑色。



Cinnamomum osmophloeum Kaneh.

Lauraceae

Endemic

Stratum

Sub-canopy

Description

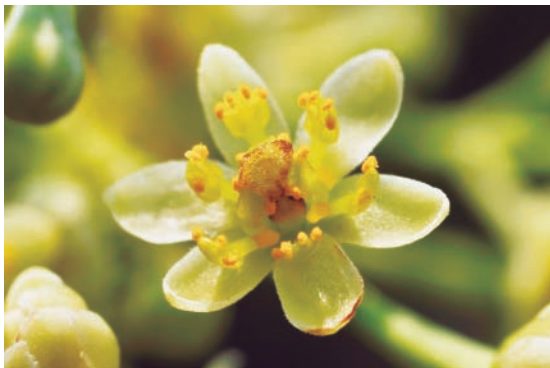
Trees with cinnamon odor; branchlets glabrous. Leaves alternate or nearly opposite, coriaceous, ovate to ovate-oblong, acute to acuminate at apex, obtuse to subrounded at base, 8~15 cm long, 3~7 cm wide, glabrous and polished above, glaucous and glabrescent below, trinerved and elevated on both surfaces; petioles ca. 1 cm long, glabrous. Bisexual; inflorescence a cyme, axillary or terminal, 4~7 cm long; pedicels slender, slightly tomentose; tepals 6, oblong,

sparsely tomentose outside, hirsute inside; ovary ellipsoid, glabrous. Drupe ellipsoid, ca. 10 mm long, ca. 5 mm across, purplish-black.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

葉秋好 Chiou-Yu Yeh/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	25	31.25
2~5	24	30.00
5~10	29	36.25
10~20	2	2.50
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

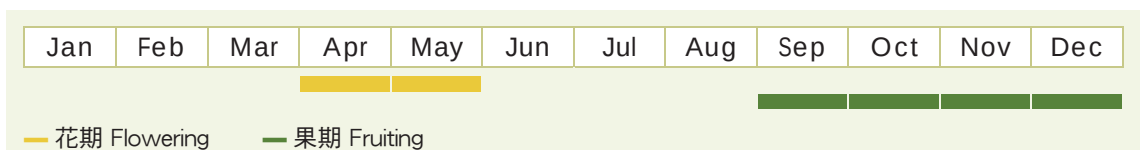
Total basal area=2521.55 cm²/25 ha

Number of trees/25 ha = 80



樹皮 Bark

林奐慶 Huan-Ching Lin/攝



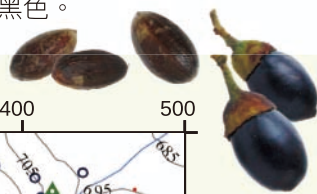
樟科

樹冠層級

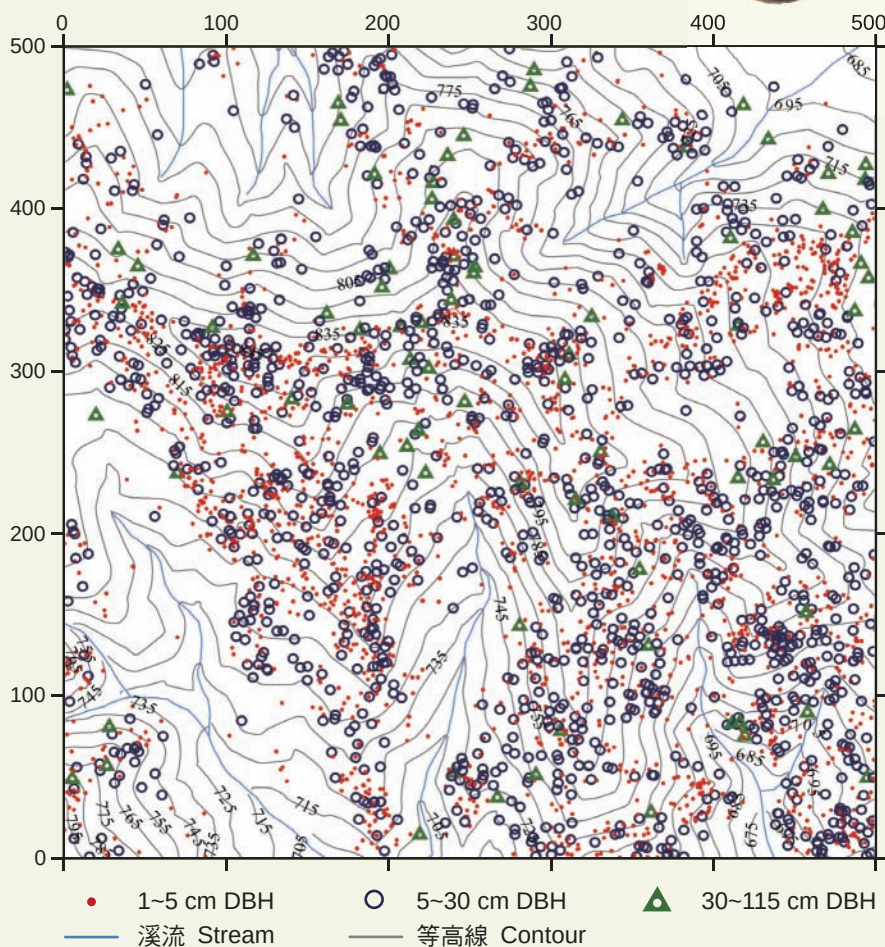
冠層

描述

幼枝和幼葉被褐色絨毛。葉近對生，革質，長橢圓形至長橢圓狀披針形，先端尾狀至漸尖，基部銳尖至楔形，長5~11 cm，寬2~3.5 cm，上表面光滑，下表面被毛，明顯三出脈，於上表面凹下，隆起於下表面，兩側脈幾達葉尖；葉柄長約1 cm。花兩性；聚繖狀圓錐花序，腋生或頂生，花序梗、花梗及花被均被白色絨毛；花被片6，卵圓形，淡黃色，內外部密被絨毛；子房橢圓球形，光滑。核果，長橢圓形，先端鈍圓，紫黑色。



1 cm



Cinnamomum subavenium Miq.

Lauraceae

Stratum

Canopy

Description

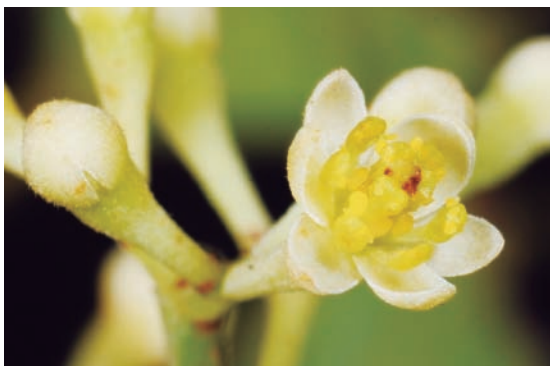
Young branchlets and leaves brown-tomentose. Leaves nearly opposite, coriaceous, oblong to oblong-lanceolate, caudate to acuminate at apex, acute to cuneate at base, 5~11 cm long, 2~3.5 cm wide, smooth and shiny above, pubescent below, trinerved impressed, concave above, elevated below, lateral veins nearly reaching apex of leaves; petioles ca. 1 cm long. Bisexual; inflorescence cymose-paniculate, axillary or terminal; peduncles, pedicels, and perianths with whitish-tomentose; tepals 6, ovate, light-yellow, densely tomentose on

both surfaces; ovary ellipsoid, glabrous. Drupe oblong, obtuse-rounded at apex, purplish-black.



枝條 Branches

李碧鳳, Bi-Fong Lee/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果 Drupe

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	973	25.60
2~5	1406	37.00
5~10	683	17.97
10~20	454	11.95
20~30	199	5.24
30~60	85	2.24
60~115	0	0.00

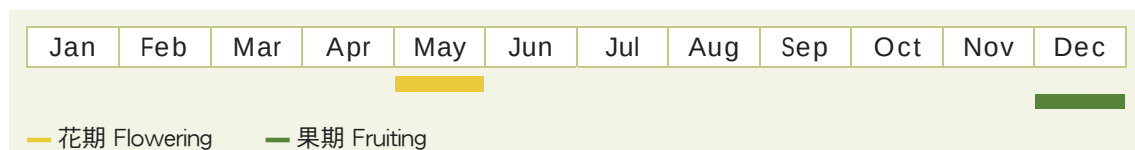
Total basal area=306388.14 cm²/25 ha

Number of trees/25 ha = 3800



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





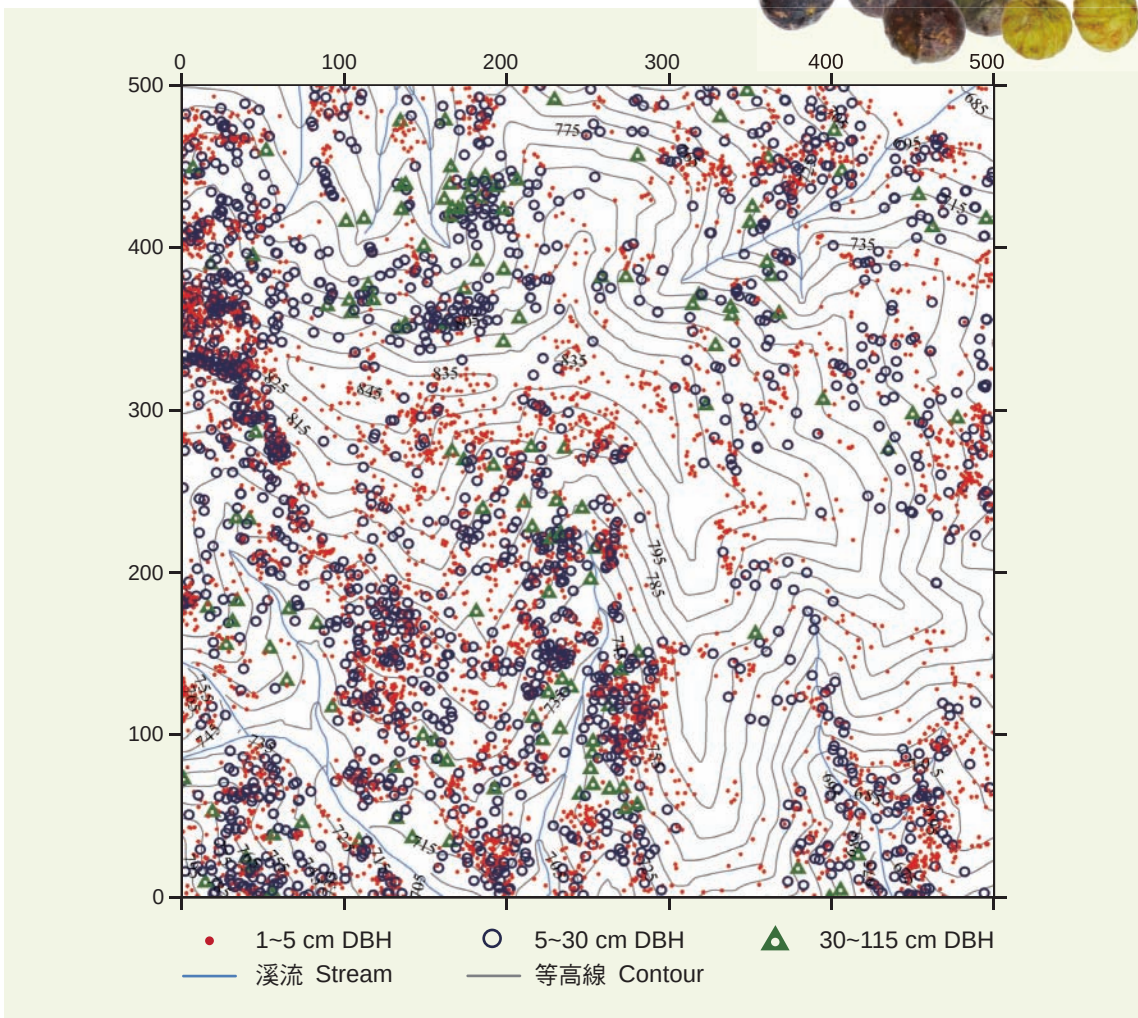
樟科

樹冠層級

冠層

描述

幼枝被紅棕色絨毛。葉互生，厚紙質，長橢圓形或卵狀長橢圓形至闊橢圓形，長8~15 cm，寬3~6 cm，先端尾狀漸尖，基部鈍形，上表面無毛，下表面略被毛，三出脈；葉柄長約0.8~1.4 cm，光滑。花兩性；聚繖狀圓錐花序，長2.5 cm，腋生或頂生，被淡褐色絨毛，花被片6，內部密被絨毛，鈍形；可孕雄蕊9；子房長卵形，光滑。核果，扁球形，被膨大宿存花被所包，長約1 cm，徑約1.2 cm，上具縱脊紋。



Cryptocarya chinensis (Hance) Hemsl.

Lauraceae

Stratum

Canopy

Description

Young branchlets with reddish-brown tomentose. Leaves alternate, thick-chartaceous, oblong, ovate-oblong to broadly elliptical, 8~15 cm long, 3~6 cm wide, caudate-acuminate at apex, obtuse at base, glabrous above, slightly pubescent below, trinerved; petioles 0.8~1.4 cm long, glabrous. Bisexual; inflorescence a cymose-paniculate, 2.5 cm long; axillary or terminal, light-brown-tomentose; tepals 6, densely tomentose inside, obtuse; fertile stamens 9; ovary long-

ovoid, glabrous. Drupe compressed-globose, enclosed in enlarged perianth tube, ca. 1 cm long, 1.2 cm across, with longitudinal ridges.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



核果 Drupes

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	2081	30.00
2~5	2841	40.96
5~10	1094	15.77
10~20	526	7.58
20~30	255	3.68
30~60	138	1.99
60~115	1	0.02

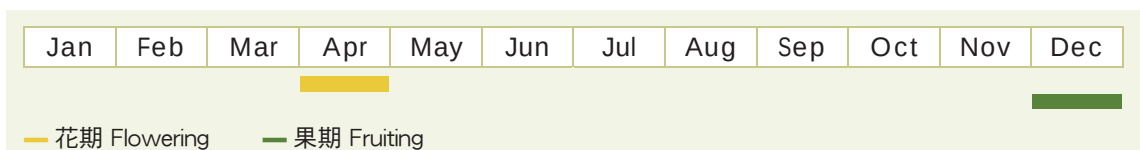
Total basal area=530574.27 cm²/25 ha

Number of trees/25 ha = 6936



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





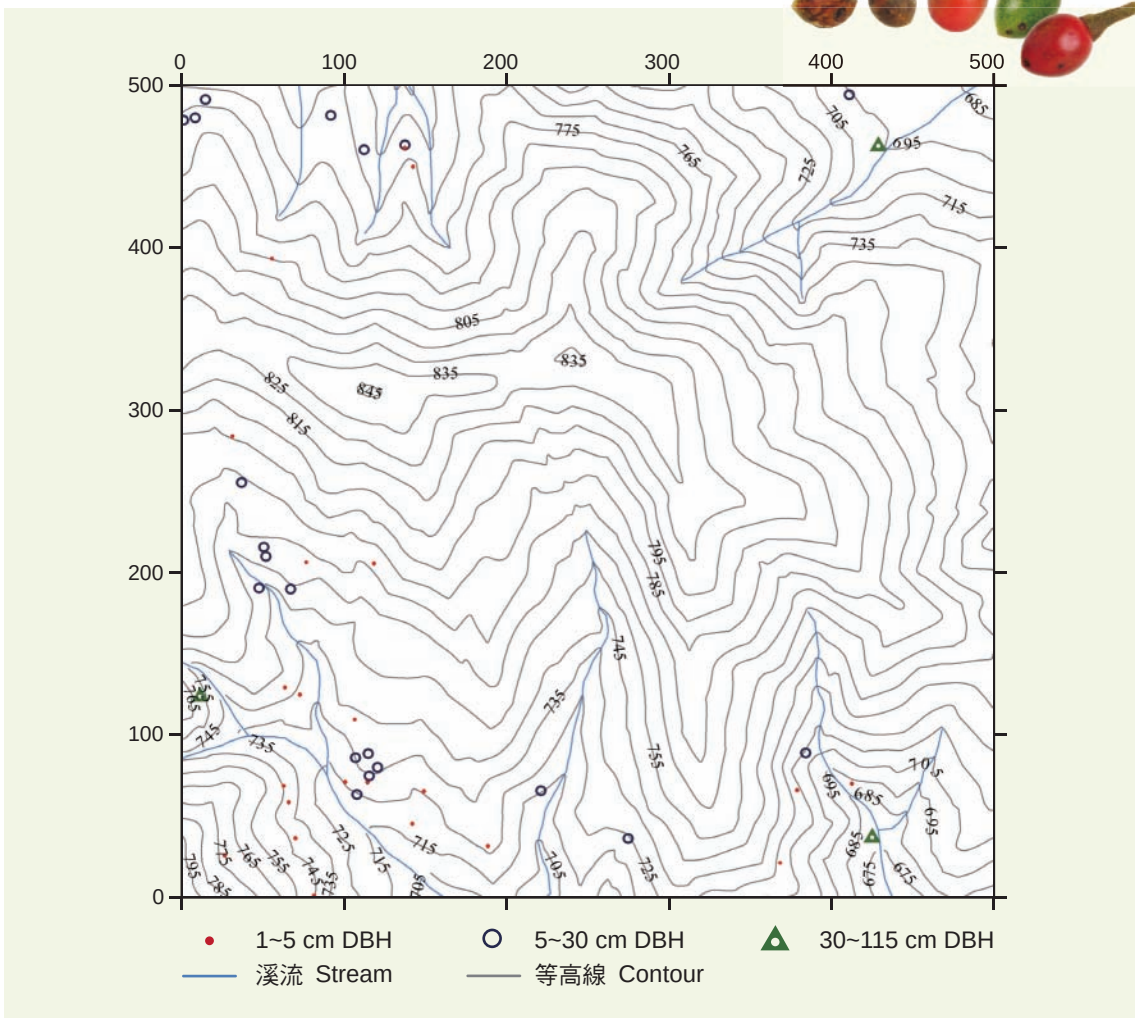
樟科

樹冠層級

冠層

描述

小枝及新芽被褐色絨毛。葉互生，厚紙質，長橢圓形，有時倒披針形，長4~8 cm，寬2~3.5 cm，先端尾狀漸尖，基部銳尖至鈍形，下表面脈突起且被黃褐色的絨毛，側脈4~6對。雌雄異株；繖形花序，花5~6枚，腋生，總苞4，花柄被粗毛；雄花花被片長橢圓形，黃綠色，鈍形，外側略有毛，雄蕊9，花絲近光滑；雌花花被片橢圓狀三角形，先端鈍，子房圓球形，光滑。核果，橢圓球形，光滑無毛，成熟時深紅色。



Lauraceae

Stratum

Canopy

Description

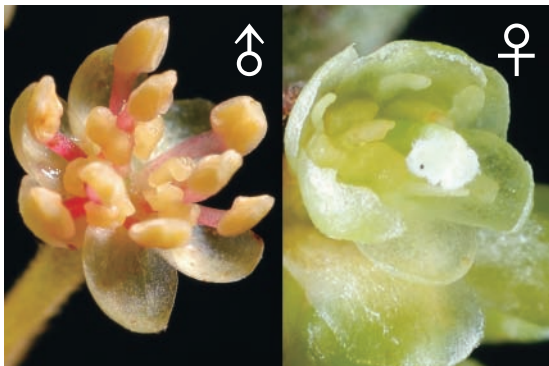
Branchlets and buds brown-tomentose. Leaves alternate, thick-chartaceous, oblong, sometimes oblanceolate, 4–8 cm long, 2–3.5 cm wide, caudate-acuminate at apex, acute to obtuse at base, elevated and yellowish-brown-tomentose below, lateral veins 4–6 pairs. Dioecious; inflorescence an umbel, 5- or 6-flowered, axillary; involucral bracts 4, pedicels hirsute; staminate flowers with oblong perianths, yellowish-green, obtuse, slightly pubescent outside; stamens 9, filaments subglabrous; tepals of pistillate flowers oblong-

triangular, obtuse at apex, ovary ovoid, glabrous. Drupe ellipsoid, glabrous, deep-red when mature.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	9	20.00
2~5	12	26.66
5~10	6	13.33
10~20	12	26.67
20~30	3	6.67
30~60	3	6.67
60~115	0	0.00

Total basal area= 6913.33 cm²/25 ha

Number of trees/25 ha = 45



樹皮 Bark

林奐慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
花期 Flowering 果期 Fruiting											



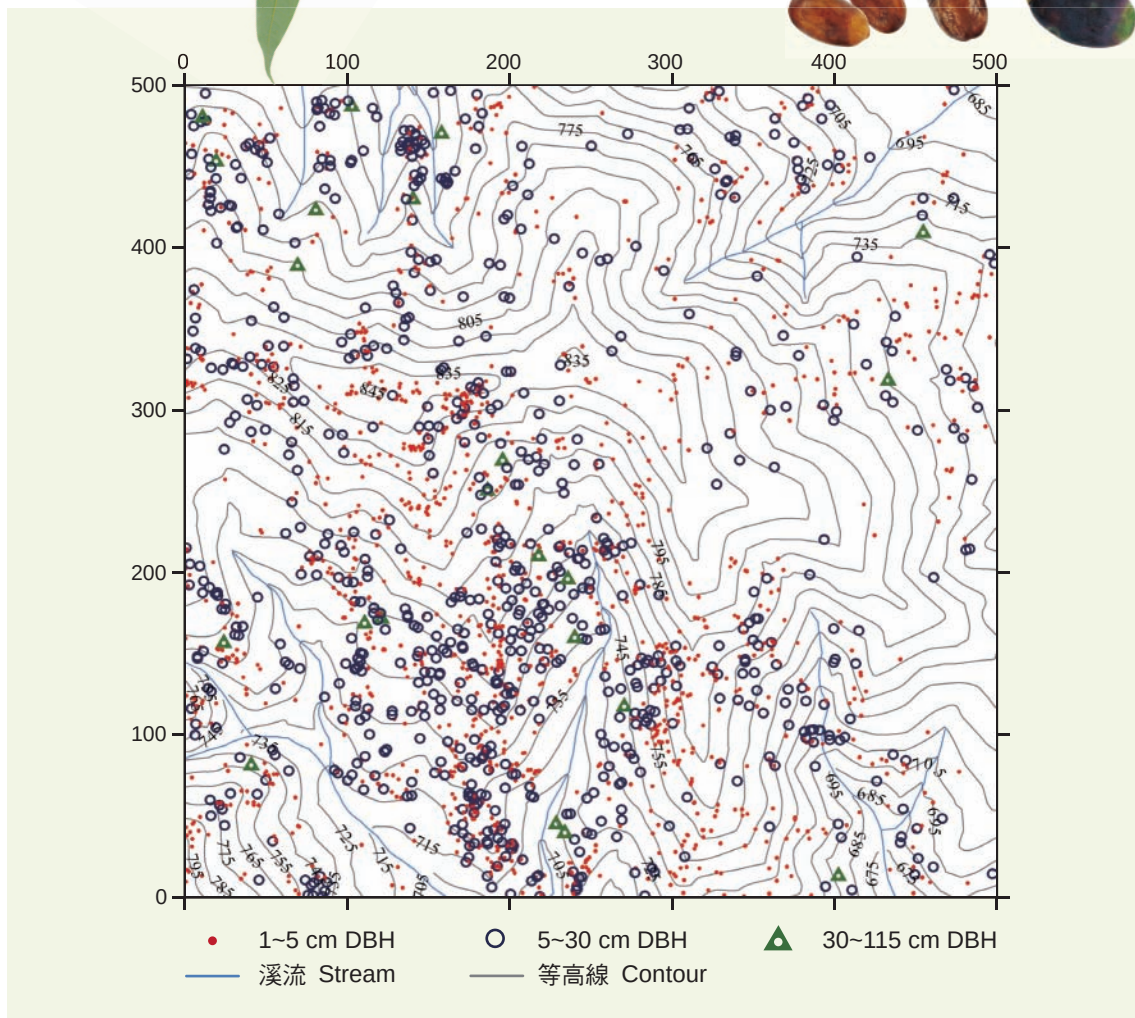
樟科

樹冠層級

冠層

描述

小枝光滑。葉互生，薄革質，闊倒披針形至披針形，長10~25 cm，寬2.3~6 cm，先端漸尖至尾狀，基部鈍形至銳尖，葉上表面深綠色油亮光滑，下表面略被白粉，中肋有毛，側脈凸出於下表面，細脈於下表面網狀明顯，基部通常有數條平行脈；葉柄長1.2~3 cm，光滑。雌雄異株；繖形花序，腋生，被褐色絨毛，總苞片5；花被片6，橢圓形，先端鈍，外側被毛，淺黃綠色。核果，橢圓球形，長約1.5 cm，黑色，光滑。



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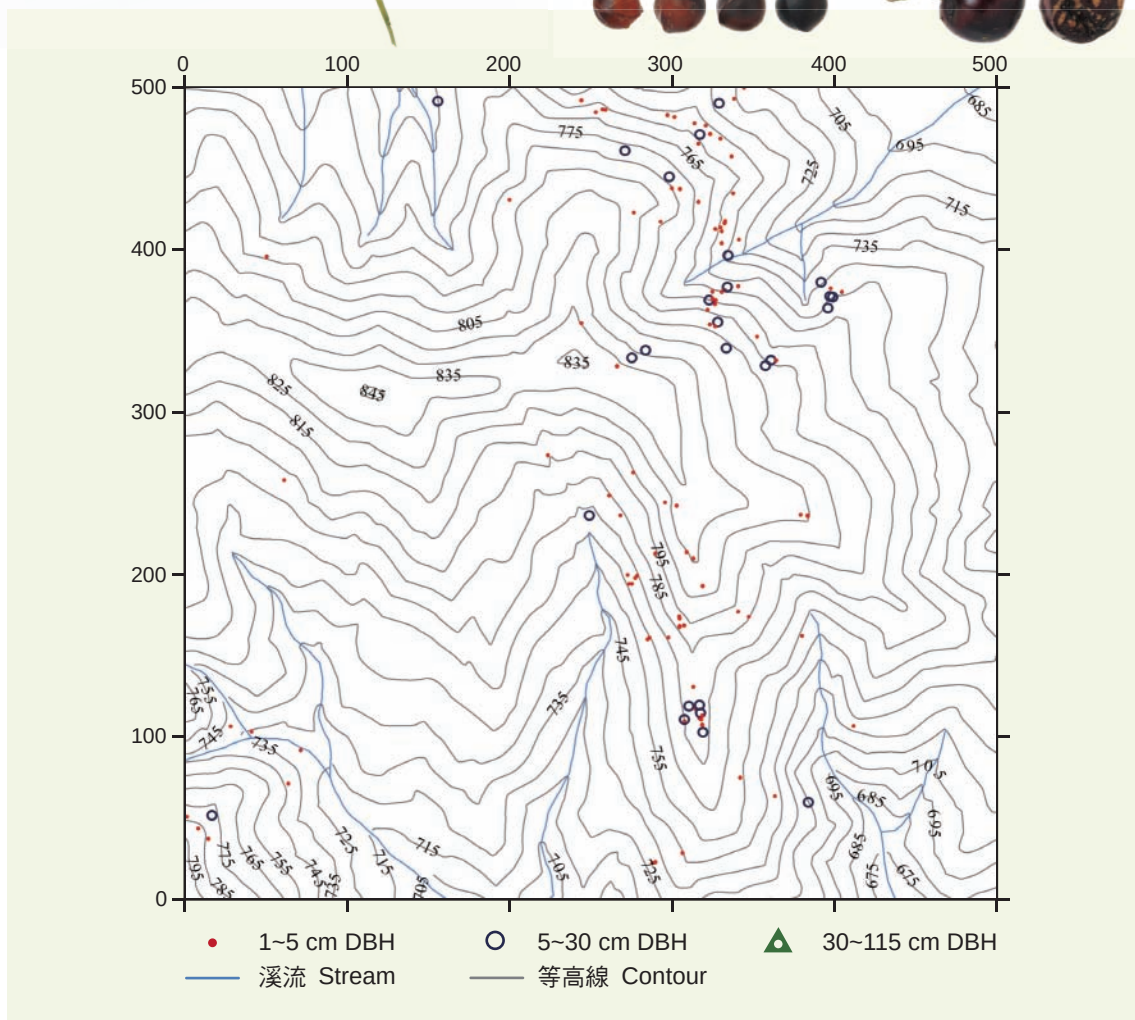
樟科

樹冠層級

次冠層

描述

植株具刺激芳香味，小枝光滑。葉互生，紙質，披針形，光滑，長5~12 cm，寬1.5~3 cm，先端漸尖，基部銳尖至鈍，側脈5~9對；葉柄長0.5~1.2 cm，光滑。雌雄異株；繖形花序，腋生；總苞片4，向內凹，倒卵形，先端圓，光滑；花梗長1 cm；雄花花被片6，闊卵形，先端鈍；雌花通常較雄花晚開，子房卵圓形，光滑。核果，圓球形，徑4~5 mm，具刺激芳香味，成熟時黑色。



Litsea cubeba (Lour.) Pers.

Lauraceae

Stratum

Sub-canopy

Description

Trees with stimulating aromatic odor, branchlets glabrous. Leaves alternate, chartaceous, lanceolate, glabrous, 5~12 cm long, 1.5~3 cm wide, acuminate at apex, acute to obtuse at base, lateral veins 5~9 pairs; petioles 0.5~1.2 cm long, glabrous. Dioecious; inflorescence an umbel, axillary; involucre bracts 4, concave, obovate, rounded at apex, glabrous; peduncles 1 cm long; staminate flowers with 6 perianths, broadly ovate, obtuse at apex; pistillate flowers often blossoming

later than staminate flowers, ovary ovoid, glabrous. Drupe globose, 4~5 mm across, with stimulating odor, black when mature.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果 Drupes

翁明毅 Ming-I Weng/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	24	19.67
2~5	71	58.20
5~10	22	18.03
10~20	5	4.10
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

Total basal area=2181.37 cm²/25 ha

Number of trees/25 ha = 122



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





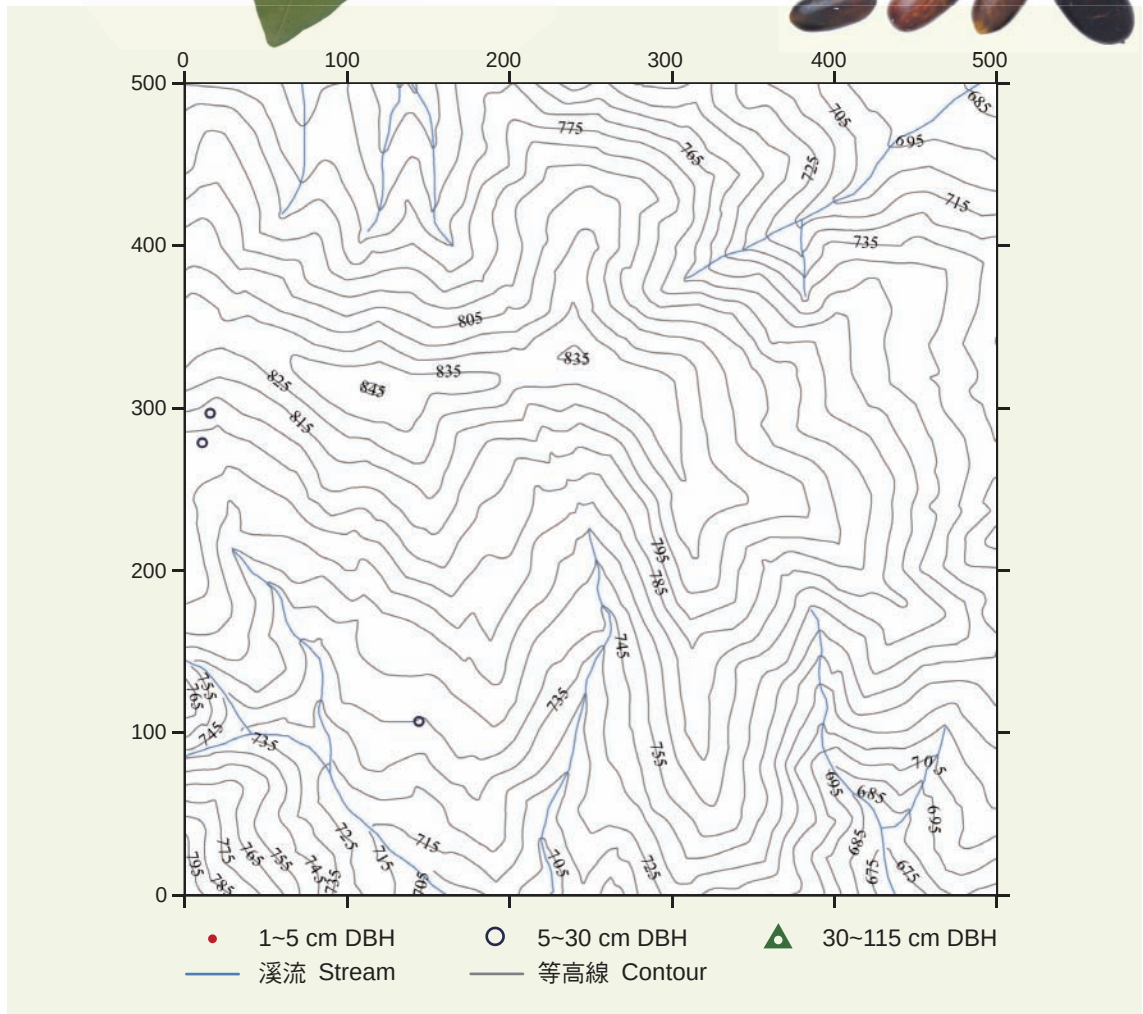
樟科 特有種

樹冠層級

次冠層

描述

小枝細長，被毛。葉互生，紙質，倒卵形至倒卵狀披針形，長4~9 cm，寬2~3 cm，先端鈍形，偶時銳尖，基部楔形至銳尖，葉緣略反捲，下表面沿中肋及脈上被毛，葉基部可見平行脈；葉柄長2~5 mm，被毛。雌雄異株；腋生或頂生，繖形花序；花淡黃色，花梗被長絨毛，總苞4，倒卵形；雄花花托被短粗毛；花被片6，略相等，長橢圓形，先端銳尖，外側被粗毛；雌花子房橢圓形，光滑。核果，橢圓球形，成熟呈紫黑色。



Lauraceae

Endemic

Stratum

Sub-canopy

Description

Branchlets slender, pubescent. Leaves alternate, chartaceous, obovate to obovate-lanceolate, 4~9 cm long, 2~3 cm wide, obtuse to rarely acute at apex, cuneate to acute at base, margins slightly revolute, with hairs along midrib and veins below, distinctly parallel veinlets at base; petioles 2~5 mm long, pubescent. Dioecious; inflorescence an umbel, axillary or terminal; flowers light-yellow, peduncles villous, involucral bracts 4, obovate; receptacle of staminate flowers short-hirsute; perianths 6, subequal, oblong, acute at apex,

hirsute outside; ovary of pistillate flowers ellipsoid, glabrous. Drupe ellipsoid, purplish-black when mature.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	0	0.00
2~5	0	0.00
5~10	3	100.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

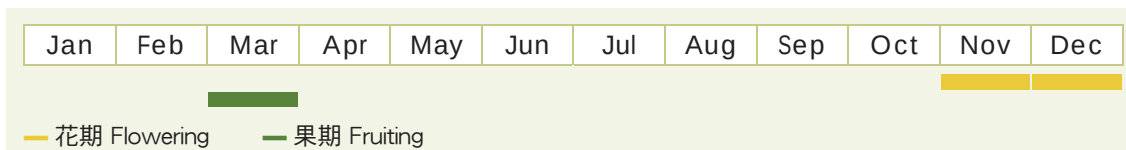
Total basal area=118.79 cm²/25 ha

Number of trees/25 ha = 3



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





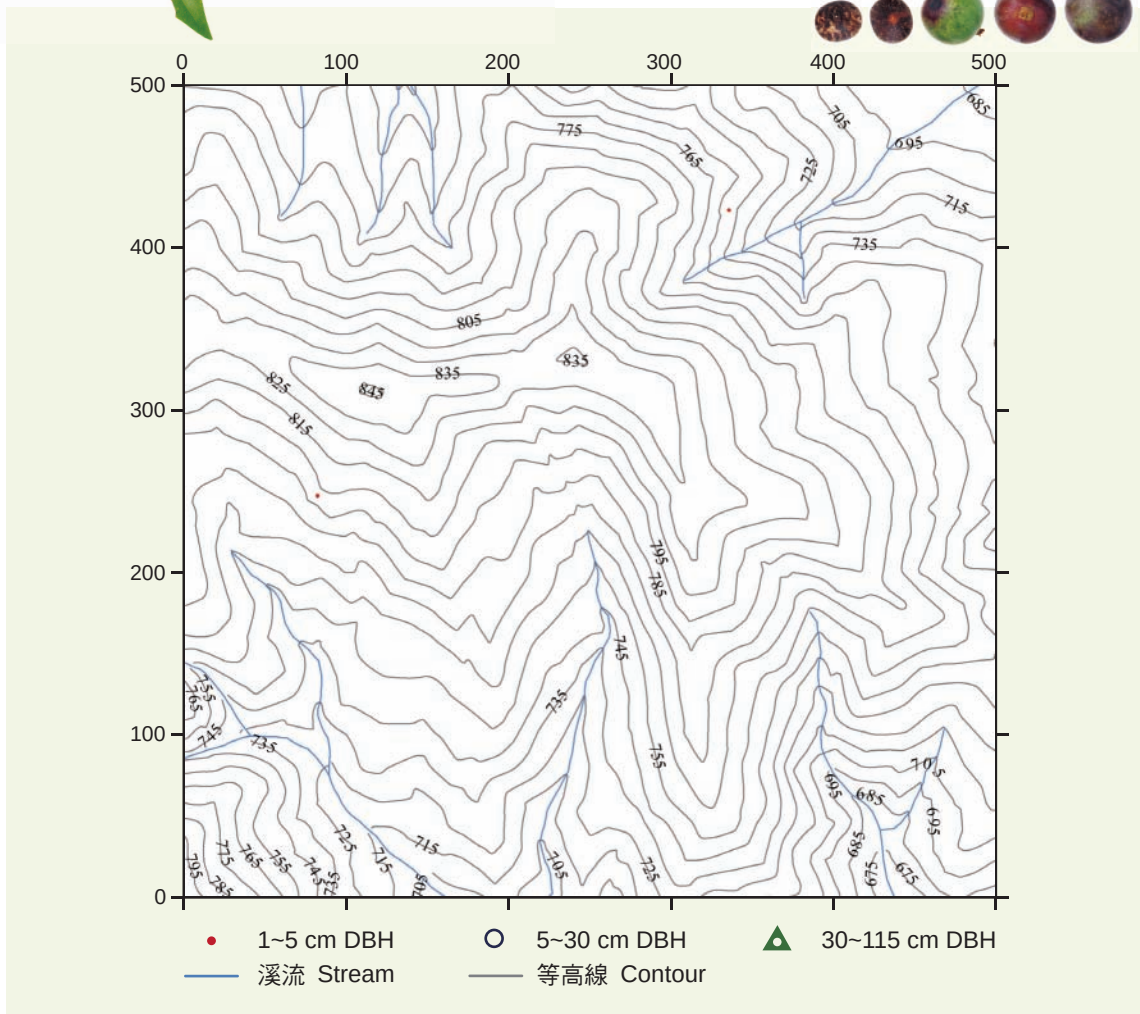
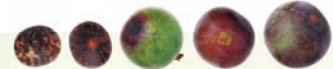
樟科

樹冠層級

次冠層

描述

幼枝被粗毛。葉互生，薄革質，菱狀長橢圓形，長4~6 cm，寬1.4~2.1 cm，先端銳尖或稀鈍狀，基部楔形，葉緣稍向下捲，上表面光滑，下表面灰白色，葉基部無平行脈；葉柄被絨毛。雌雄異株；腋生，繖形花序，花序近無柄；花淡黃色，總苞4；花被筒短，外側被長絨毛，花被片6，橢圓形，先端鈍；雄花中雄蕊9，花絲長，基部略被毛茸；雌花中子房卵球形，光滑，花柱略被長絨毛。核果，近球形，長約0.7 cm，成熟時紫黑色。



Litsea rotundifolia Hemsl. var. *oblongifolia* (Nees) Allen

Lauraceae

Stratum

Sub-canopy

Description

Branchlets hirsute when young. Leaves alternate, thinly coriaceous, rhombic-oblong, 4–6 cm long, 1.4–2.1 cm wide, acute or rarely obtuse at apex, cuneate at base, margins slightly revolute, glabrous above, glaucous below, parallel veinlets not present at base; petioles tomentose. Dioecious; inflorescence an umbel, axillary, subsessile; flowers light-yellow; receptacles 4; perianth tube short, villous outside; perianths 6, oblong, obtuse at apex; staminate flowers with 9 stamens, filaments long, tomentose at base; ovary of

pistillate flowers ovoid, glabrous, style sparsely villous. Drupe subglobose, ca. 0.7 cm long, purplish-black when mature.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



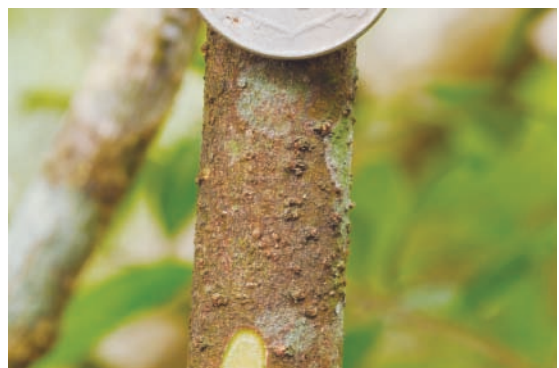
核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	1	50.00
2~5	1	50.00
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

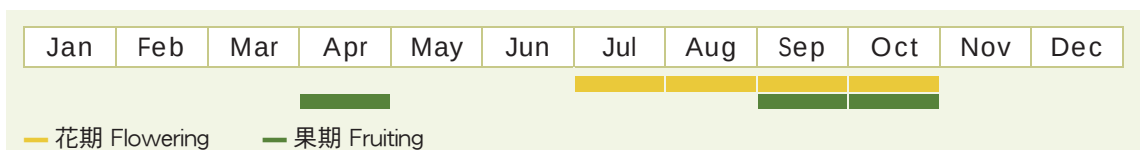
Total basal area=64.86 cm²/25 ha

Number of trees/25 ha = 2



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





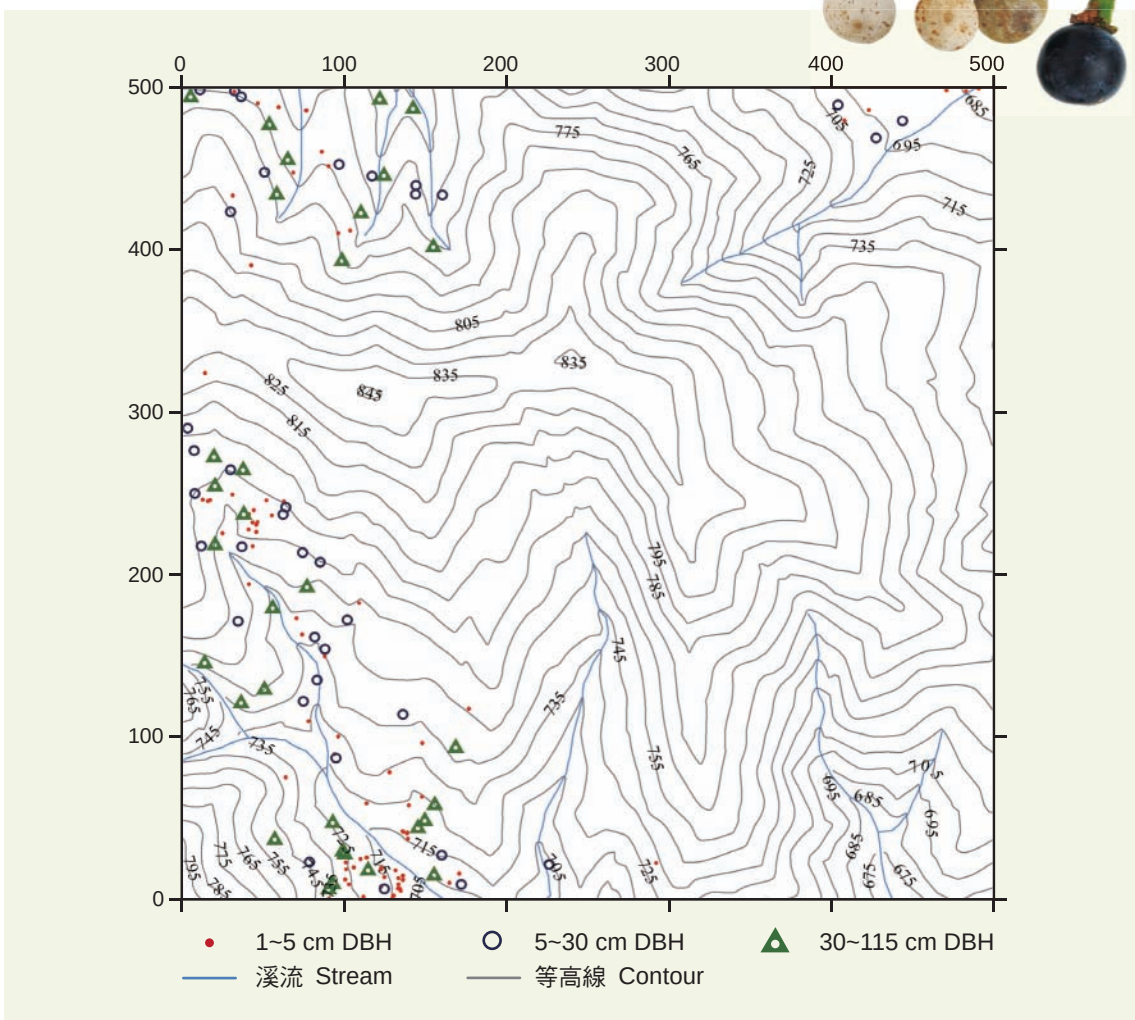
樟科 特有種

樹冠層級

冠層

描述

小枝粗壯；新芽鱗片覆瓦狀，具緣毛。葉互生，革質，闊卵狀倒披針形，長15~25 cm，寬4~8.5 cm，先端銳尖至短尾狀，尖端鈍頭，基部楔形，全緣，上表面光滑油亮，下表面細脈呈明顯細網狀；葉柄長2~3 cm；幼葉及苞片呈淡紅色。花兩性；頂生或近頂生，聚繖狀圓錐花序，光滑；花黃綠色，花被片6，近相等，長橢圓形，外側漸光滑，內側被短柔毛至漸光滑；雄蕊9；花柱光滑。核果，扁球形，徑約1.2 cm，花被片宿存，漸擴大下彎。



Machilus japonica Siebold & Zucc. var. *kusanoi* (Hayata) J. C. Liao

Lauraceae

Endemic

Stratum

Canopy

Description

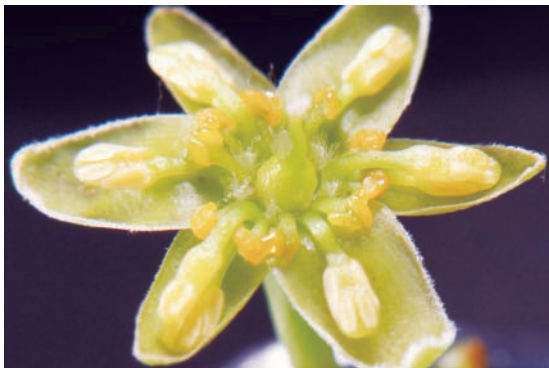
Branchlets stout; bud scales imbricate, with cilia. Leaves alternate, coriaceous, broadly ovate-oblongate, 15~25 cm long, 4~8.5 cm wide, acute to short caudate at apex, obtuse at apex, cuneate at base, entire, glabrous and lustrous above, veinlets distinctly reticulate below; petioles 2~3 cm long; young leaves and bracts reddish. Bisexual; inflorescence a cymose-panicle, terminal or subterminal, glabrous; flowers yellowish-green, perianths 6, subequal, ellipsoid, glabrous to glabrate outside, puberulous to glabrate inside; stamens

9; style glabrous. Drupe compressed-globose, ca. 1.2 cm across, with persistent, reflexed, enlarged perianths.



枝條 Branches

李碧鳳 Bi-Fong Lee/攝



花 Flower

林奐慶 Huan-Ching Lin/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	34	22.52
2~5	48	31.79
5~10	18	11.92
10~20	12	7.95
20~30	7	4.63
30~60	19	12.58
60~115	13	8.61

Total basal area=103933.72 cm²/25 ha

Number of trees/25 ha = 151



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





樟科

樹冠層級

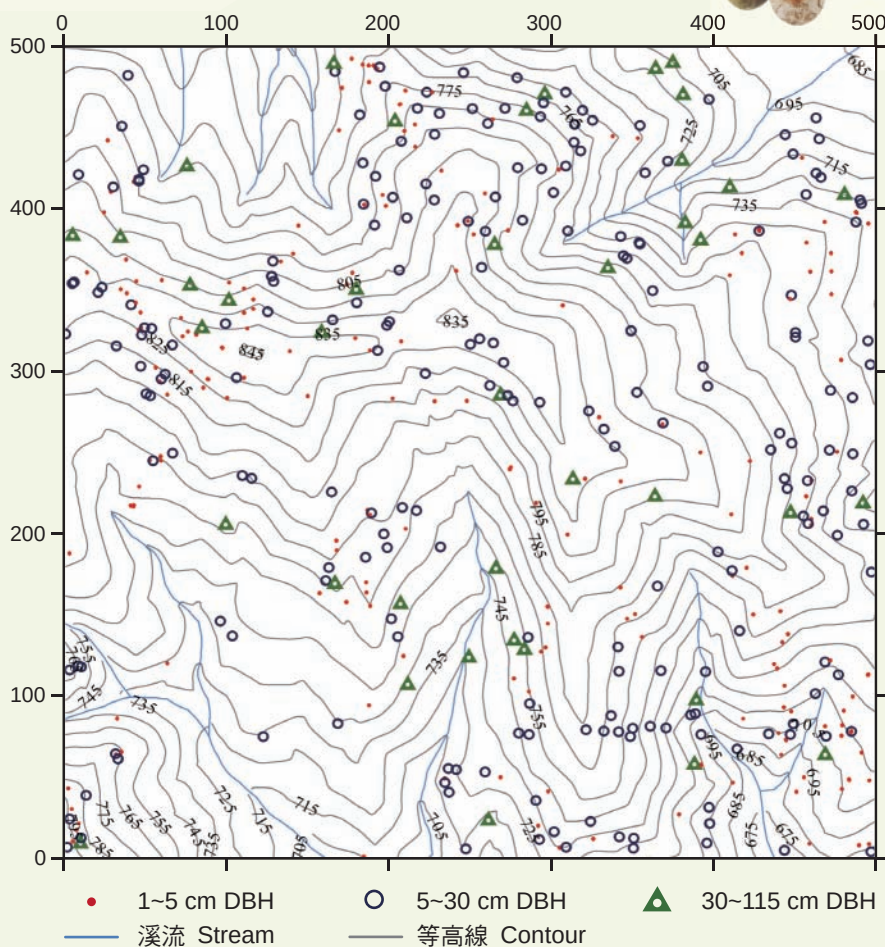
冠層

描述

新芽鱗片覆瓦狀，外被金黃棕色毛，幼葉紅色。葉互生，厚革質，通常呈倒卵形、長橢圓形、倒披針形，長7~13 cm，寬3~6 cm，先端鈍或驟尖，基部楔形、銳尖或鈍，全緣，上表面光滑油亮，下表面灰白色，細脈呈明顯細網狀；葉柄長1~2 cm，光滑。花兩性；頂生或近頂生，聚繖狀圓錐花序，光滑；總苞片橢圓形，泛紅色；花被片6，長橢圓形，外側光滑，內側被毛。核果，扁球形，徑約1 cm，光滑，花被片宿存，漸擴大且下彎。



1 cm



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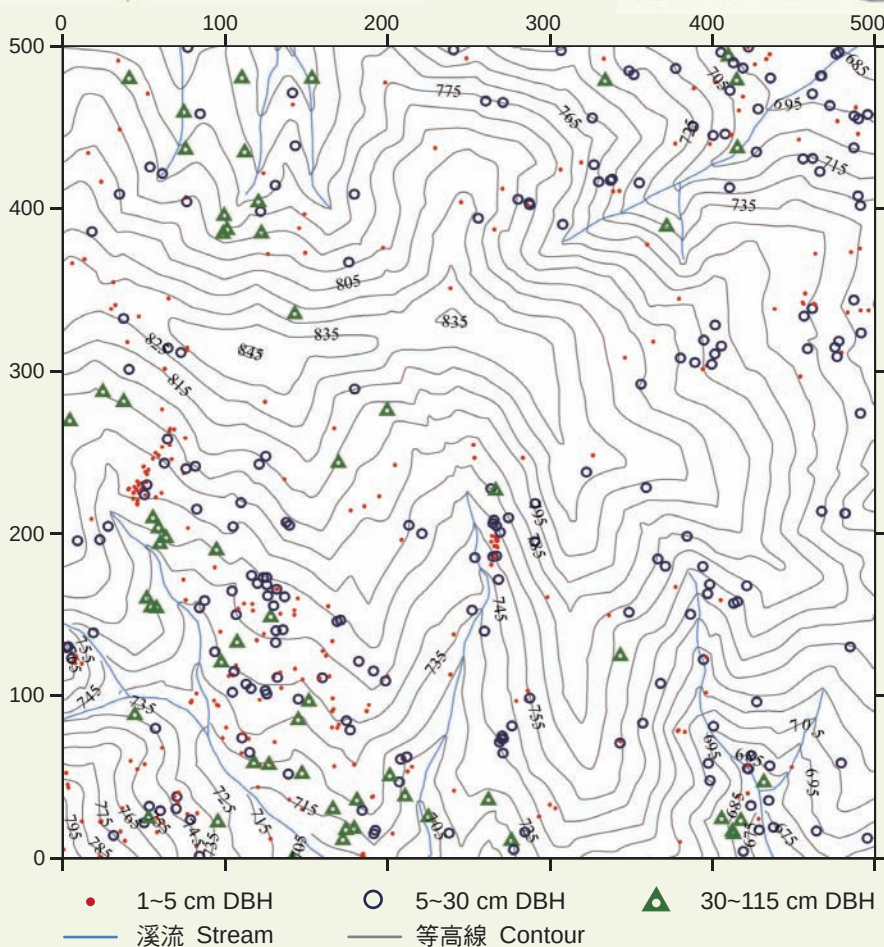
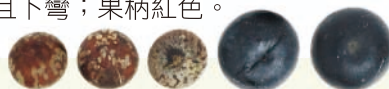
樟科 特有種

樹冠層級

冠層

描述

新芽鱗片覆瓦狀，光滑或疏被長毛，新生葉淺黃綠色。葉互生，紙質，長橢圓狀披針形，長橢圓形至倒披針形，長7~14 cm，寬2.5~3.5 cm，先端銳尖至漸尖，基部楔形或銳尖，全緣，上表面無毛不具光澤，下表面灰綠色，細脈明顯；葉柄長1~1.5 cm。花兩性；頂生或近頂生，聚繖狀圓錐花序，有毛；花黃綠色，花被片6，略相等，長橢圓形，兩面被毛。核果，扁球形，黑色，徑7~8 mm，花被片宿存，漸增大且下彎；果柄紅色。



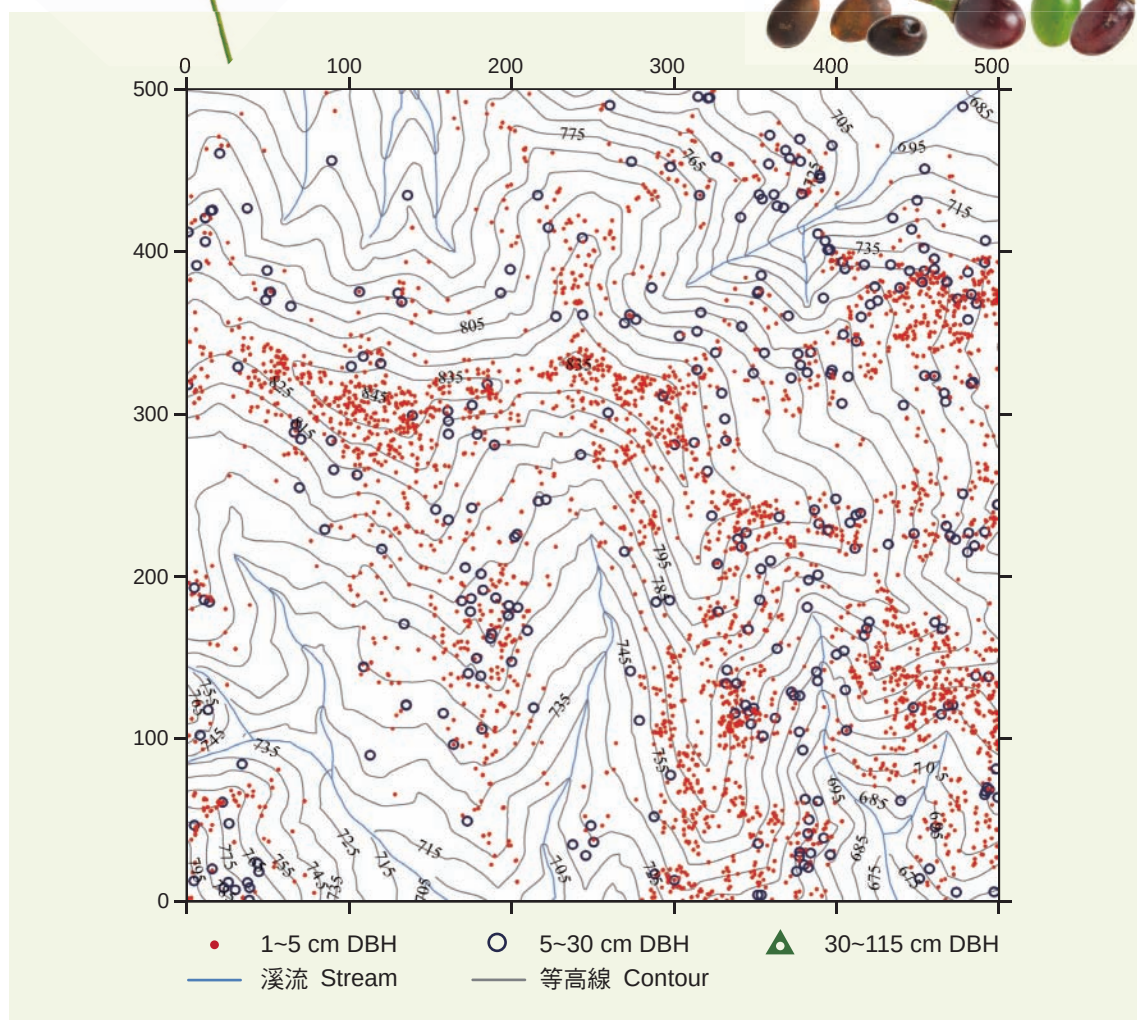
樟科
特有種

樹冠層級

次冠層

描述

小枝光滑。葉互生或叢生於枝頂，薄革質，倒卵狀披針形、卵形至長橢圓形，長8~15 cm，寬3~5 cm，先端漸尖至銳尖，基部楔形或鈍形，三出脈，上表面光滑油亮，下表面粉白色；葉柄光滑或近光滑。雌雄異株；腋生，繖形花序簇生，每花序3~7朵。雄花無柄；總苞片4，闊倒卵形至橢圓形；花被片4，外側被絹毛，內側光滑。雌花具短花梗，花被片4，卵形，外側被毛，不孕性雄蕊6~9，花柱被毛。核果，橢圓球形，長9~11 mm，光滑。



Neolitsea aciculata (Blume) Koidz. var. *variabilissima* (Hayata) J. C. Liao

Lauraceae

Endemic

Stratum

Sub-canopy

Description

Branchlets glabrous. Leaves alternate or clustered at top, thinly coriaceous, obovate-lanceolate, ovate to oblong, 8~15 cm long, 3~5 cm wide, acuminate to acute at apex, cuneate to obtuse at base, trinerved, glabrous and shiny above, glaucous below; petioles glabrous or nearly so. Dioecious; inflorescence an umbel, 3~7-flowered, clustered. Staminate flowers sessile; involucre bracts 4, broadly obovate to elliptical; perianths 4, sericeous outside, glabrous inside. Pistillate flowers

with short pedicels; perianths 4, ovate, hairy outside; staminodes 6~9, styles hairy. Drupe ellipsoid, 9~11 mm long, glabrous.



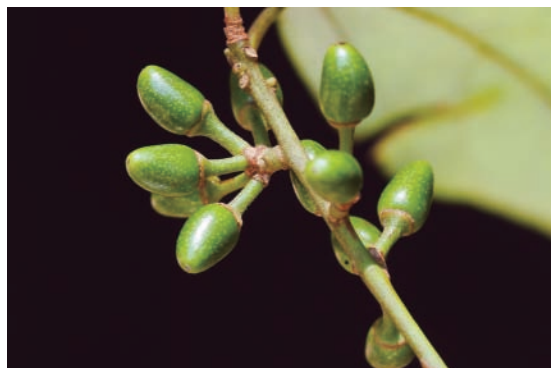
枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果(未熟) Immature drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	1697	48.29
2~5	1480	42.12
5~10	311	8.85
10~20	24	0.68
20~30	2	0.06
30~60	0	0.00
60~115	0	0.00

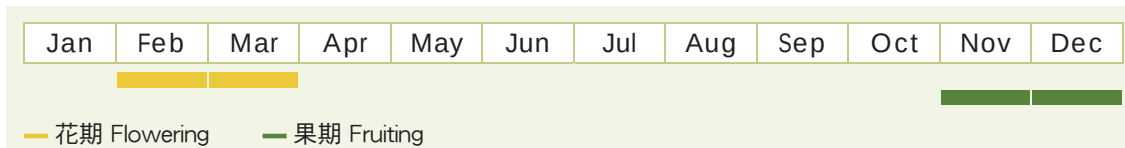
Total basal area=31029.35 cm²/25 ha

Number of trees/25 ha = 3514



樹皮 Bark

林奐慶 Huan-Ching Lin/攝



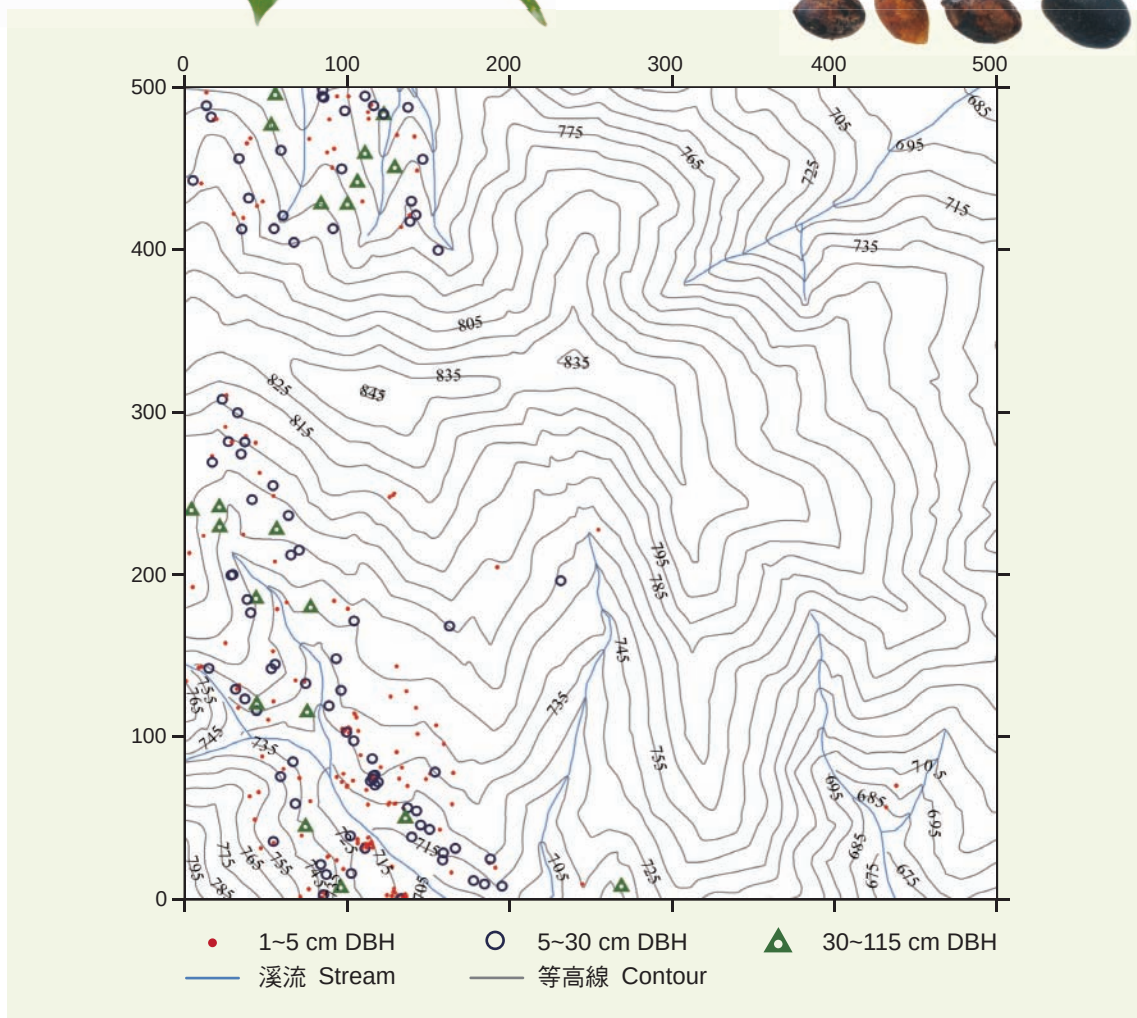
樟科

樹冠層級

冠層

描述

小枝光滑。葉叢生於枝端，革質，倒披針形至長橢圓形，長11~25 cm，寬3~5 cm，先端驟漸尖或銳尖，基部楔形，三出脈，全緣或略波浪緣，上表面光滑，下表面灰綠色且稀被平伏毛，幼時被金黃色長毛；葉柄光滑。雌雄異株；團繖狀花序，腋生或側生；總苞片近圓形，外側被毛，尾狀；花淡黃色，花被片4，卵狀披針形，外側被毛；雄花序5~6朵小花簇生；雌花子房卵球形，柱頭2裂。核果，橢圓球形，長約1.2 cm，熟時黑色。



Neolitsea konishii (Hayata) Kaneh. & Sasaki

Lauraceae

Stratum

Canopy

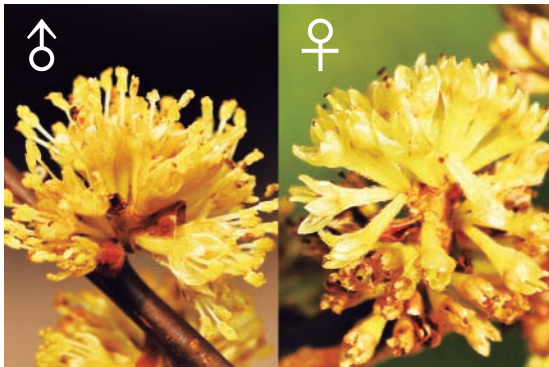
Description

Branchlets glabrous. Leaves clustered at apex of branchlets, coriaceous, oblanceolate to oblong, 11~25 cm long, 3~5 cm wide, abruptly acuminate or acute at apex, cuneate at base, trinerved, entire or slightly undulate, glabrous above, grayish-green and appressed hairy below, with long golden hairs when young; petioles glabrous. Dioecious; inflorescence glomerulate, axillary or lateral; involucral bracts nearly rounded, puberulent outside, caducous; flowers light-yellow, perianths 4, ovate-lanceolate, pubescent outside; staminate inflorescences 5- or 6-flowered clustered; ovary of pistillate flowers ovoid, stigmas 2-lobed. Drupe ellipsoid, ca. 1.2 cm long, black when mature.



植株 Entire plant

翁明毅 Ming-I Weng/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	64	24.06
2~5	91	34.21
5~10	44	16.54
10~20	23	8.65
20~30	23	8.65
30~60	20	7.52
60~115	1	0.37

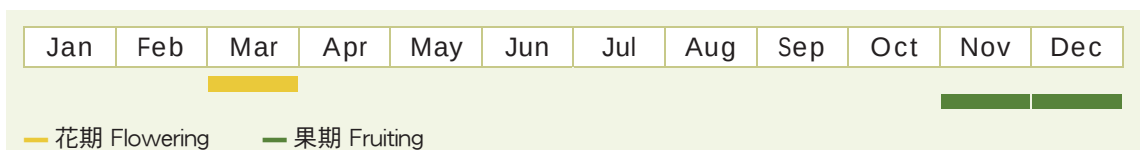
Total basal area=50936.25 cm²/25 ha

Number of trees/25 ha = 266



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





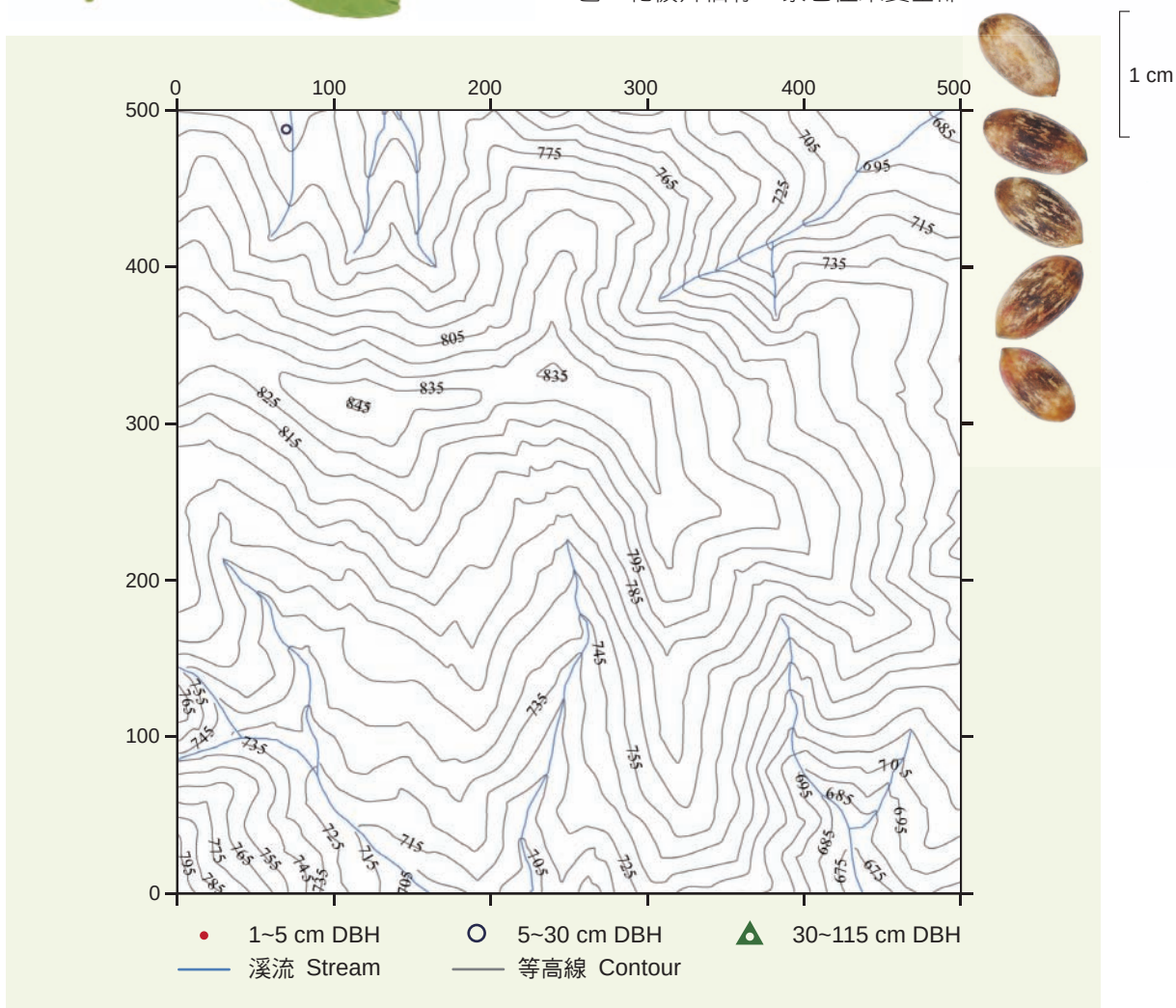
樟科

樹冠層級

次冠層

描述

小枝被灰褐色短毛。葉互生，厚紙質，闊倒卵形、倒卵形，倒披針形至長橢圓形，長12~18 cm，寬4~6 cm，先端銳尖，基部楔形，上表面光滑，下表面粉白色且被毛，細脈明顯呈網狀，葉基部有數條平行脈；葉柄長1~3 cm，被毛。花兩性；圓錐花序，被毛；腋生；黃白色；花被片6，大小相等，鈍狀，卵球形，兩面被曲柔毛，雄蕊9，子房卵形，柱頭略呈盤狀。核果，橢圓球形，長約1 cm，熟時黑紫色，花被片宿存，緊包住果實基部。



Phoebe formosana (Hayata) Hayata

Lauraceae

Stratum

Sub-canopy

Description

Branchlets with short grayish-brown hairs. Leaves alternate, thickly chartaceous, broadly obovate, obovate, oblanceolate to oblong, 12~18 cm long, 4~6 cm wide, acute at apex, cuneate at base, glabrous above, glaucous and hairy below, veinlets prominently reticulate, many parallel veins at base; petioles 1~3 cm long, pubescent. Bisexual; inflorescence a panicle, axillary, pubescent; flowers yellowish-white; perianths 6, equal, obtuse, ovoid, villous on both surfaces; stamens 9; ovary ovoid, style nearly disk-shaped. Drupe

ellipsoid, ca. 1 cm long, blackish-violet when mature; perianths persistent, clasping base of fruit.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flower

林奐慶 Huan-Ching Lin/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	0	0.00
2~5	0	0.00
5~10	0	0.00
10~20	1	100.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

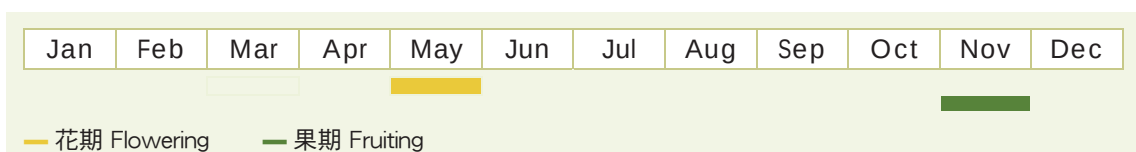
Total basal area= 213.72 cm²/25 ha

Number of trees/25 ha = 1

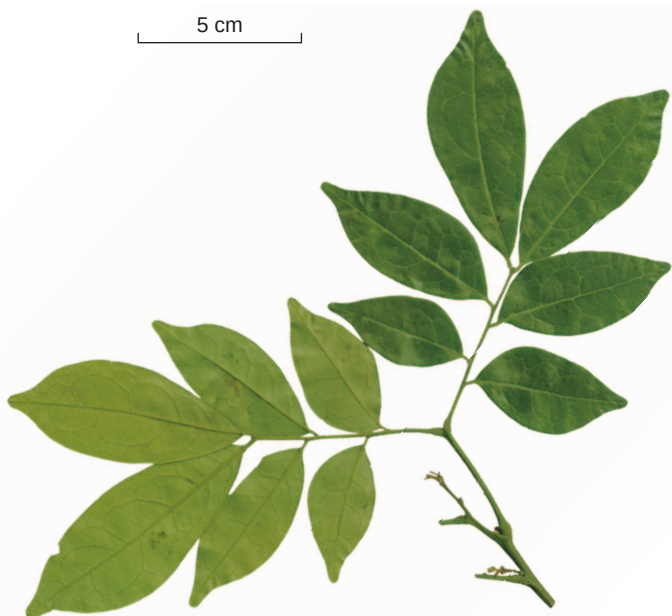


樹皮 Bark

林奐慶 Huan-Ching Lin/攝



5 cm



豆科

樹冠層級

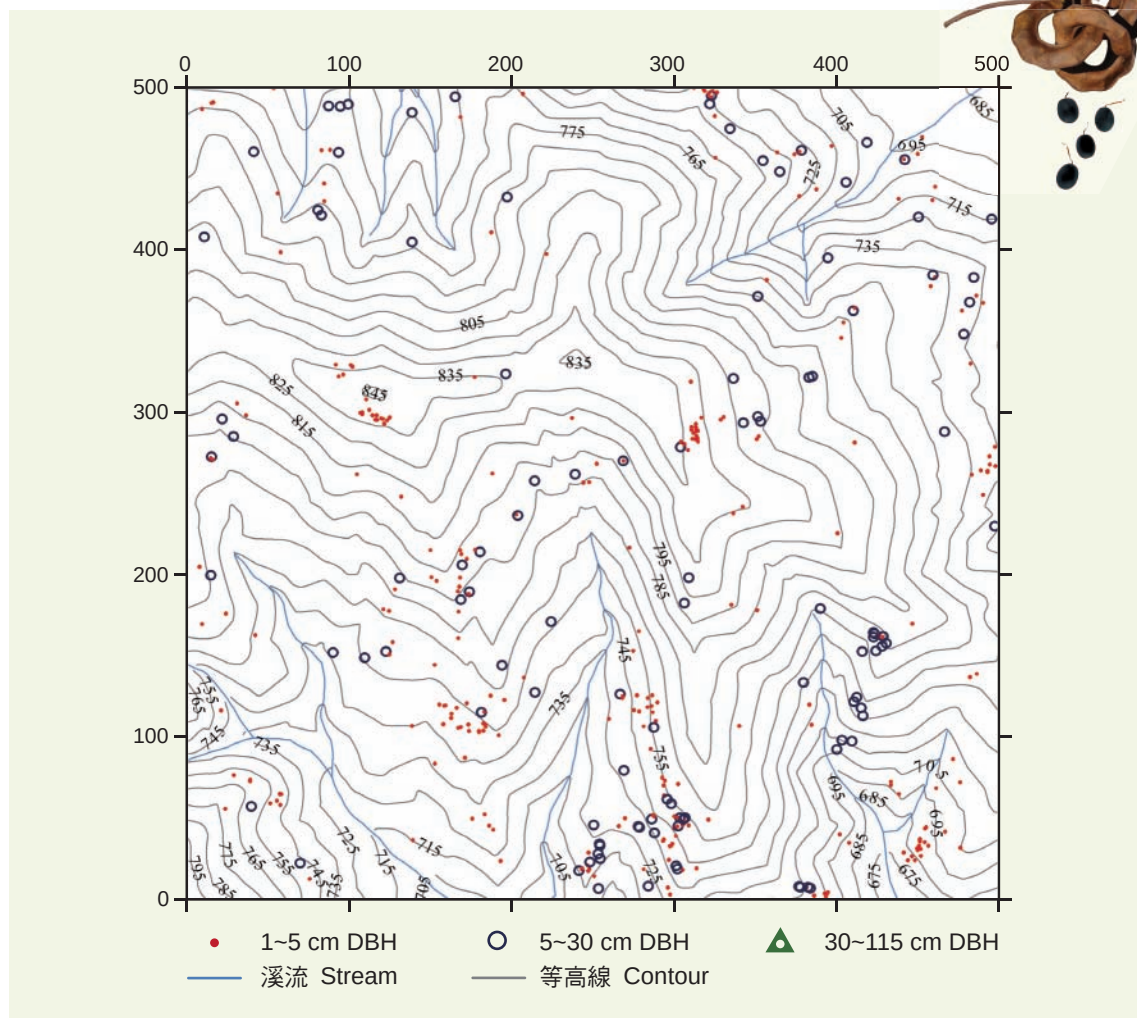
次冠層

描述

小枝條被鏽色毛。二回偶數羽狀複葉，小葉6~10枚，對生或互生，紙質，歪斜長橢圓形，長5~9 cm，寬2.5~4 cm，先端驟尖或短尾狀，基部歪斜楔形，全緣。花兩性；頂生或腋生，球型頭狀花序排列成圓錐狀；花白色或淡黃色；花萼筒狀，先端5裂，花冠筒狀，先端5裂，雄蕊多數，花絲挺出，子房有柄，花柱與雄蕊等長。莢果，革質，紅褐色，常扭曲成環狀，熟時開裂。種子以絲狀柄與莢果相連；種子多數，橢圓球形，紫黑色。



5 cm



Archidendron lucidum (Benth.) I. Nielsen

Leguminosae=Fabaceae

Stratum

Sub-canopy

Description

Branchlets rusty-pubescent. Leaves even-bipinnated; leaflets 6~10 pairs, opposite or subopposite, chartaceous, obliquely oblong, 5~9 cm long, 2.5~4 cm wide, cuspidate or short-caudate at apex, obliquely cuneate at base, margins entire. Bisexual; inflorescence panicles of ball-shaped capitulum, terminal or axillary; flowers white or light-yellow; calyx tubular, slightly 5-lobed at apex; corolla tubular, 5-lobed; stamens numerous, filaments exerted; ovary with stalk, style as long as stamen. Legume coriaceous, reddish-brown, twisted in a ring shape, dehiscing when

mature. Seeds connected to legume by filiform stalk. Seeds numerous, compressed-globose, purplish-black.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



莢果 Legume

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	169	43.56
2~5	110	28.35
5~10	54	13.92
10~20	46	11.85
20~30	9	2.32
30~60	0	0.00
60~115	0	0.00

Total basal area= 14937.67 cm²/25 ha

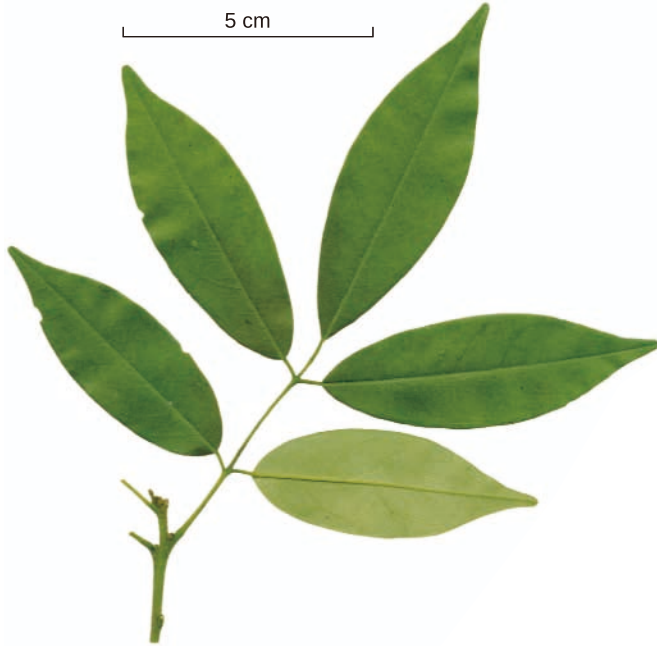
Number of trees/25 ha = 388



樹皮 Bark

林奐慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
花期 Flowering 果期 Fruiting											



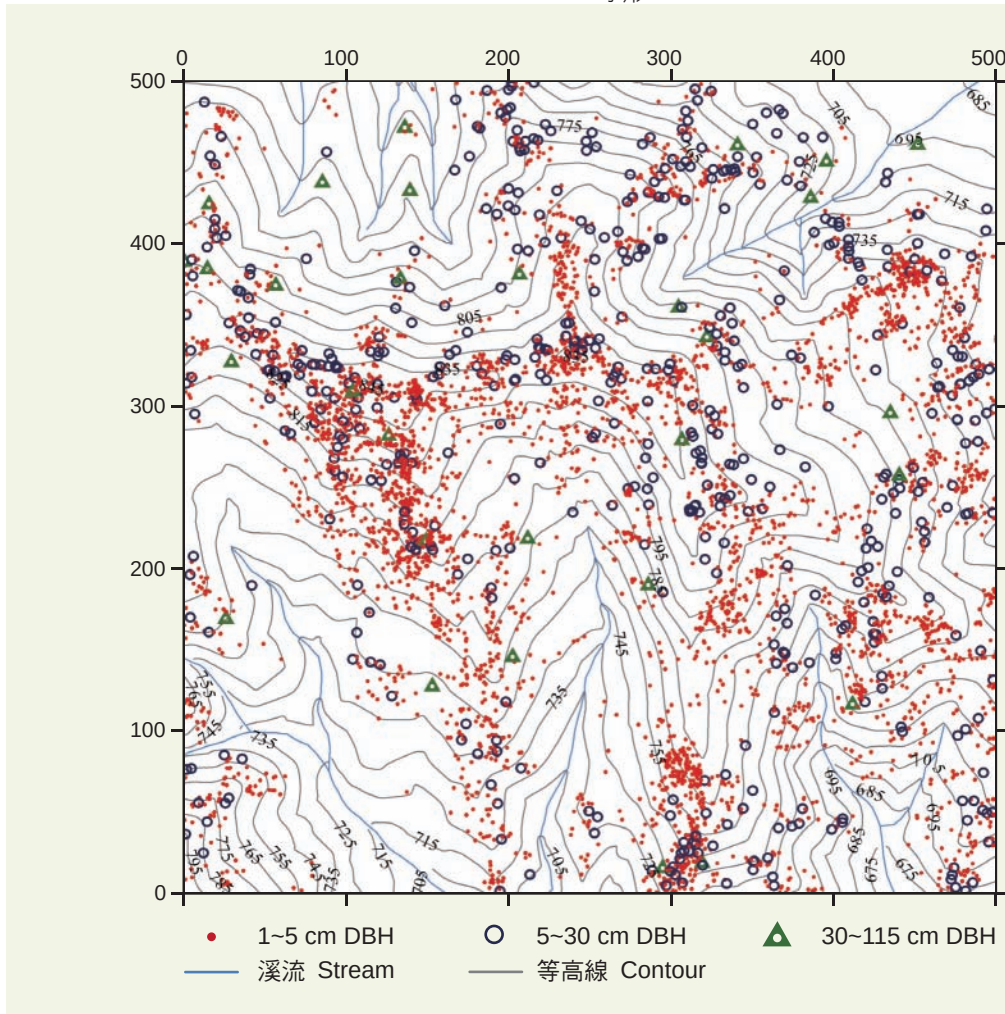
豆科 特有種

樹冠層級

冠層

描述

枝條及年輕樹皮呈綠色；幼枝被粗毛，漸變光滑。奇數羽狀複葉，互生，革質，光滑；小葉對生，3~7枚，通常5枚，披針形至倒披針形，先端漸尖至短尾狀，基部鈍形至銳尖，全緣，下表面灰綠色；葉柄具葉枕。花兩性；頂生，圓錐花序；花白色；花萼鐘形，外側被毛，先端5裂；蝶形花，旗瓣闊卵形，先端鈍，基部帶綠色，翼瓣長橢圓形，龍骨瓣披針形。莢果木質化，長橢圓形，長6~10 cm，成熟時開裂。種子1~4顆，亮橘紅至紅色，扁圓球形。



Ormosia formosana Kaneh.

Leguminosae=Fabaceae

Endemic

Stratum

Canopy

Description

Branches and young bark green; branchlets hirsute, gradually turning glabrate. Leaves odd-pinnate, alternate, coriaceous, glabrous; leaflets 3~7, usually 5, opposite, lanceolate to oblanceolate, acuminate to short-caudate at apex, obtuse to acute at base, entire, pale-green below; petiole pulvinous. Bisexual; inflorescence a panicle, terminal; flowers white; calyx campanulate, hairy outside, 5-lobed at apex; papilionaceous, normally broadly ovate, obtuse at apex, base greenish, wings oblong,

keels lanceolate. Legume woody, oblong, 6~10 cm long, dehiscing when mature. Seeds 1~4, bright orange-red to red, depressed-globose.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



莢果 Legumes

葉秋好 Chiou-Yu Yeh/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	2944	61.60
2~5	1249	26.13
5~10	333	6.97
10~20	174	3.64
20~30	49	1.03
30~60	30	0.63
60~115	0	0.00

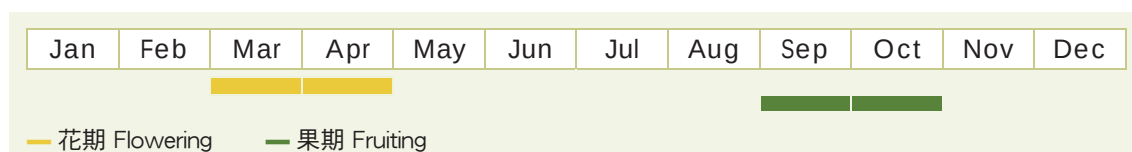
Total basal area= 110826.64 cm²/25 ha

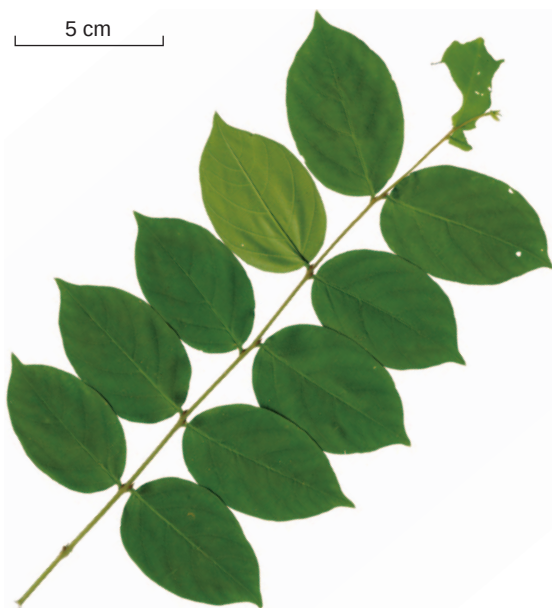
Number of trees/25 ha = 4779



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





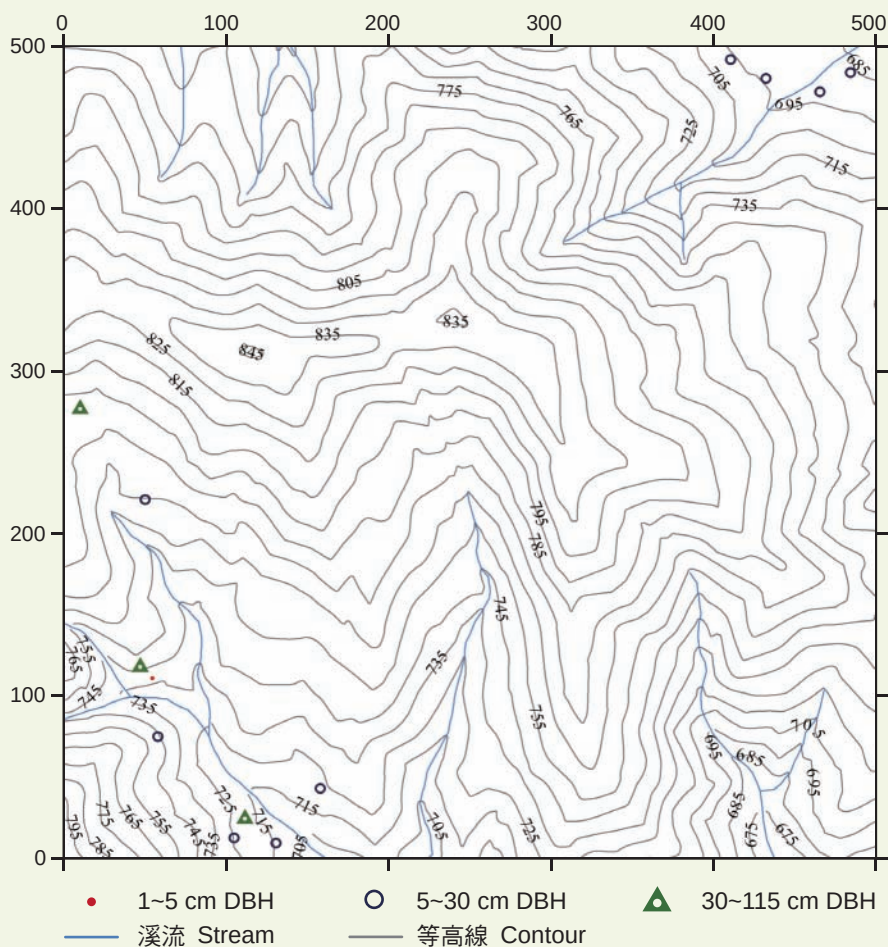
千屈菜科

樹冠層級

冠層

描述

樹幹為褐色帶有白色斑塊，十分光滑似塗蠟。葉互生，膜質，長橢圓形至卵形，長1.5~4.8 cm，寬1~3 cm，先端銳尖，基部鈍形，全緣，下表面光滑或稍被毛；葉柄短或近無柄。花兩性；頂生，密集圓錐花序，寬約15 cm，花序被粗毛；花白色；花萼5裂；花瓣6，皺褶狀，基部柄與瓣片等長或更長；雄蕊多數，長者5~6枚，短者12~14枚。蒴果，橢圓球形，長6~10 mm，3~6瓣開裂。種子具翼。



Lythraceae

Stratum

Canopy

Description

Trunk brown with large white spots, as glabrous as waxed. Leaves alternate, membranaceous, oblong to ovate, 1.5~4.8 cm long, 1~3 cm wide, acute at apex, obtuse at base, entire, glabrous or slightly pubescent below; petioles short or subsessile. Bisexual; inflorescence dense panicles about 15 cm across, terminal, hirsute; flowers white; calyx 5-lobed; petals 6, wrinkled, stalk as long as or longer than petals; stamens numerous, with 5 or 6 long and 12~14 short ones. Capsule ellipsoid, 6~10 mm long, dehiscent longitudinally into 3~6 valves. Seeds winged.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



蒴果 Capsules

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	0	0.00
2~5	1	7.69
5~10	3	23.08
10~20	5	38.46
20~30	1	7.69
30~60	3	23.08
60~115	0	0.00

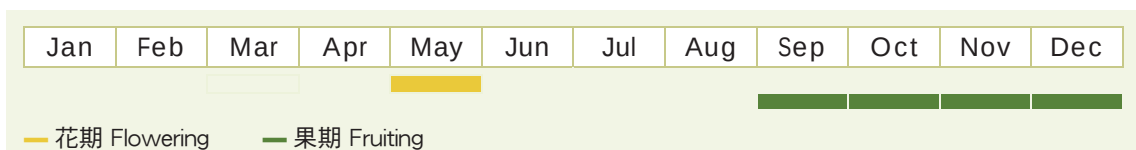
Total basal area = 7214.39 cm²/25 ha

Number of trees/25 ha = 13



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





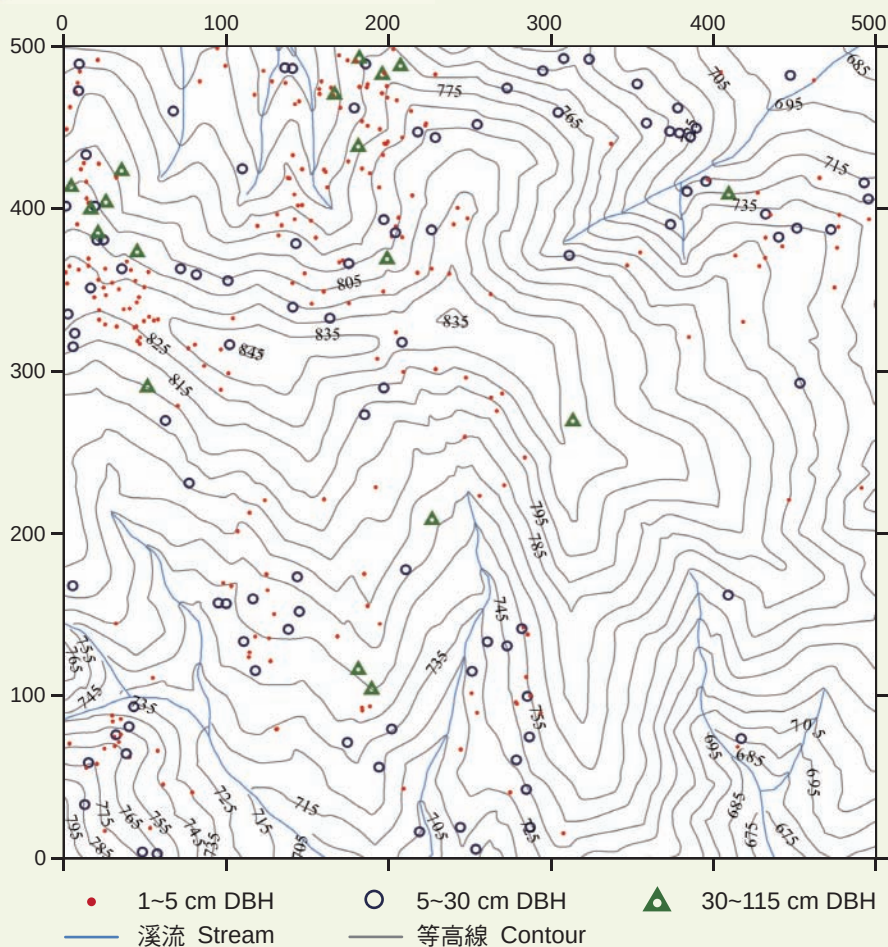
木蘭科

樹冠層級

冠層

描述

葉芽由托葉包覆，托葉外密被金褐色絹毛。葉互生，革質，長橢圓狀倒披針形或長橢圓形，長6~12 cm，寬2~3.5 cm，先端銳尖或鈍形，基部漸窄或楔形，全緣；葉柄長1~2 cm，被毛。花兩性；腋生；苞片形似佛焰苞，褐色，被絨毛；花被片9~12，倒披針形；雄蕊30~40，線形；25~30心皮組成一雌蕊群，卵形。蓇葖果6~15枚，穗狀著生於伸長之果軸上，卵球形，被皮孔狀小點。每一蓇葖果內種子2~3枚，紅色。



Michelia compressa (Maxim.) Sargent

Magnoliaceae

Stratum

Canopy

Description

Leaf buds imbricate with stipules, densely golden-brown-sericeous. Leaves alternate, coriaceous, oblong-ob lanceolate or oblong, 6~12 cm long, 2~3.5 cm wide, apex acute or obtuse, attenuate or cuneate at base, margins entire; petioles 1~2 cm long, pubescent. Bisexual; flowers axillary; bracts spathe-like, brown, tomentose; lobes of perianths 9~12, oblanceolate; stamens 30~40, linear; carpels 25~30 in a gynoeceum, ovoid. Follicles 6~15, spike-like on elongated gynophore, ovoid, lenticellate-dotted. Seeds 2 or 3 in a follicle, red.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



蓇葖果 Follicles

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	79	23.03
2~5	147	42.86
5~10	57	16.62
10~20	33	9.62
20~30	9	2.62
30~60	17	4.96
60~115	1	0.29

Total basal area = 41362.51 cm²/25 ha

Number of trees/25 ha = 343



樹皮 Bark

林炎慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
花期 Flowering 果期 Fruiting											



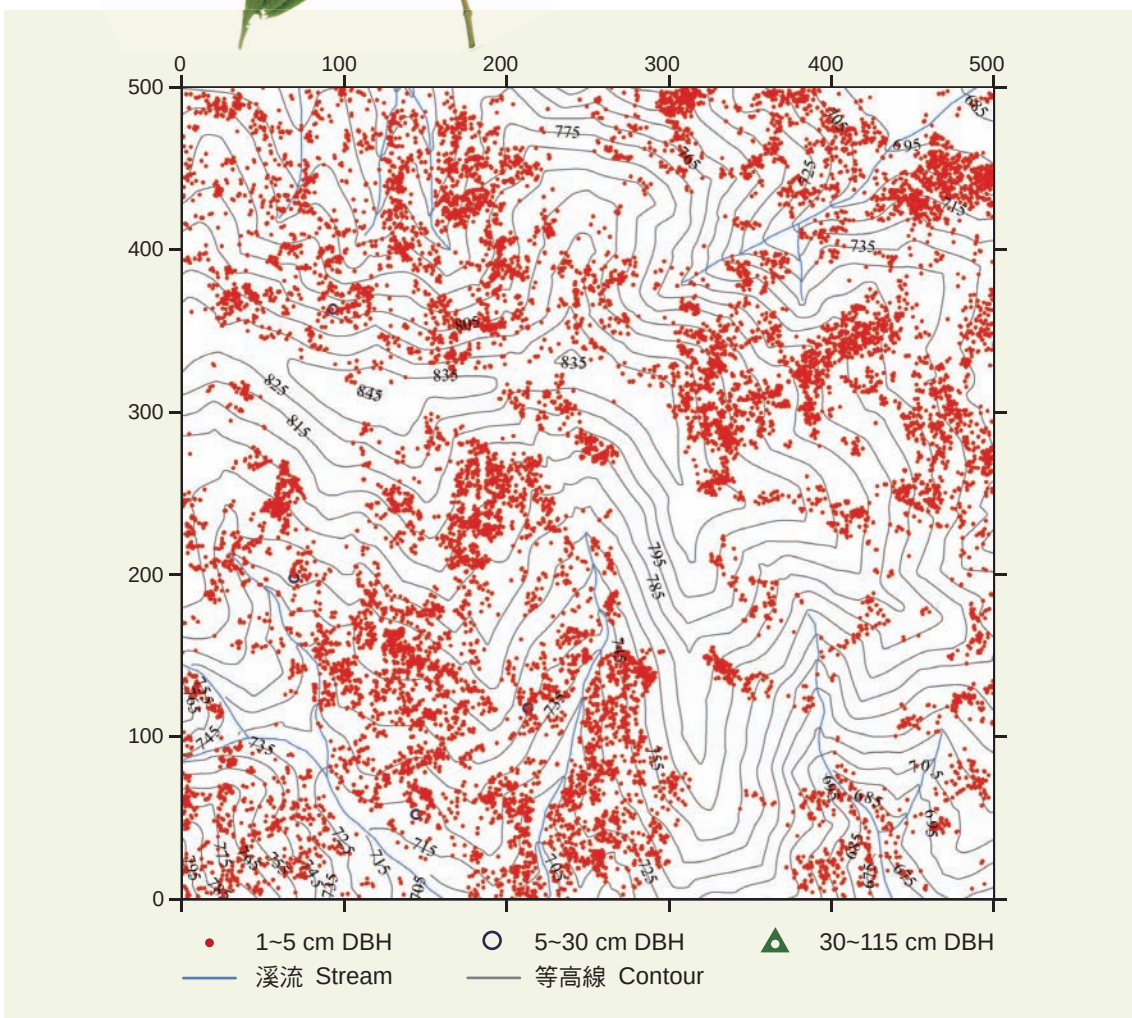
野牡丹科

樹冠層級

灌木層

描述

枝條光滑。葉對生，卵形至長橢圓狀披針形，長7~15 cm，寬3~5.5 cm，先端漸尖至尾狀，基部鈍至漸狹，全緣，上下表面被短毛，三出脈，上下表面葉脈明顯。花兩性；繖形花序，腋生，無花序柄；花萼鐘形，長約2 mm，4裂；花瓣4，白至淡粉紅色；雄蕊4，相等大小，粉紅色；子房下位，花柱長5~7 mm。蒴果，卵圓形，具不明顯四稜；種子多數。



Melastomataceae

Stratum

Shrub

Description

Branches glabrous. Leaves opposite, ovate to oblong-lanceolate, 7~15 cm long, 3~5.5 cm wide, acuminate to caudex at apex, obtuse to attenuate at base, entire, very shortly hairy on both surfaces, trinerved, veins distinct on both surfaces. Bisexual; inflorescence an umbel, axillary, sessile; calyx campanulate, ca. 2 mm long, 4-lobed; petals 4, white to light-pink; stamens 4, equal, pink; ovary inferior, style 5~7 mm long. Capsule ovoid, indistinctly tetragonal. Seeds numerous.



5 mm



枝條 Branches

李碧鳳 Bi-Fong Lee/攝



花 Flower

林炎慶 Huan-Ching Lin/攝



蒴果(未熟) Immature capsules

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	13884	85.71
2~5	2309	14.25
5~10	6	0.04
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

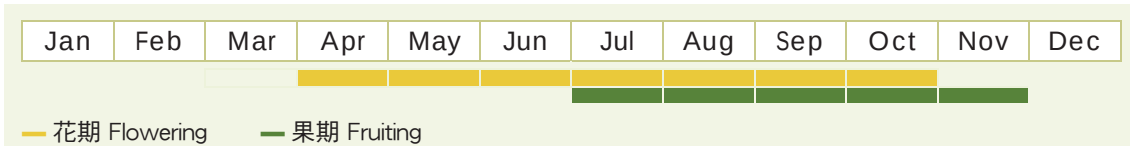
Total basal area = 37736.32 cm²/25 ha

Number of trees/25 ha = 16199



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





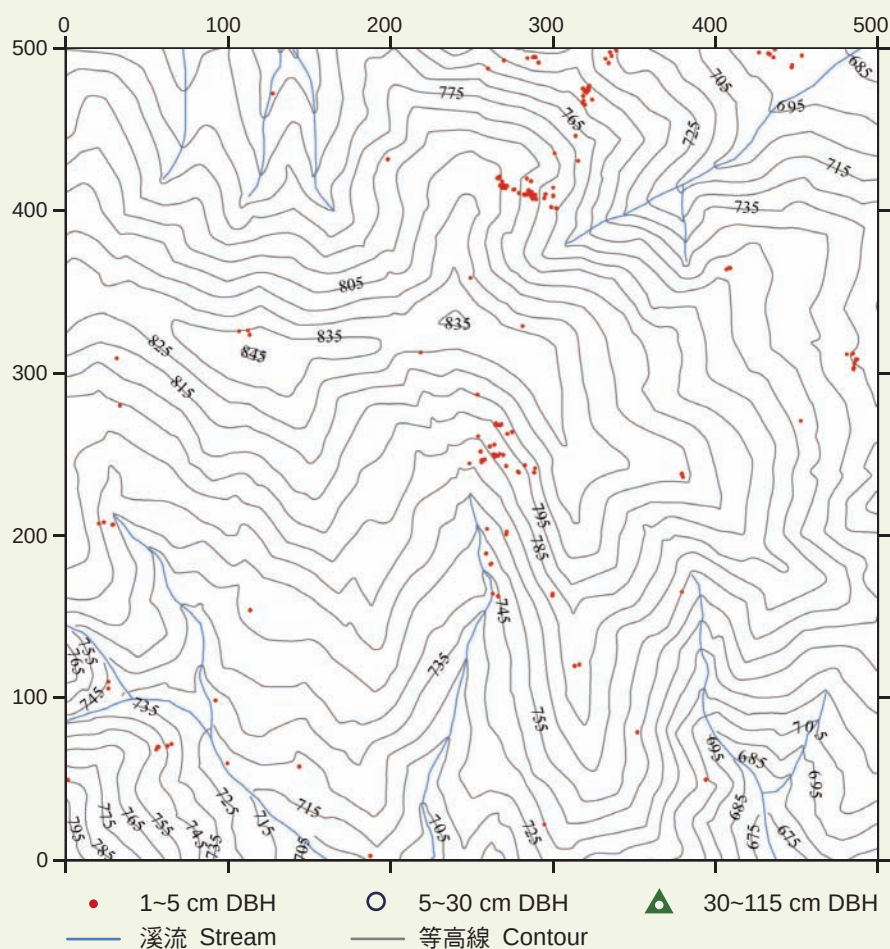
野牡丹科

樹冠層級

灌木層

描述

莖密被平伏鱗毛。葉對生，卵形或卵狀橢圓形，長6~12 cm，寬3~6 cm，5~7出脈，先端鈍至漸尖，基部圓或略呈心形，葉緣不明顯鋸齒狀，上下表面皆被短毛；葉柄被濃密鱗毛，長0.8~1.5 cm。花兩性；頂生聚繖花序；花萼密被鱗毛，裂片5，披針形；花瓣5，粉紅色或紫紅色，闊卵形，先端鈍，具突尖；雄蕊10，長短不一。蒴果，略肉質，卵圓形；種子多數。



Melastoma candidum D. Don

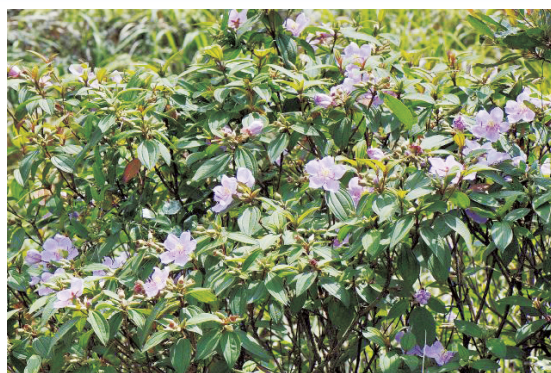
Melastomataceae

Stratum

Shrub

Description

Stem with densely appressed scaly hairs. Leaves opposite, ovate or ovate-elliptical, 6~12 cm long, 3~6 cm wide, 5-7-nerved, obtuse to acuminate at apex, rounded or slightly cordate at base, margins obscurely serrate, hairy on both surfaces; petioles with dense scaly hairs, 0.8~1.5 cm long. Bisexual; flower in terminal cymes; calyx with dense scaly hairs, lobes 5, lanceolate; petals 5, pink or purplish-red, broadly ovate, apex obtuse, mucronate apex; stamens 10, unequal. Capule slightly fleshy, ovoid. Seeds numerous.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flower

林奐慶 Huan-Ching Lin/攝



蒴果 Capsules

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	173	87.37
2~5	25	12.63
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

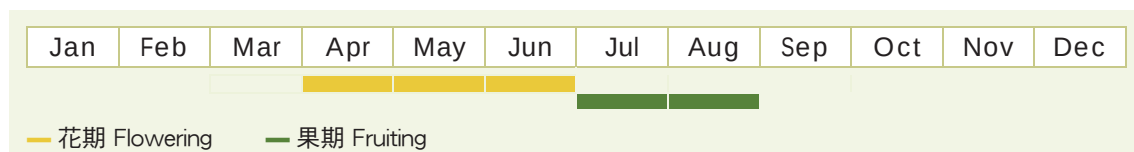
Total basal area = 516.07 cm²/25 ha

Number of trees/25 ha = 198



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





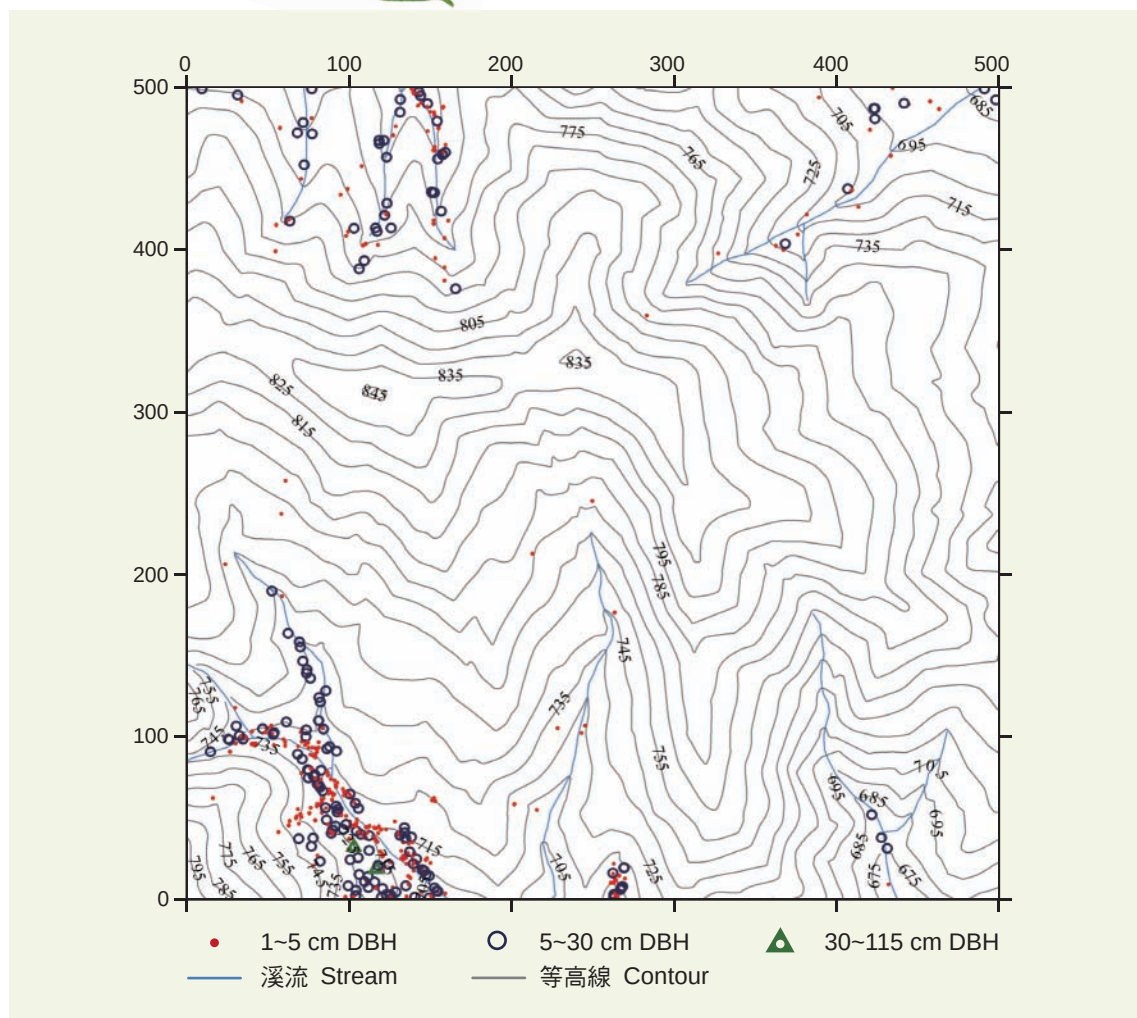
桑科

樹冠層級

冠層

描述

樹皮深褐色，枝條被糙硬毛。葉互生，厚紙質，葉倒卵形或長橢圓形，長10~25 cm，寬5~10 cm，上表面光滑，下表面略被毛，先端短銳形，基部楔形或鈍形，有時歪斜，全緣或圓鋸齒波浪狀；葉柄被鱗屑及糙毛。雌雄異株；隱頭花序，單生或叢生於樹幹、枝條上；雄花、蟲癭花於同一花序；雄花近花托先端，短花梗，雄蕊1；蟲癭花具長花梗；雌花於另一花序，子房卵圓形。隱花果，熟時橙紅色至紅褐色，圓球形；果柄被毛。



Moraceae

Stratum

Canopy

Description

Bark dark-brown, branches hispid. Leaves alternate, thick-chartaceous, obovate or oblong. 10~25 cm long, 5~10 cm wide, glabrous above, slightly puberulous below, short-acute at apex, cuneate or obtuse at base, sometimes oblique, entire or wavy-crenate; petioles scurfy, hispid. Dioecious; hypanthodium solitary or clustered on trunk or branches; staminate and gall flowers together; staminate flower near apex of receptacle, short-pedicellate, stamen 1; gall flowers long pedicellate; pistillate flowers on

other inflorescences, ovary ovoid. Syconium, orangish-red to reddish-brown when mature, globose; stalks puberulous.



枝條 Branches

林炎慶 Huan-Ching Lin/攝



榕果(幹生) Multiple fruits

翁明毅 Ming-I Weng/攝



榕果 Multiple fruits

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	141	30.79
2~5	162	35.37
5~10	65	14.19
10~20	64	13.97
20~30	24	5.24
30~60	2	0.44
60~115	0	0.00

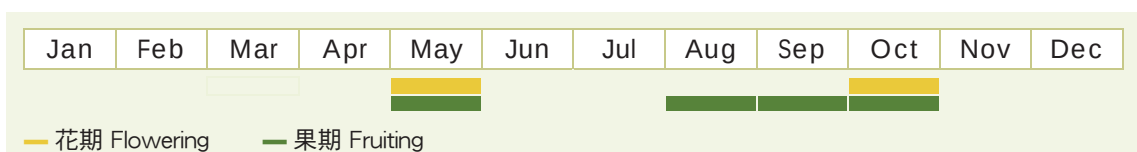
Total basal area = 32155.15 cm²/25 ha

Number of trees/25 ha = 458



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





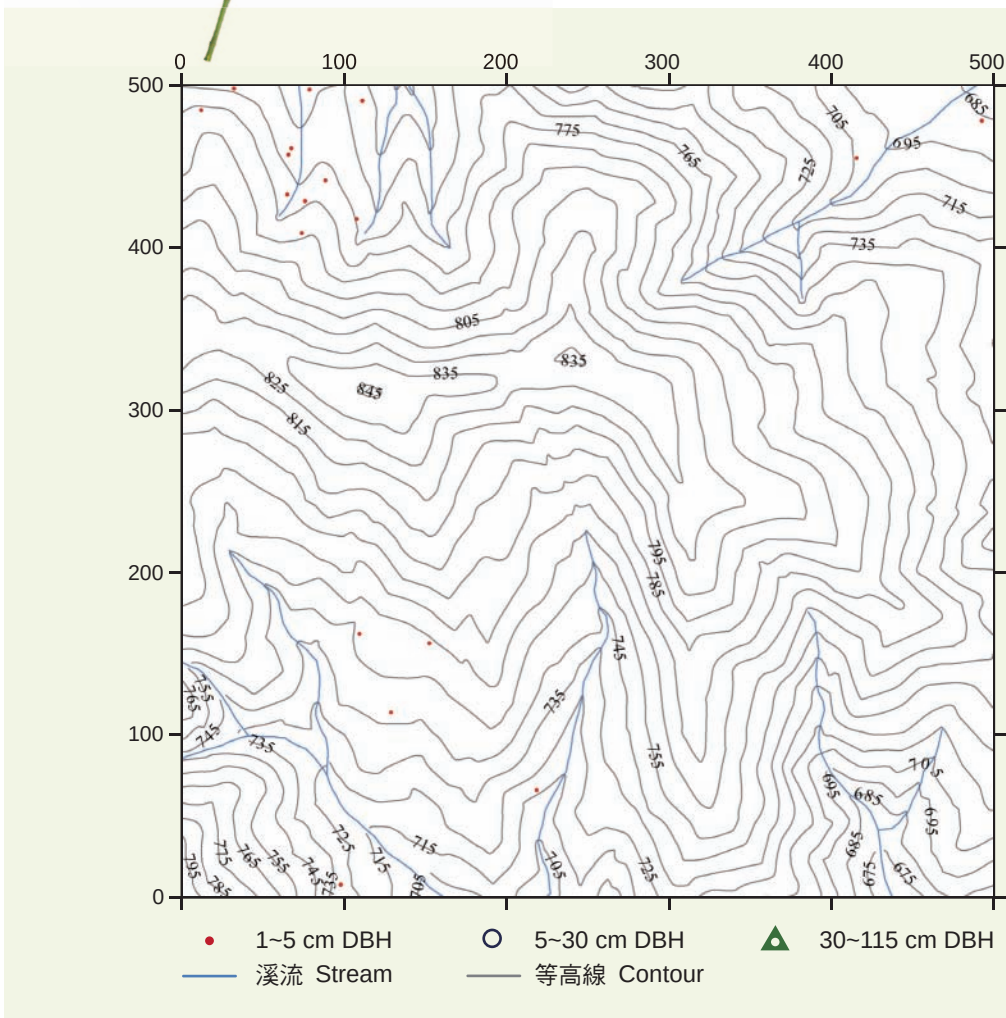
桑科

樹冠層級

灌木層

描述

枝條被毛或疏直柔毛。葉互生，薄紙質，長倒卵形，長4~12 cm，寬1.5~4 cm，先端短驟尖，基部銳形或楔形，全緣或上部疏生鈍齒，下表面疏離的網脈明顯；葉柄被鱗屑或毛，長0.5~1 cm；托葉早落。雌雄異株或同株，隱頭花序，腋生；雄花、蟲癭花及雌花混生；雄花具長柄，基部常具一苞片；蟲癭花具柄，柱頭膨大，截形；雌花近無柄，柱頭尖細。隱花果初為綠色，帶白點，熟時紫黑色，卵球形，先端乳頭狀，光滑；果柄粗短。



Moraceae

Stratum

Shrub

Description

Branches glabrous or sparsely pilose. Leaves alternate, chartaceous, long-obovate, 4~12 cm long, 1.5~4 cm wide, short-cuspidate at apex, acute or cuneate at base, entire or rarely largely dentate on upper parts, distinctly alienated reticulate below; petioles scurfy or pubescent, 0.5~1 cm long; stipules fugacious. Dioecious or monoecious; hypanthodium axillary; staminate, gall or pistillate flowers mixed; staminate flowers long-pedicellate, often with single bract at base; gall flowers pedicellate, stigma dilated, truncate; pistillate flowers nearly sessile, stigma tapering.

Syconium green when young, with whitish dots, purplish-black when mature, ovoid, with mucronate apex, glabrous; stalks stout.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



榕果 Multiple fruits

林奕慶 Huan-Ching Lin/攝



榕果(剖面) Multiple fruits

林奕慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	18	100.00
2~5	0	0.00
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

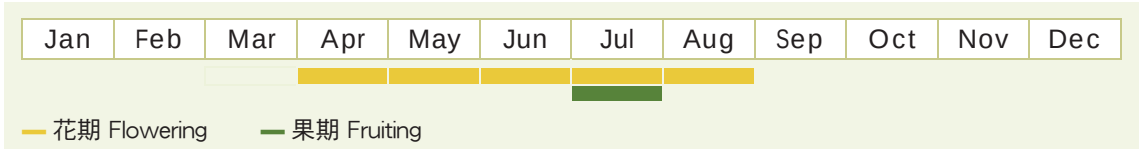
Total basal area = 22.92 cm²/25 ha

Number of trees/25 ha = 18



樹皮 Bark

林奕慶 Huan-Ching Lin/攝



5 cm

桑科

樹冠層級

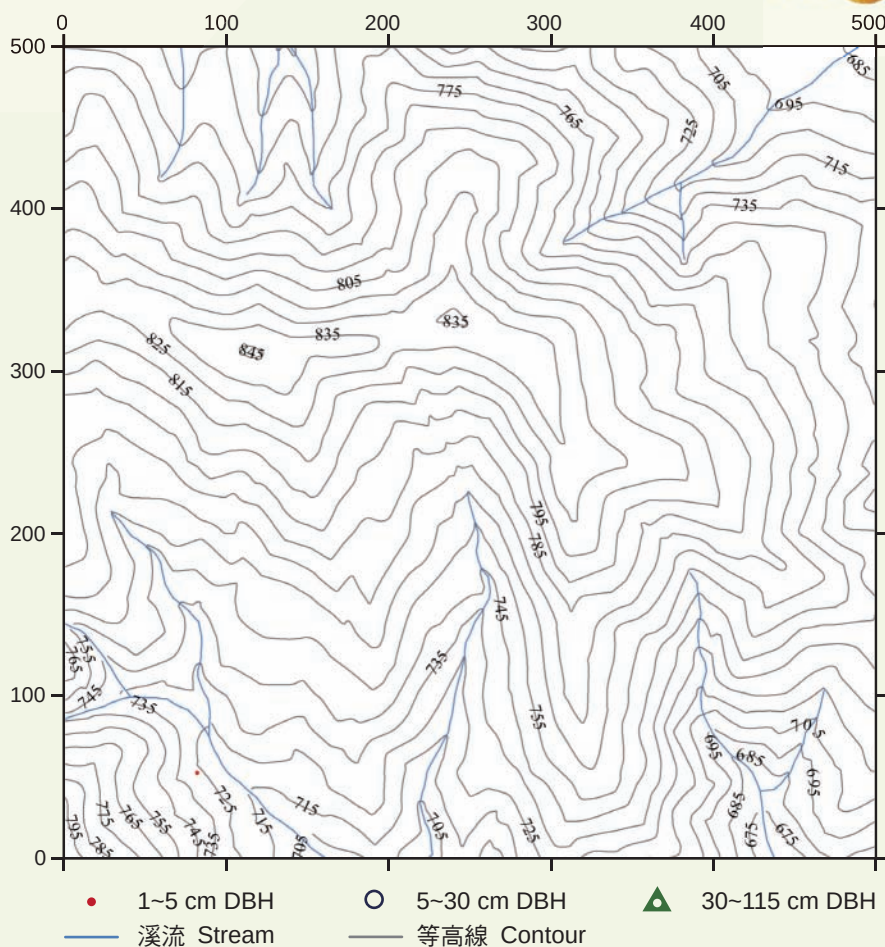
次冠層

描述

枝條及小枝纖細，被毛。葉互生，薄革質，長橢圓形、橢圓形或闊披針形，長5~12 cm，寬2~5 cm，先端銳尖或短尾狀，基部或多或少歪斜鈍形或楔形，全緣，具三出脈，上表面粗糙，下表面脈突起；葉柄被粗毛；托葉早落。雌雄異株，隱頭花序，腋生；雄花與蟲癭花同一花序；雄花具雄蕊1枚；蟲癭花，花柱短；雌花於另一花序，近無柄，花柱長。隱花果熟時淡黃至紅色或橙紅色，單一或成對，圓球形，徑0.5~0.6 cm；果柄細長。



1 cm



Moraceae

Stratum

Sub-canopy

Description

Branches and branchlets slender, with hairs. Leaves alternate, thinly coriaceous, oblong, elliptical or broadly lanceolate, 5~12 cm long, 2~5 cm wide, acute or short-caudate at apex, more or less obliquely obtuse or cuneate at base, entire, trinerved, somewhat scabrous above, veins prominent below; petioles hispid; stipules fugacious. Dioecious; hypanthodium axillary; staminate and gall flowers on same inflorescence; stamen of staminate flowers 1; style of gall flowers short; pistillate flowers on other inflorescences, sessile, style long.

Syconium light-yellow to red or orangish-red when mature, solitary or in pairs, globose, 0.5~0.6 cm across; stalks slender.



枝條 Branches

翁明毅 Ming-I Weng/攝



榕果 Multiple fruits

林炎慶 Huan-Ching Lin/攝



幼苗 Seedlings

翁明毅 Ming-I Weng/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	1	100.00
2~5	0	0.00
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

Total basal area = 3.09 cm²/25 ha

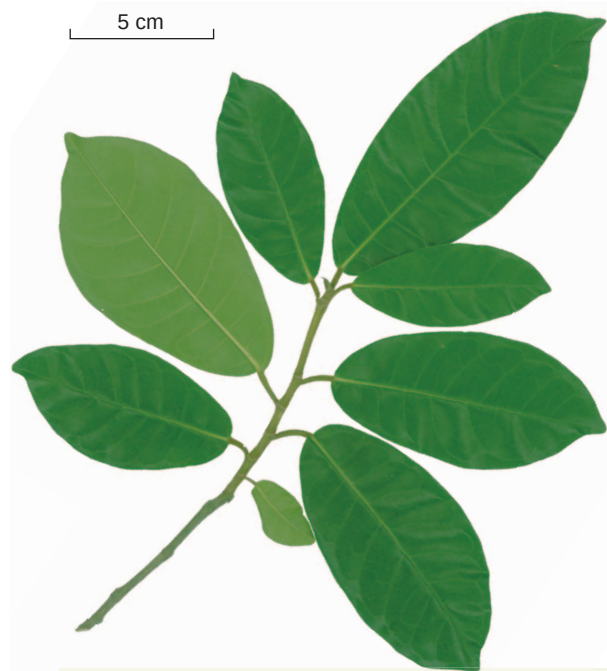
Number of trees/25 ha = 1



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





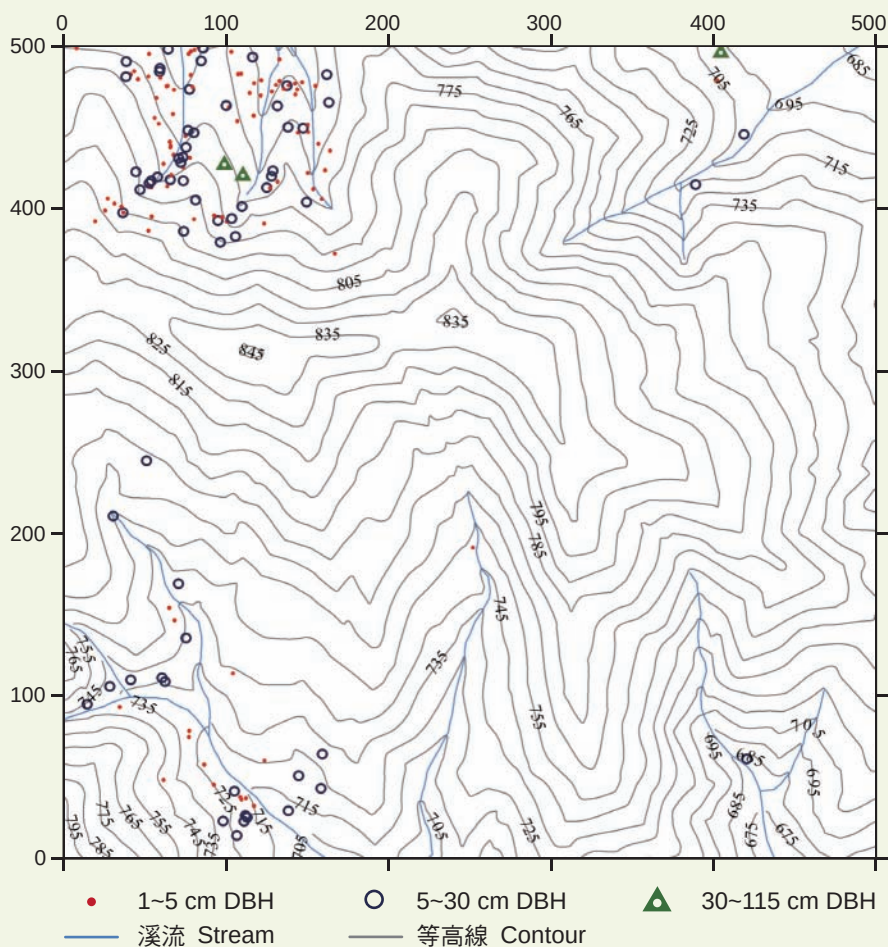
桑科

樹冠層級

冠層

描述

樹皮深褐色，小枝被毛。葉互生，革質，兩面光滑，倒披針形至長橢圓形，長8~20 cm，寬4~6.5 cm，先端銳尖，基部楔形或鈍形，全緣，中肋及側脈明顯突出葉下表面；葉柄長1.5~2.5 cm；托葉早落。雌雄同株，隱頭花序，腋生；雄花、蟲癭花及雌花混生；雄花近花托先端，雄蕊1；蟲癭花具柄，子房卵球形；雌花子房卵球形，花被片3~4，花柱細長。隱花果熟時黃色或紅褐色，單生或成對，圓球形，光滑；基部無苞片；柄細長。



Moraceae

Stratum

Canopy

Description

Bark dark-brown, branchlets pubescent. Leaves alternate, coriaceous, glabrous on both surfaces, oblanceolate to oblong, 8~20 cm long, 4~6.5 cm wide, acute at apex, cuneate or obtuse at base, entire, midrib and lateral veins prominent below; petioles 1.5~2.5 cm long; stipules fugacious. Monoecious; hypanthodium axillary; staminate, gall and pistillate flowers mixed; staminate flowers near apex of receptacle, stamen 1; gall flowers pedicellate, ovary ovoid; ovary of pistillate flowers ovoid, perianths 3- or 4-lobed, style

slender. Syconium yellow or reddish-brown when mature, solitary or in pairs, globose, glabrous; basal bracts none; stalk slender.



枝條 Branches

翁明毅 Ming-I Weng/攝



榕果 Multiple fruits

林炎慶 Huan-Ching Lin/攝



幼苗 Seedling

翁明毅 Ming-I Weng/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	36	22.36
2~5	58	36.03
5~10	31	19.26
10~20	22	13.66
20~30	11	6.83
30~60	1	0.62
60~115	2	1.24

Total basal area= 30647.92 cm²/25 ha

Number of trees/25 ha = 161



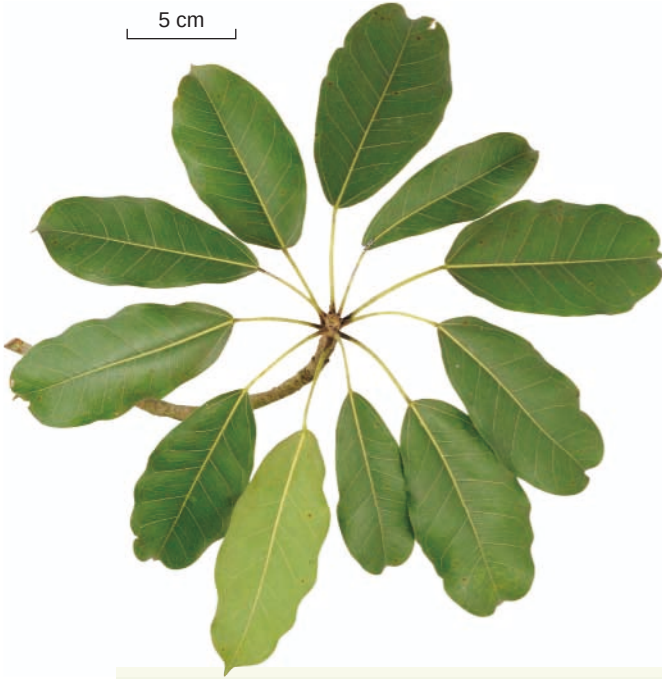
樹皮 Bark

林炎慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

— 花期 Flowering — 果期 Fruiting

5 cm



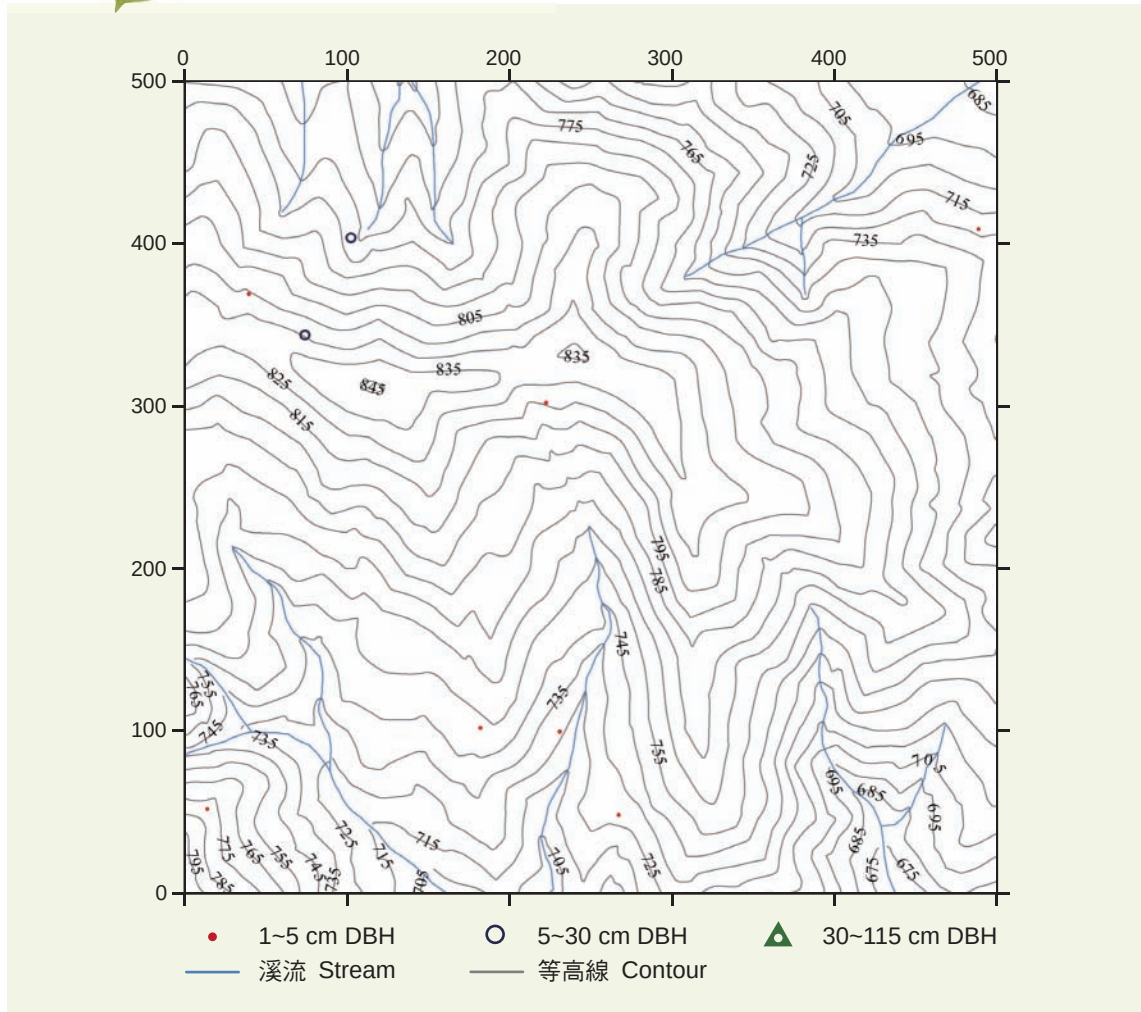
桑科

樹冠層級

次冠層

描述

具氣生根，樹皮深褐色，光滑。葉互生，常叢生於枝條先端，紙質，光滑，橢圓形或長橢圓形，長8~17 cm，寬4~6 cm，先端短漸尖，基部圓，全緣或微波浪緣，光滑；葉柄細長，長2~5 cm；托葉早落。雌雄同株；隱頭花序，腋生；雄花、蟲癭花及雌花混生；雄花位於近花托開口，無柄；蟲癭花具柄，子房圓球形，花柱短；雌花無柄，子房圓球形，花柱細長。隱花果熟時紅色，被白點，單生或叢生，圓球形至近扁圓球形，光滑；柄短。



Ficus superba (Miq.) Miq. var. *japonica* Miq.

Moraceae

Stratum

Sub-canopy

Description

With aerial roots, bark dark-brown, glabrous. Leaves opposite, clustered on top of branches, chartaceous, glabrous, elliptical or oblong, 8~17 cm long, 4~6 cm wide, short acuminate at apex, rounded at base, entire or slightly undulate at margins, glabrous; petioles slender, 2~5 cm long; stipules fugacious. Monoecious; hypanthodium axillary; staminate, gall and pistillate flowers mixed; staminate flower near opening of receptacle, sessile; gall flowers pedicellate, ovary globose, style short; pistillate flowers sessile, ovary globose, style slender. Syconium reddish when mature, with many

whitish dots, solitary or clustered, globose to slightly depressed-globose, glabrous; stalks short.



植株 Entire plant

林炎慶 Huan-Ching Lin/攝



榕果 Multiple fruits

葉秋好 Chiou-Yu Yeh/攝



榕果 Multiple fruits

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	1	11.11
2~5	6	66.67
5~10	1	11.11
10~20	0	0.00
20~30	1	11.11
30~60	0	0.00
60~115	0	0.00

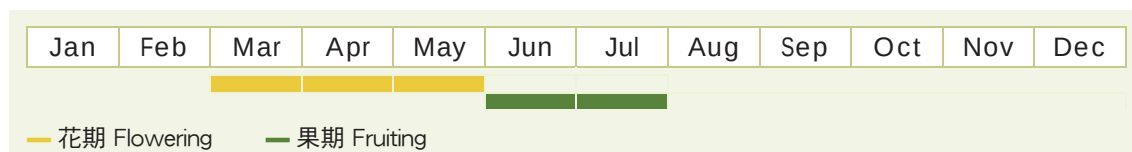
Total basal area= 668.10 cm²/25 ha

Number of trees/25 ha = 9



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





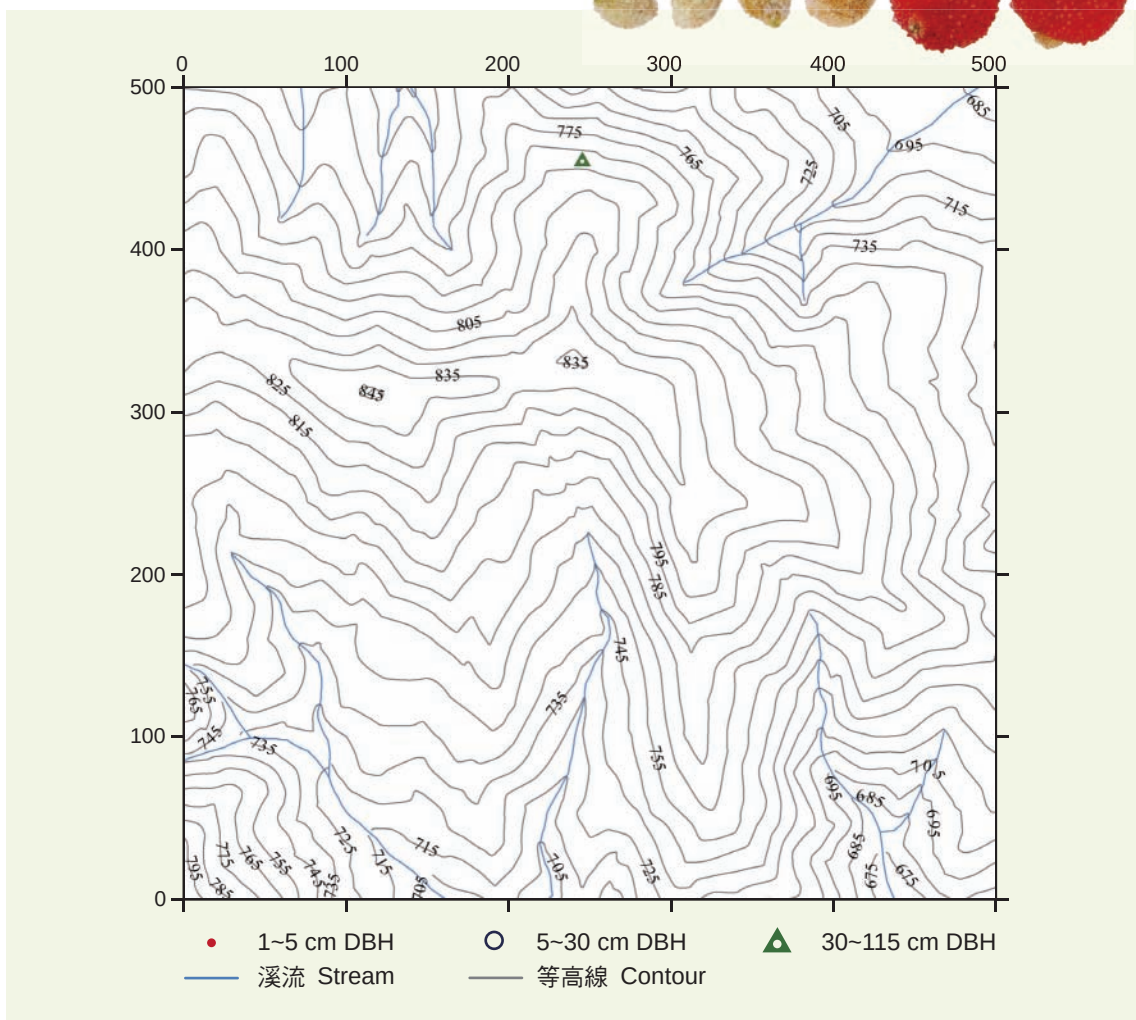
楊梅科

樹冠層級

冠層

描述

樹皮灰色，具淺縱裂溝；小枝光滑。葉互生，常叢生小枝頂端，倒卵狀橢圓形或倒披針形，長5~12 cm，寬2~2.5 cm，先端鈍或圓，基部狹楔形，兩面光滑，全緣或上半部有鋸齒；葉柄長0.5~1 cm。雌雄異株；雄花呈葇荑花序，單生或叢生葉腋，長2.5~4 cm，雄蕊6~8；雌花呈穗狀花序，單生，腋生，花柱2。核果，外被多數密生的囊狀突起，紅色，肉質多汁，球形，徑1~2 cm。



Stratum

Canopy

Description

Bark grayish, shallowly longitudinally furrowed; branchlets glabrous. Leaves alternate, clustered on top of branchlets, obovate-elliptical or oblanceolate, 5~12 cm long, 2~2.5 cm wide, apex obtuse or rounded, narrow-cuneate at base, glabrous on both surfaces, entire or serrate on upper part; petioles 0.5~1 cm long. Dieocious; staminate inflorescence a catkins, solitary or clustered in axils of leaves, 2.5~4 cm long, stamens 4~6; pistillate inflorescence catkins, solitary, axillary, styles

2. Drupe with densely saccate murication outside, reddish, succulent, spherical, 1~2 cm across.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林煥慶 Huan-Ching Lin/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	0	0.00
2~5	0	0.00
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	1	100.00

Total basal area= 5473.22 cm²/25 ha

Number of trees/25 ha = 1



樹皮 Bark

林煥慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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— 花期 Flowering

一 果期 Fruiting



紫金牛科

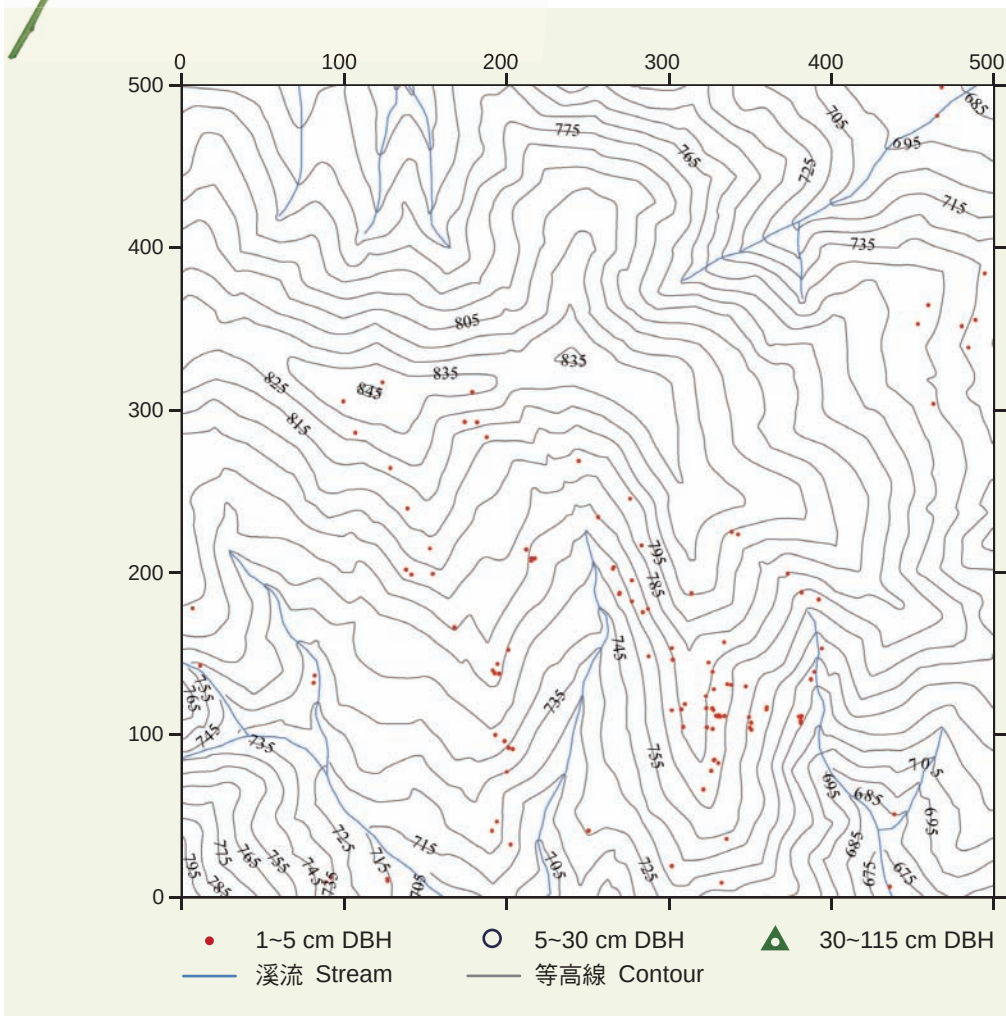
特有種

樹冠層級

灌木層

描述

小枝及開花枝條上被鏽色多細胞短毛。葉互生，近革質，長7~14 cm，寬2~4 cm，先端銳尖或漸尖，有時短尾狀漸尖，基部楔形或漸狹，葉緣明顯尖角狀齒牙緣，齒先端具腺體，下表面主脈上有稀疏的多細胞短毛。花兩性；繖形或複繖形花序，側生或生長於葉腋；萼片闊卵形，覆瓦狀排列；花瓣5，卵形，白至粉紅色，散生斑點；雄蕊5；花柱細長。核果，球形，徑5~7 mm，紅色。



Ardisia cornudentata Mez subsp. *morrisonensis* (Hayata) Yuen P. Yang

Myrsinaceae

Endemic

Stratum

Shrub

Description

Branchlets and flowering branches with rusty multicellular hairs. Leaves alternate, subcoriaceous, 7~14 cm long, 2~4 cm wide, apex acute or acuminate, sometimes shortly caudate-acuminate, cuneate or attenuate at base, obviously dentate, glands at apex, lower surface with sparse multicellular hairs along midrib. Bisexual; umbel or compound umbel, lateral or axillary; sepals broadly ovate, imbricate; petals 5, ovate, white to pink, sparsely spotted; stamens 5; styles slender. Drupe globose, 5~7 mm across, red.



枝條 Branches

李碧鳳 Bi-Fong Lee/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	118	96.72
2~5	4	3.28
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

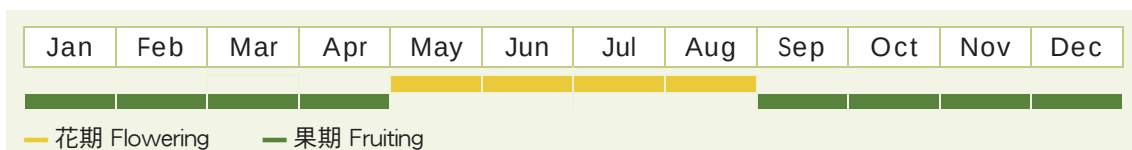
Total basal area= 185.22 cm²/25 ha

Number of trees/25 ha = 122



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





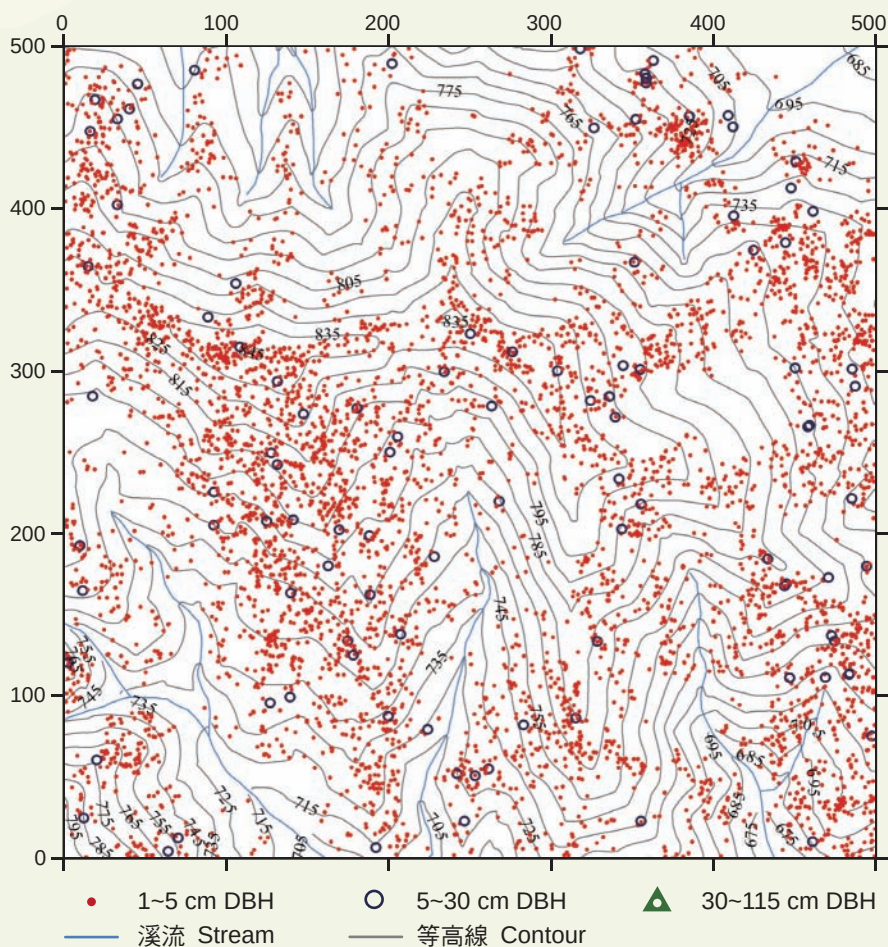
紫金牛科

樹冠層級

次冠層

描述

枝條細長，幼枝被暗褐色鱗片。葉互生，紙質，長橢圓形、長橢圓狀披針形、橢圓狀披針形或倒披針形，長5~12 cm，寬2~3 cm，先端長漸尖至漸尖，基部銳尖、楔形或漸狹，全緣，上表面綠色，下表面淡綠色被褐色鱗片。花兩性；聚繖花序或近繖形花序，側生或腋生；花萼三角狀卵形，被緣毛和小點；花瓣5，闊橢圓狀卵形，被緣毛和小點。核果，扁平球形，稍具5鈍角，熟時黑色。





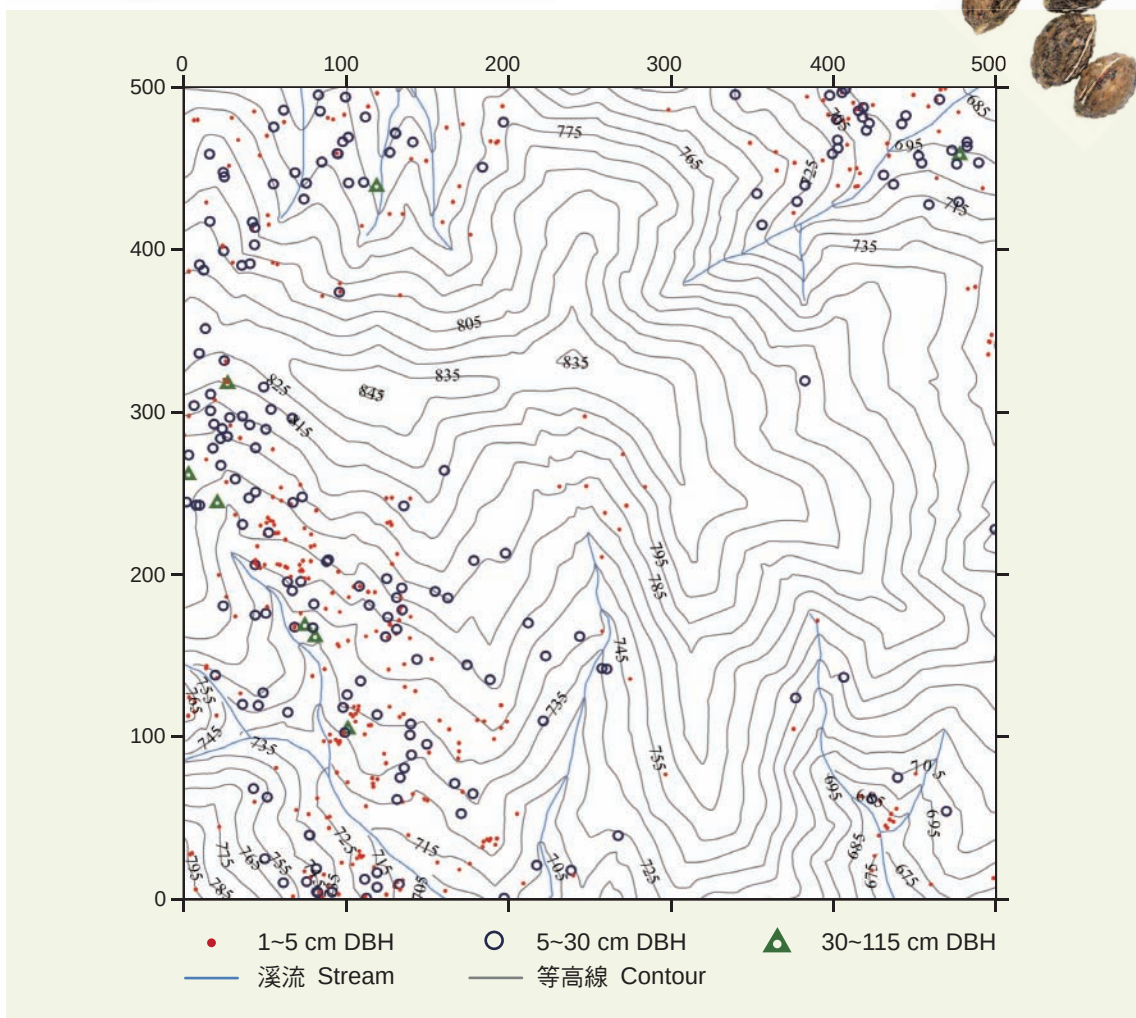
紫金牛科

樹冠層級

冠層

描述

幼枝疏被鱗片。葉叢生於枝端，革質，倒卵形，偶呈橢圓狀倒卵形或倒披針形，長6~18 cm，寬2.5~6 cm，先端圓、鈍或銳尖，基部漸尖至楔形，上表面綠色光滑，下表面亮綠色，被細小鱗片，側脈多數，不明顯；葉柄長3~8 cm，被細小鱗片。花兩性；腋生或頂生，複繖形花序、近繖形花序或聚繖花序；花萼裂片三角形，全緣或疏具緣毛；花冠5，裂片闊卵形，白色或略帶粉紅色。核果，球形，初綠色，熟時先紅再轉黑色。



Myrsinaceae

Stratum

Canopy

Description

Branches sparsely lepidote when young. Leaves clustered at top of branches, coriaceous, usually obovate, sometimes elliptical-obovate or oblanceolate, 6~18 cm long, 2.5~6 cm wide, apex rounded, obtuse or acute, acuminate to cuneate at base, green and glabrous above, light-green and minutely lepidote below, lateral veins numerous, inconspicuous; petioles 3~8 cm long, minutely lepidote. Bisexual; inflorescence a compound umbel, subumbellate or cymose, axillary or terminal; calyx lobes triangular, entire or slightly

ciliate; corolla lobes 5, broadly ovate, white or sparsely pink. Drupe globose, green, red to black when mature.



植株 Entire plant

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果 Drupes

翁明毅 Ming-I Weng/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	146	28.24
2~5	172	33.27
5~10	72	13.92
10~20	87	16.83
20~30	32	6.19
30~60	8	1.55
60~115	0	0.00

Total basal area= 47266.04 cm²/25 ha

Number of trees/25 ha = 517



樹皮 Bark

林奐慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
花期 Flowering 果期 Fruiting											



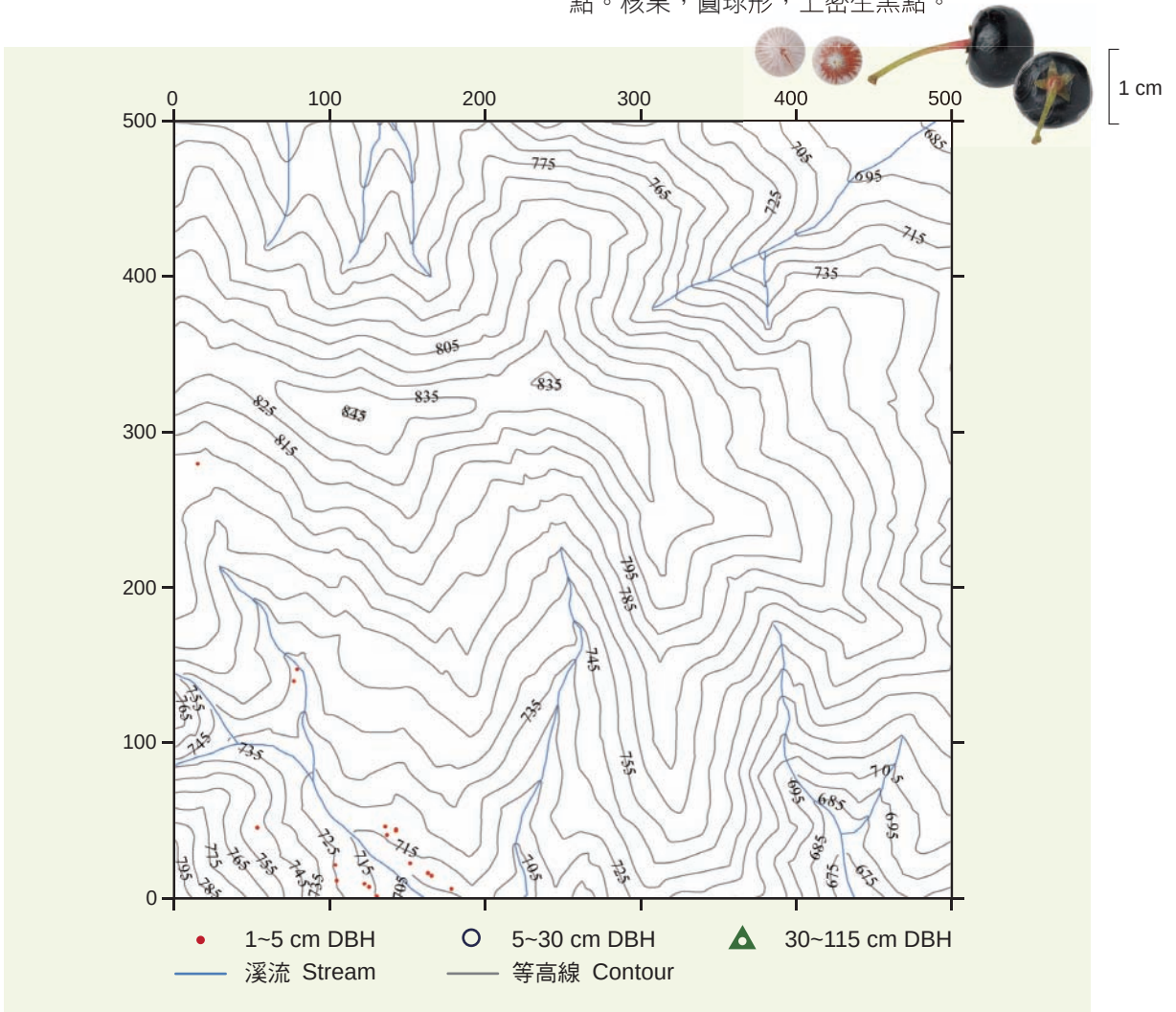
紫金牛科

樹冠層級

灌木層

描述

幼莖被稀疏腺毛，後漸光滑。葉互生，紙質，橢圓形、橢圓狀披針形、長橢圓形或長橢圓狀披針形，長9~17 cm，寬2.5~5 cm，先端漸尖或銳尖，基部銳尖，圓齒緣，上表面綠色光滑，下表面淡綠色且密被黑點；葉柄長1~1.5 cm。花兩性；聚繖花序或繖形花序，頂生或側生花枝頂端；花萼裂片長橢圓狀卵形或長橢圓形，先端鈍或圓，密被黑色小點；花冠裂片5，粉紅色或白色，卵形至闊卵形，密被小黑點。核果，圓球形，上密生黑點。



Stratum

Shrub

Stems sparsely glandular-puberulous when young, grading into glabrescent. Leaves alternate, chartaceous, elliptical, elliptical-lanceolate, oblong, or oblong-lanceolate, 9~17 cm long, 2.5~5 cm wide, apex acuminate or acute, base acute, margins crenate, green and glabrous above, light-green, densely minutely black punctate below; petioles 1~1.5 cm long. Bisexual, inflorescence a cyme or umbel, terminal or lateral on top of flower branches; calyx lobes oblong-ovate or oblong, apex obtuse or rounded, densely black punctate; corolla lobes 5, pink or white, ovate to broadly ovate, densely black punctate. Drupe globose, densely black punctate.



植株 Entire plant

翁明毅 Ming-I Weng/攝



花 Flowers

林煥慶 Huan-Ching Lin/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	13	65.00
2~5	7	35.00
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

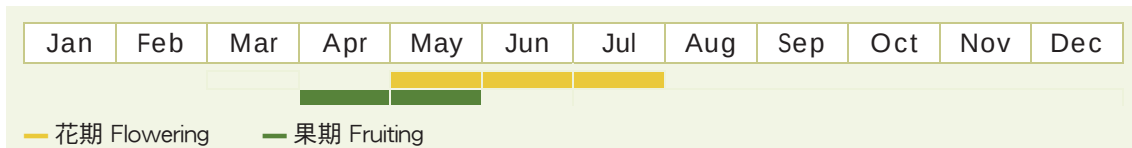
Total basal area= 70.74 cm²/25 ha

Number of trees/25 ha = 20



樹皮 Bark

林煥慶 Huan-Ching Lin/攝





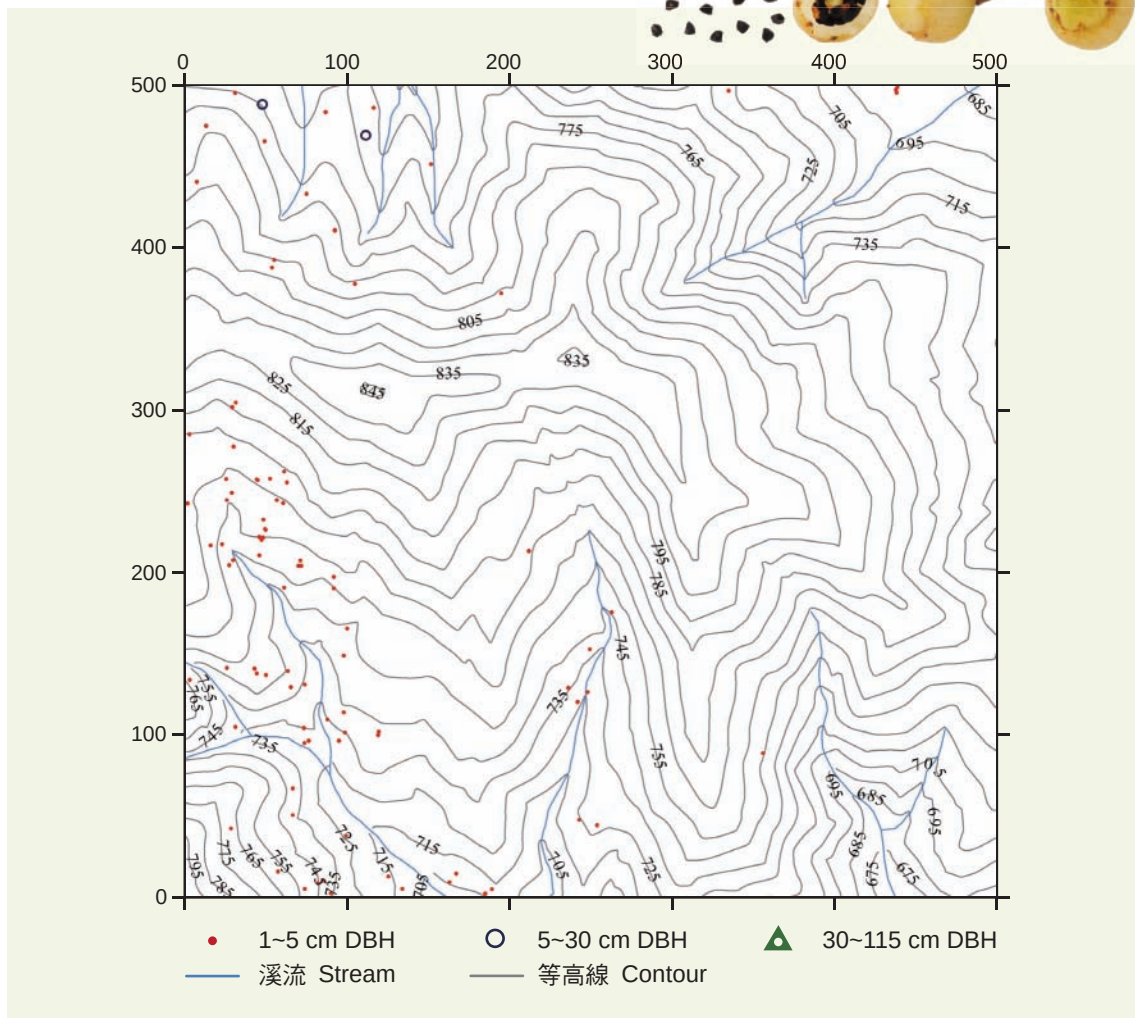
紫金牛科

樹冠層級

灌木層

描述

枝條密或疏被微糙硬毛。葉互生，紙質或厚膜質，披針形、卵形、長橢圓形或倒卵形，長5~11 cm，寬3~5 cm，疏被微糙硬毛至光滑，先端漸尖或銳尖，基部銳尖、鈍或近圓形，鋸齒緣，側脈6~9對；葉柄長5~13 mm。花兩性；腋生，圓錐花序或極少總狀花序，長2~10 cm；花萼裂片闊卵形，外側被微糙硬毛或光滑，邊緣有緣毛；花冠裂片5，白色，闊卵形或卵形，邊緣略齒狀或近全緣。漿果，圓球形，成熟白色。



Maesa perlaria (Lour.) Merr. var. *formosana* (Mez) Yuen P. Yang

Myrsinaceae

Stratum

Shrub

Description

Branches densely or sparsely hirtellous. Leaves alternate, chartaceous or thick-membranous, lanceolate, ovate, elliptical, or obovate, 5~11 cm long, 3~5 cm wide, sparsely hirtellous to glabrous, apex acuminate or acute; acute, obtuse, or nearly rounded at base, margins serrate, lateral veins 6~9 pairs; petioles 5~13 mm long. Bisexual; inflorescence a panicle or rarely racemose, axillary, 2~10 cm long; calyx lobes broadly ovate, hirtellous or glabrous outside, ciliate; corolla lobes 5, white,

broadly ovate or ovate, margins minutely erose or nearly entire. Berry globose, white when mature.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



漿果 Berries

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	62	64.59
2~5	32	33.33
5~10	2	2.08
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

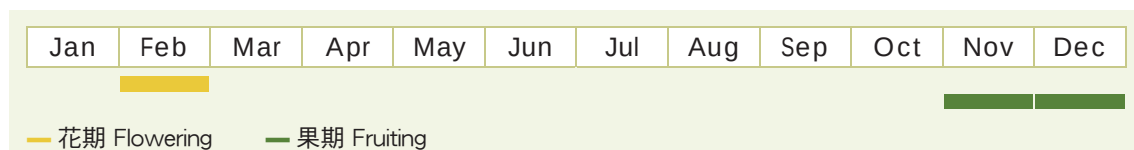
Total basal area= 569.16 cm²/25 ha

Number of trees/25 ha = 96



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





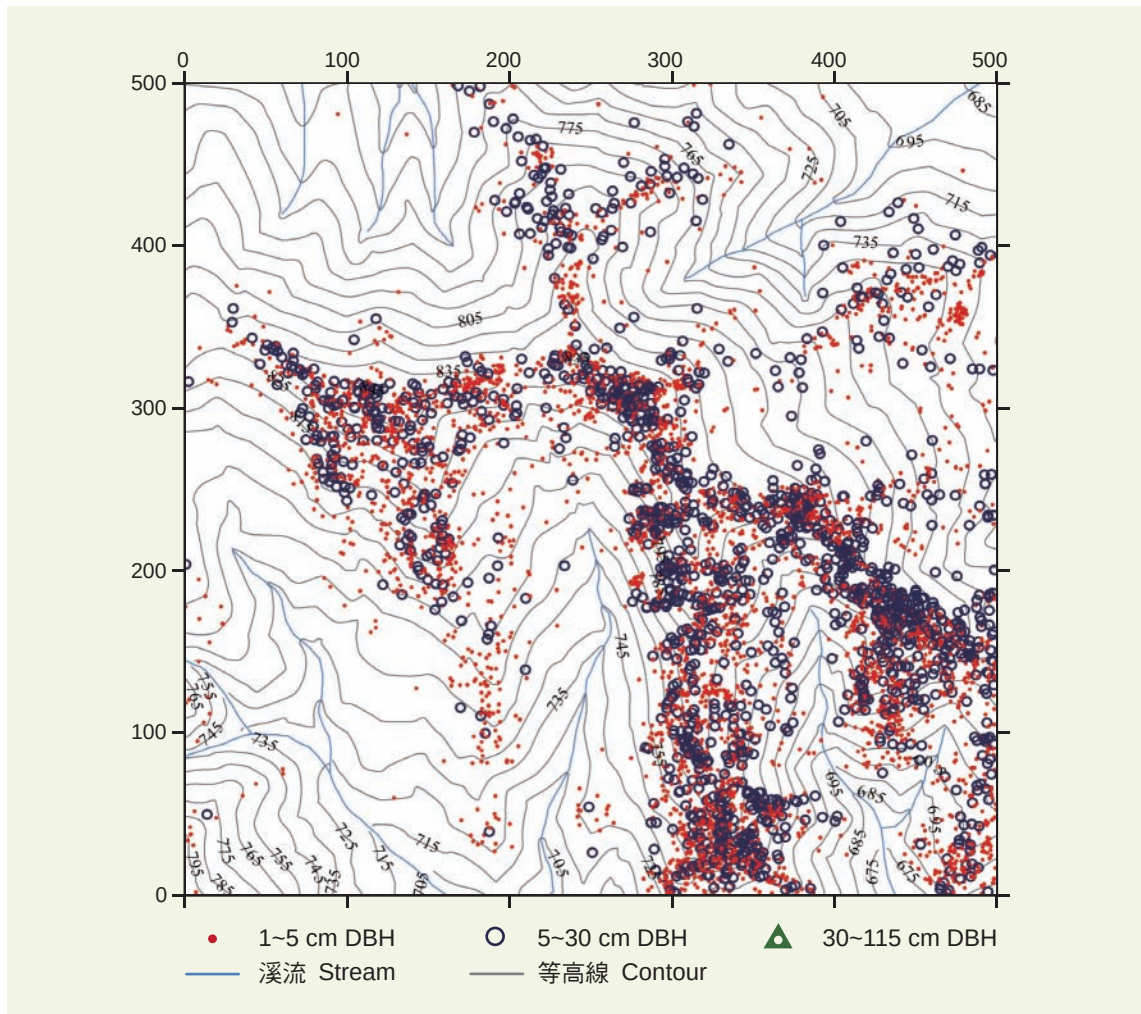
桃金娘科

樹冠層級

次冠層

描述

樹皮灰褐色，具細縱裂紋，呈小薄片狀剝落；枝條光滑，多分枝，幼枝微具4稜。葉對生，革質，長橢圓形至倒卵形，長2~4 cm，寬1.5~2 cm，先端鈍或微凹，基部銳尖至漸狹。花兩性；頂生，聚繖花序或圓錐花序；花萼鐘形，裂片4；花瓣4，早落；雄蕊多枚，花絲細長；子房球形，花柱細長，略與雄蕊等長。漿果，圓球形，熟時黑色，頂端一圈圓形突起，先端有殘存花萼。



Syzygium buxifolium Hook. & Arn.

Myrtaceae

Stratum

Sub-canopy

Description

Bark grayish-brown, finely longitudinally furrowed, exfoliated; branches glabrous, densely branched, young branchlets slightly 4-angular. Leaves opposite, coriaceous, oblong to obovate, 2~4 cm long, 1.5~2 cm wide, obtuse or emarginated at apex, acute to attenuate at base. Bisexual; flowers in terminal cymes or panicles; calyx campanulate, lobes 4; petals 4, caducous; stamens numerous, filaments slender; ovary globose, style slender, almost as long as stamens. Berry globose, black when mature, rounded convex at apex, persistent calyx at apex.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



漿果 Berries

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	2005	33.63
2~5	2383	39.97
5~10	1254	21.03
10~20	317	5.32
20~30	3	0.05
30~60	0	0.00
60~115	0	0.00

Total basal area= 118234.30 cm²/25 ha

Number of trees/25 ha = 5962



樹皮 Bark

林奐慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
花期 Flowering 果期 Fruiting											



桃金娘科

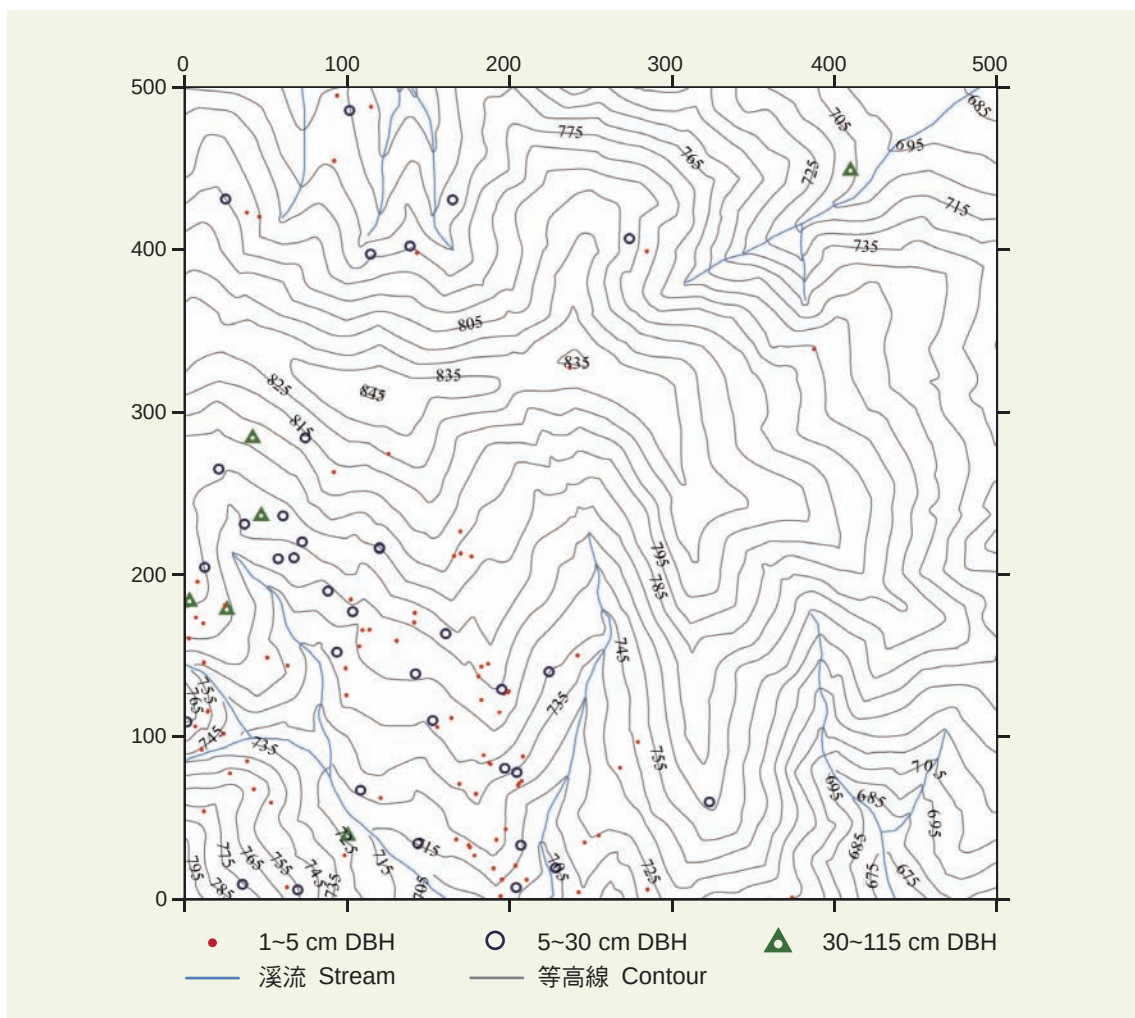
特有種

樹冠層級

冠層

描述

樹皮灰褐色，具細縱裂紋；小枝細長，光滑，幼枝微具4稜。葉對生，革質，橢圓形、長橢圓形或倒卵形，長4~6 cm，寬3~4 cm，上表面無毛光亮，下表面有腺點，側脈細長，明顯於上下表面。花兩性；頂生和腋生，聚繖花序或圓錐花序；花萼筒鐘形，先端近截形；花瓣4，早落；雄蕊多枚，花絲細長；子房球形，花柱細長，略與雄蕊等長。漿果，圓球形，徑約9 mm，熟時黑色，頂端一圈圓形突起。



Syzygium formosanum (Hayata) Mori

Myrtaceae

Endemic

Stratum

Canopy

Description

Bark grayish-brown, finely longitudinally furrowed; branchlets slender, glabrous, young branchlets slightly 4-angular. Leaves opposite, coriaceous, elliptical, oblong or obovate, 4~6 cm long, 3~4 cm wide, glabrous, shiny above, glandular punctate below, lateral veins slender, distinct on both surfaces. Bisexual; flowers in terminal and axillary cymes or panicles; calyx campanulate, nearly truncate at apex; petals 4, caducous; stamens numerous, filaments slender; ovary globose, style slender, almost as long as stamens. Berry globose, ca. 9 mm across, black when mature, convex at apex.

style slender, almost as long as stamens. Berry globose, ca. 9 mm across, black when mature, convex at apex.



枝條 Branches

林炎慶 Huan-Ching Lin/攝



花 Flowers

翁明毅 Ming-I Weng/攝



漿果 Berries

翁明毅 Ming-I Weng/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	37	29.84
2~5	46	37.10
5~10	23	18.55
10~20	9	7.26
20~30	3	2.42
30~60	4	3.22
60~115	2	1.61

Total basal area= 20552.34 cm²/25 ha

Number of trees/25 ha = 124



樹皮 Bark

林炎慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
— 花期 Flowering — 果期 Fruiting											



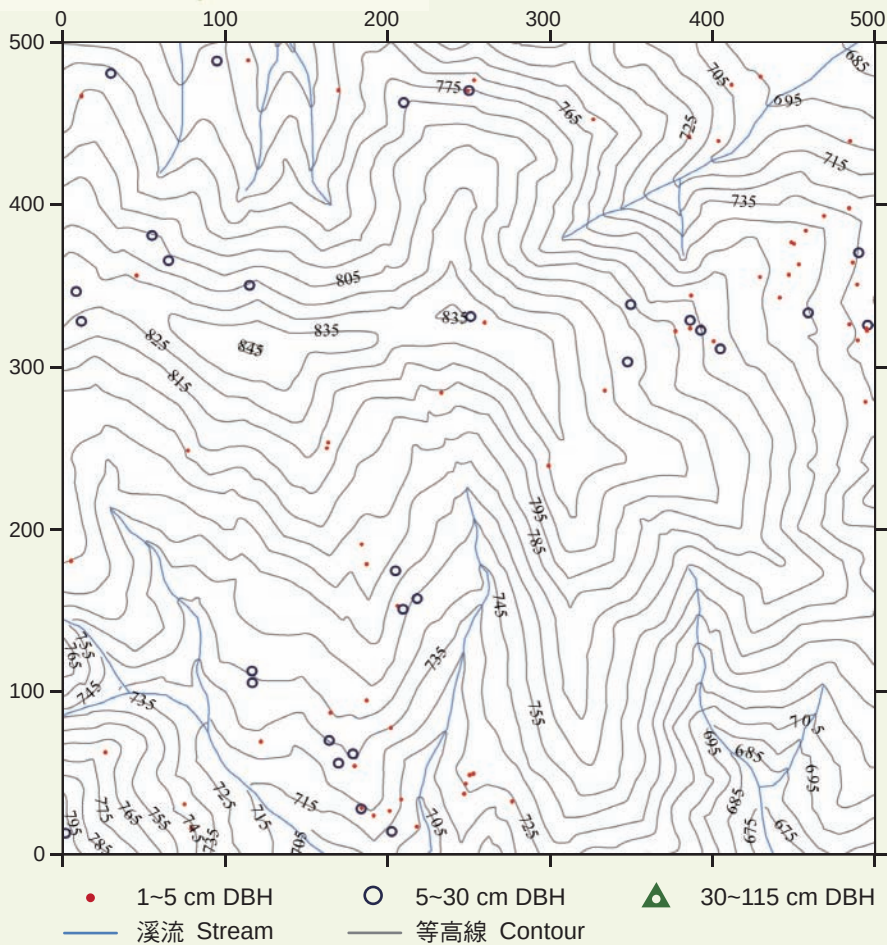
木犀科

樹冠層級

次冠層

描述

小枝光滑。葉對生，革質，倒卵狀橢圓形或倒披針形，長10~16 cm，寬3~4.5 cm，先端漸尖，基部楔形，葉全緣，少數波狀緣或鋸齒緣，側脈明顯，細脈不明顯。花兩性；腋生，聚繖花序，具總梗，被毛；苞片錐形，散被絨毛；花萼筒被毛，4裂，裂片卵形；花冠裂片4，長橢圓形，白色，具緣毛；雄蕊2枚，挺出花冠外。核果，長橢圓球形，1.7~2 cm長，徑0.7~0.9 cm，熟時藍黑色。



Osmanthus matsumuranus Hayata

Oleaceae

Stratum

Sub-canopy

Description

Branchlets glabrous. Leaves opposite, coriaceous, obovate-elliptical or oblanceolate, 10~16 cm long, 3~4.5 cm wide, apex acuminate, base cuneate, margins entire, rarely undulate or serrate, lateral veins distinct, veinlets indistinct. Bisexual; inflorescences cymose, axillary, peduncle, with scattered pubescence; bracts subulate, with scattered pubescence; calyx-tube pubescent, 4-lobed, lobe ovate; corolla lobes 4, oblong, white, cillate; stamens 2, raising out of corolla. Drupe oblong, 1.7~2 cm long, 0.7~0.9 cm across, bluish-black when mature.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果(未熟) Immature drupe

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	27	29.35
2~5	36	39.13
5~10	24	26.09
10~20	5	5.43
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

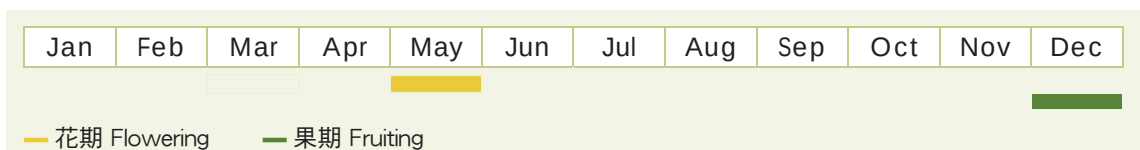
Total basal area= 2317.03 cm²/25 ha

Number of trees/25 ha = 92



樹皮 Bark

林奐慶 Huan-Ching Lin/攝



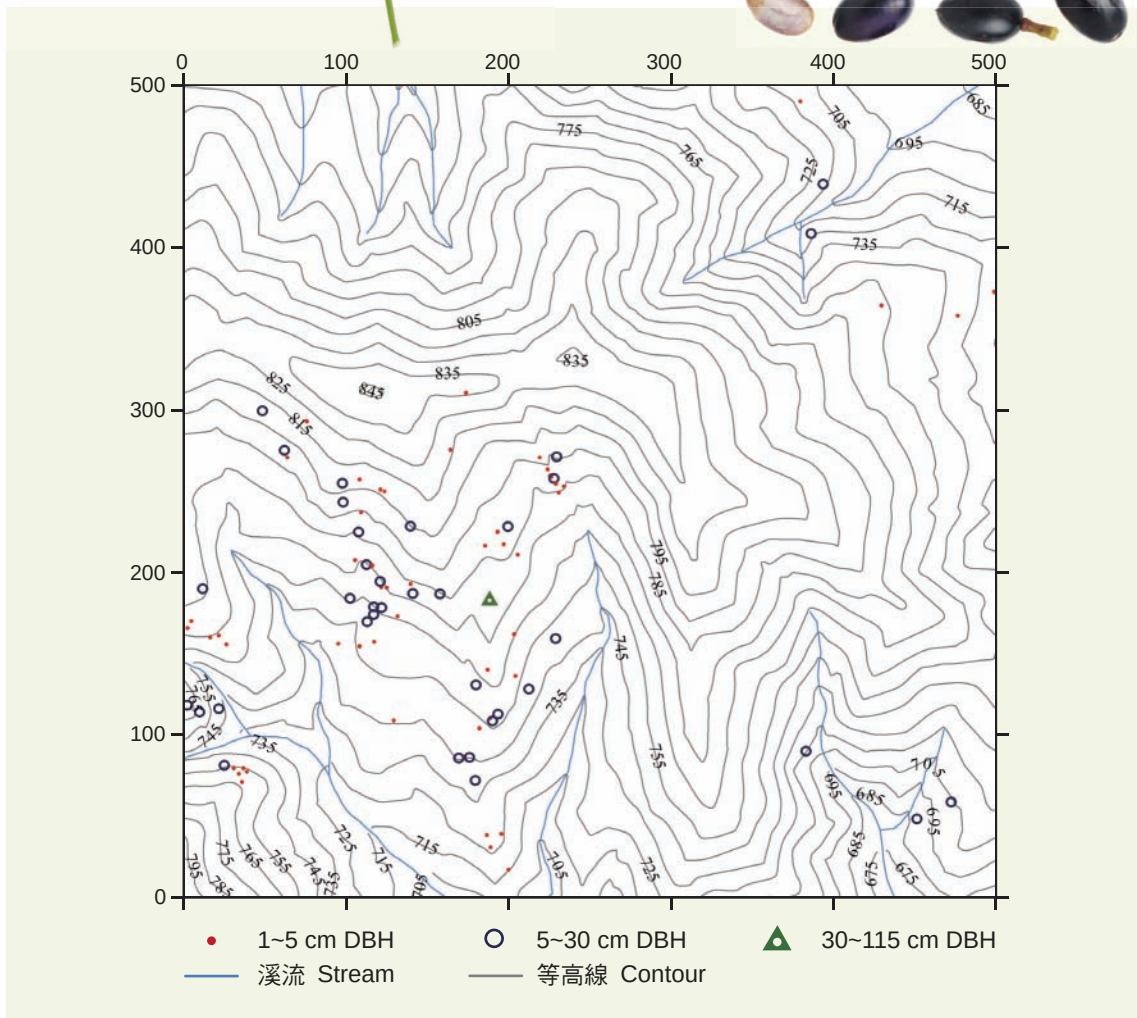
山龍眼科

樹冠層級

冠層

描述

樹皮紫褐色。葉互生，薄革質或紙質，長橢圓形、倒卵狀長橢圓形或披針形，長5~13 cm，寬2~3 cm，先端銳尖、漸尖或鈍形，基部楔形，幼時粗鋸齒緣，後全緣或具稀疏鋸齒，側脈6~8對。花兩性；腋生總狀花序，花軸光滑或幼嫩時疏被淡褐色毛；花被筒長10~12 mm，花被裂片4，白色或黃白色，線形，反捲；雄蕊4；子房光滑，花柱挺出花外。果實堅果狀，黑色，球形或長橢圓球形，不開裂，徑約1 cm。



Proteaceae

Stratum

Canopy

Description

Bark purplish-brown. Leaves alternate, thin coriaceous or chartaceous, oblong, obovate-oblong or lanceolate, 5~13 cm long, 2~3 cm wide, apex acute, acuminate, or obtuse, base cuneate, coarsely serrate when young, grading into entire or remotely serrate, lateral veins 6~8 pairs. Bisexual; racemes axillary, rachis glabrous or very slightly light-brown-pubescent when young; perianth-tube 10~12 mm long, perianth lobes 4, white or yellowish-white, linear, concave; stamens 4; ovary

glabrous, style raising out of corolla. Fruit nut-like, black, globose or ellipsoid, indehiscent, ca. 1 cm across.



植株 Entire plant

翁明毅 Ming-I Weng/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



堅果 Nuts

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	17	18.89
2~5	35	38.89
5~10	20	22.22
10~20	15	16.67
20~30	2	2.22
30~60	1	1.11
60~115	0	0.00

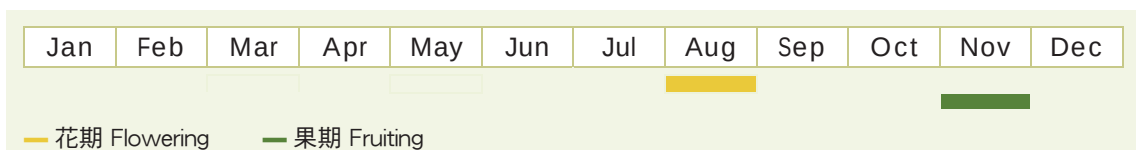
Total basal area= 5278.96 cm²/25 ha

Number of trees/25 ha = 90



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





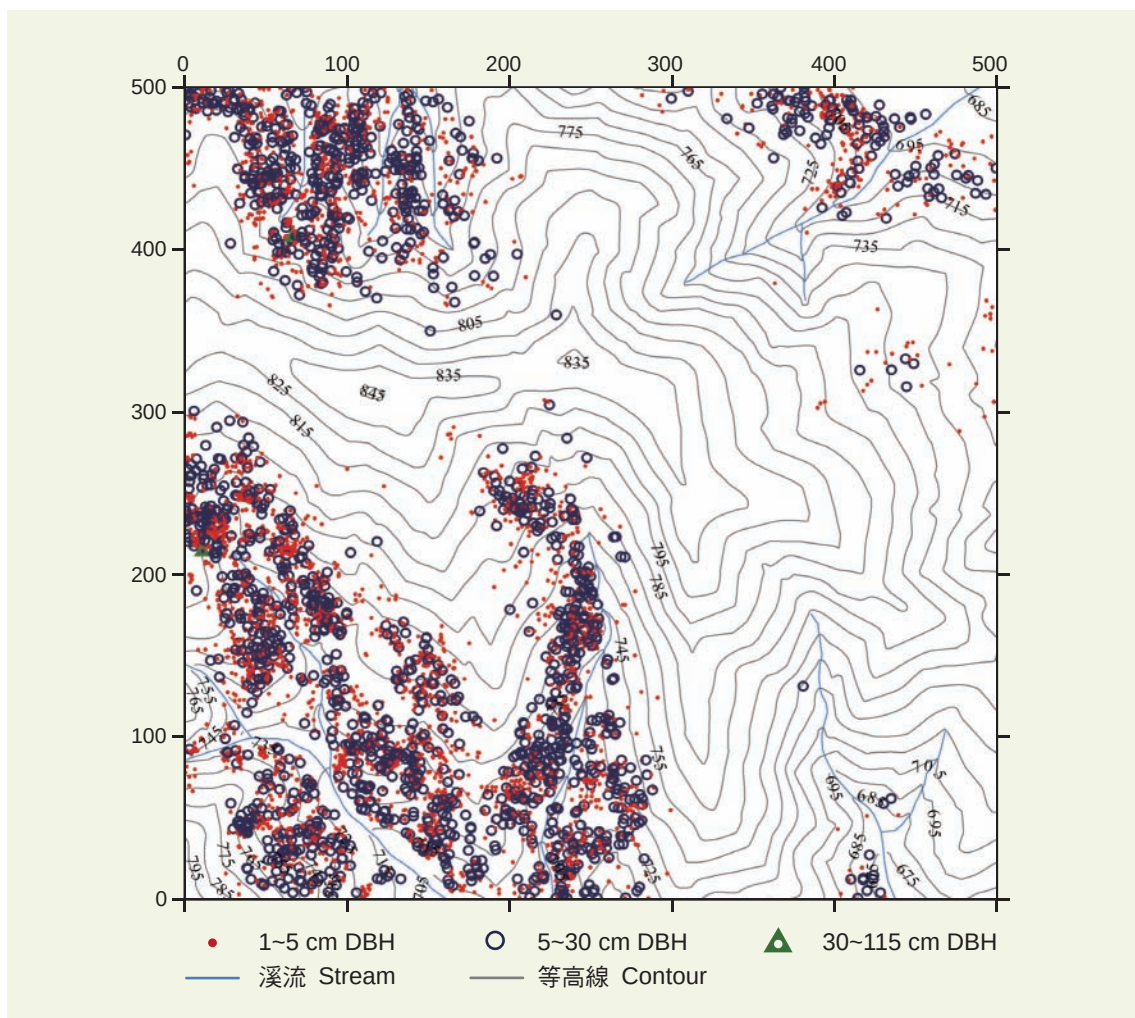
山龍眼科

樹冠層級

次冠層

描述

樹皮紅褐色；小枝被鏽色毛。葉互生，近革質或紙質，長橢圓形或卵狀長橢圓形，長12~25 cm，寬3.5~7 cm，上表面光滑，下表面的脈呈鏽色，先端銳尖或漸尖，基部楔形，粗鋸齒緣；葉柄基部通常膨大。花兩性；腋生總狀花序，花序軸上被鏽色毛；花被筒長12~20 mm，外側被褐色毛；花被裂片4，淡紫紅色，線形，反捲；雄蕊4；子房1室，花柱細長，挺出花外。果實堅果狀，棕色，圓球形，徑約3 cm。



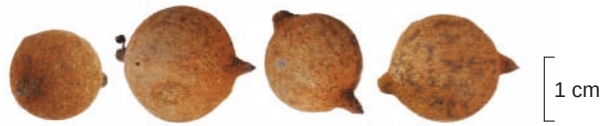
Proteaceae

Stratum

Sub-canopy

Description

Bark reddish-brown; branchlets ferruginous. Leaves alternate, subcoriaceous or chartaceous, oblong or ovate-oblong, 12~25 cm long, 3.5~7 cm wide, glabrous above, veins with ferrugineous below, apex acute or acuminate, base cuneate, coarsely serrate; petioles often swollen at base. Bisexual; racemes axillary, peduncles ferruginous; perianth-tube 12~20 mm long, brown-pubescent outside, perianth lobes light purplish-red, linear, concave; stamens 4; ovary 1, style slender, rising out of corolla. Fruit nut-like, brown, globose ca. 3 cm across.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



堅果 Nuts

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	1543	29.44
2~5	1925	36.73
5~10	1168	22.28
10~20	589	11.24
20~30	14	0.27
30~60	2	0.04
60~115	0	0.00

Total basal area= 174671.41 cm²/25 ha

Number of trees/25 ha = 5241



樹皮 Bark

林奐慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
— 花期 Flowering — 果期 Fruiting											



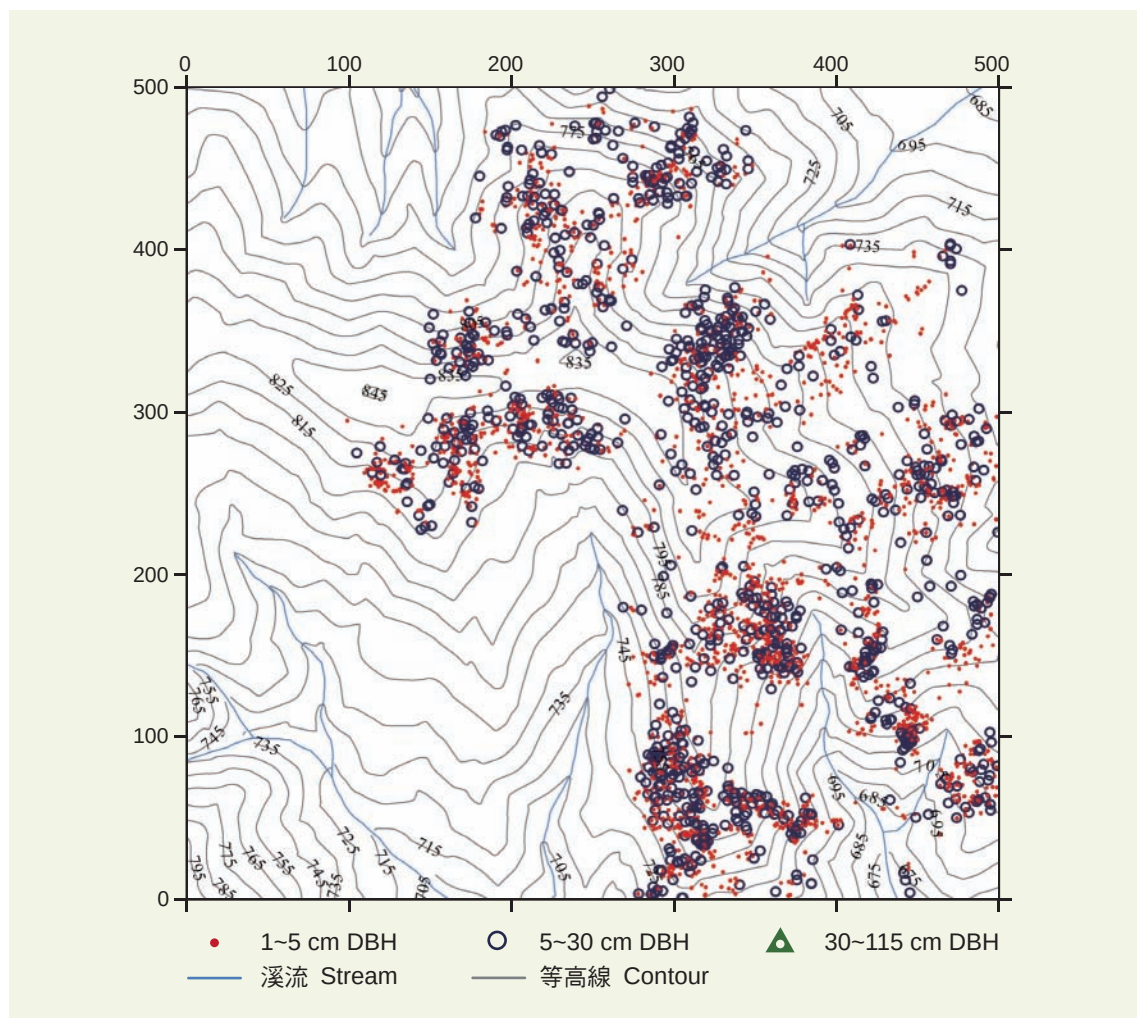
山龍眼科 特有種

樹冠層級

次冠層

描述

小枝光滑。葉互生，革質，光滑，長橢圓形、長橢圓狀倒卵形或倒卵形，長8~20 cm，寬3~6 cm，先端銳尖或漸尖，基部楔形或銳尖，稀疏鋸齒緣，上表面光亮，下表面灰綠色；葉柄常呈紫藍色，基部膨大，光滑。花兩性；腋生總狀花序，花序軸光滑；花被筒長10~14 mm，花被裂片4，白色或淡黃色，線形，反捲；雄蕊4；子房球形，花柱細長，挺出花外。堅果，橢圓球形，徑約15 mm，果皮厚，革質，黑色。



Helicia rengetiensis Masam.

Proteaceae

Endemic

Stratum

Sub-canopy

Description

Branchlets glabrous. Leaves alternate, coriaceous, glabrous, oblong, oblong-obovate, or obovate, 8~20 cm long, 3~6 cm wide, apex acute to acuminate, cuneate or acute at base, remotely serrate, shiny above, grayish-green below; petioles purplish-blue, often swollen at base, glabrous. Bisexual; racemes axillary, peduncles glabrous; perianth-tube 10~14 mm long, perianth lobes 4, white or light-yellow, linear, concave; stamens 4; ovary globose, style slender, rising out of corolla. Nut ellipsoid ca. 15 mm across, pericarp thick, coriaceous, black.



枝條 Branches

林奐慶 Huan-Ching Lin/攝



花 Flowers

葉秋好 Chiou-Yu Yeh/攝



堅果 Nuts

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	826	25.84
2~5	1359	42.52
5~10	803	25.13
10~20	206	6.45
20~30	2	0.06
30~60	0	0.00
60~115	0	0.00

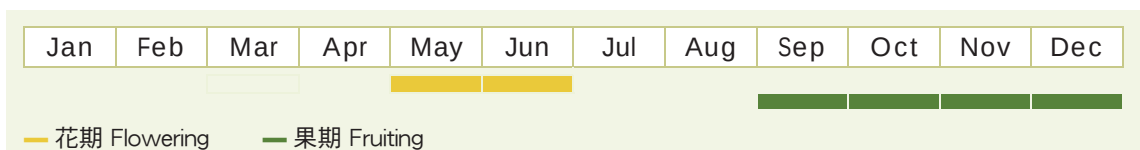
Total basal area= 82245.93 cm²/25 ha

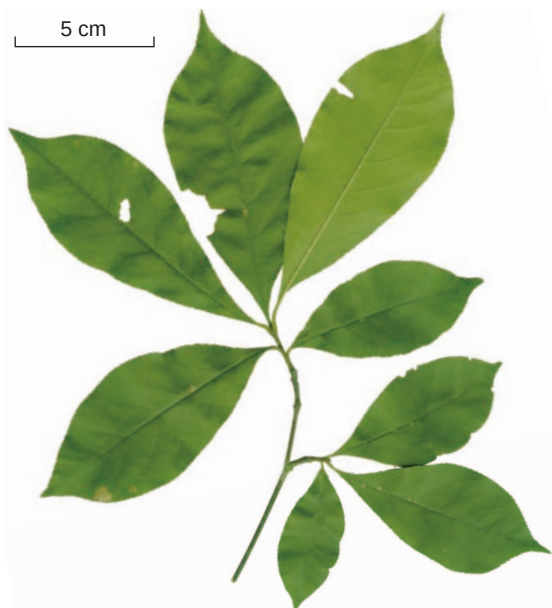
Number of trees/25 ha = 3196



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





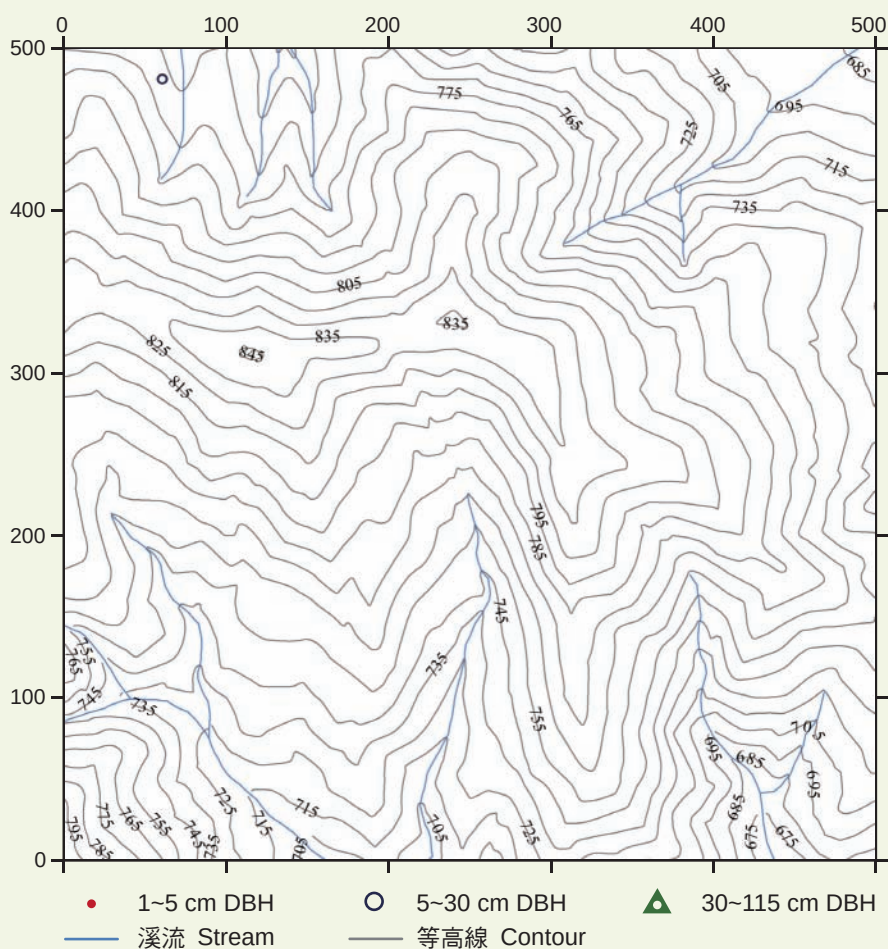
薔薇科 特有種

樹冠層級

次冠層

描述

葉及花序初被柔毛，後漸光滑。葉互生，紙質，倒卵形或倒卵狀長橢圓形，長5~11 cm，寬2~3.5 cm，先端銳尖或漸尖，基部楔形，細鋸齒緣，近基部常全緣；葉柄長1~1.5 cm，初被毛，後漸光滑。花兩性；頂生，聚繖花序；花萼筒鐘形，5裂；花瓣5，白色，基部漸窄且被曲柔毛；雄蕊多數；花柱2裂。核果，倒卵球形，徑5~10 mm，基部花萼宿存，熟時紅色。



Rosaceae

Endemic

Stratum

Sub-canopy

Description

Leaves and inflorescences pubescent, grading into glabrous. Leaves alternate, chartaceous, obovate or obovate-oblong, 5~11 cm long, 2~3.5 cm wide, apex acute or acuminate, cuneate at base, serrulate but entire toward base; petioles 1~1.5 cm long, pubescent, grading into glabrous. Bisexual; inflorescence a cyme; calyx-tube campanulate, 5-lobed; petals 5, white, attenuate and villose at base; stamens numerous; style 2-forked. Drupe obovate, 5~10 mm across, with persistent calyx at base, red when mature.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果(未熟) Immature drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	0	0.00
2~5	0	0.00
5~10	0	0.00
10~20	1	100.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

Total basal area= 132.67 cm²/25 ha

Number of trees/25 ha = 1



樹皮 Bark

林奐慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

— 花期 Flowering

— 果期 Fruiting



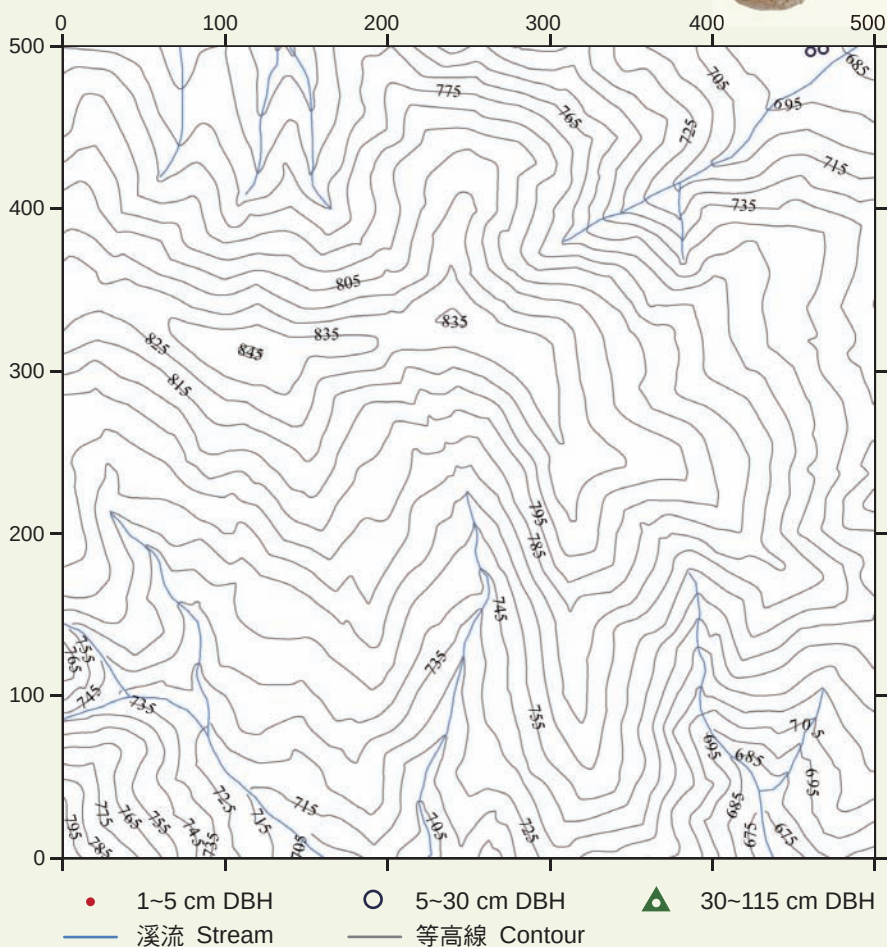
薔薇科

樹冠層級

次冠層

描述

樹皮灰色或淺綠色。葉互生，薄紙質，闊卵形或闊橢圓形，長4~10 cm，寬2~4 cm，先端長漸尖或尾狀漸尖，基部闊楔形，葉緣具細銳鋸齒，兩面被短柔毛或僅脈上被毛。花兩性，白色至淡粉紅色；1~2朵腋生；花萼5，卵形；花瓣5，倒卵形，先端鈍；雄蕊多數，略短或長於花瓣；雌蕊1，與雄蕊約等長，常被毛。核果，球形，徑2~4 cm，黃色至淺綠色，熟時略帶紅色，蒂頭凹陷，尾端略尖。



Prunus mume (Siebold) Siebold & Zucc.

Rosaceae

Stratum

Sub-canopy

Description

Bark gray or greenish. Leaves alternate, thinly chartaceous, broadly ovate to broadly elliptical, 4~10 cm long, 2~4 cm wide, long-acuminate or caudate-acuminate at apex, broadly cuneate at base, finely and sharply serrate, with pubescence on both surfaces or only on veins. Bisexual, flowers 1 or 2 axillary, white to light-pink; sepals 5, ovate; petals 5, obovate, obtuse at apex; stamens numerous, slightly shorter or longer than petals; pistil 1, as long as stamens, often pubescent. Drupe

globose 2~4 cm across, yellow to greenish, tinged red when mature, concave at base, slightly acute at apex.



枝條 Branches 林炎慶 Huan-Ching Lin/攝



花 Flowers 林炎慶 Huan-Ching Lin/攝



核果 Drupes 林炎慶 Huan-Ching Lin/攝

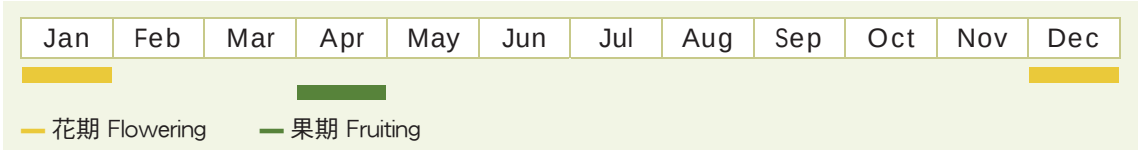
胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	0	0.00
2~5	0	0.00
5~10	1	50.00
10~20	1	50.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

Total basal area= 135.15 cm²/25 ha

Number of trees/25 ha = 2



樹皮 Bark 林炎慶 Huan-Ching Lin/攝





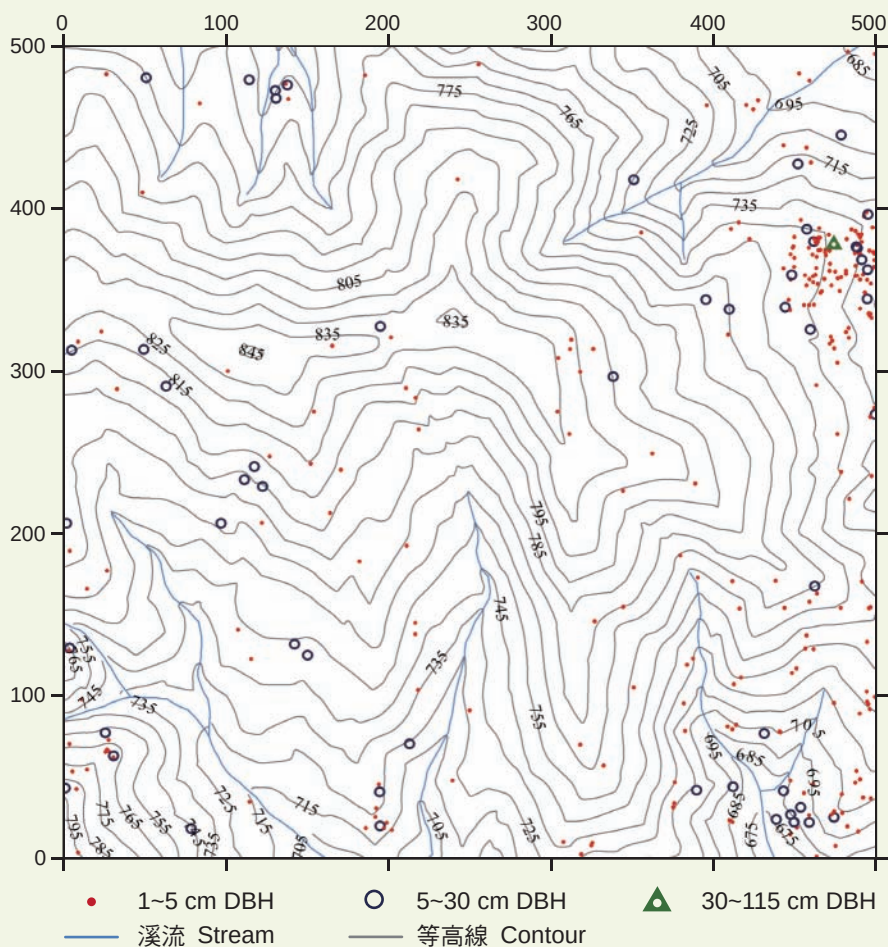
薔薇科

樹冠層級

冠層

描述

樹皮灰色，具淺色皮孔。葉近革質，長橢圓狀卵形至長橢圓狀披針形，長5~12 cm，寬3~5 cm，先端尾狀漸尖，基部闊銳尖，全緣或波狀緣，上表面綠色有光澤，下表面淺色且散生黑色腺點。花兩性；腋生，總狀花序；花萼筒倒圓錐形，裂片5，圓形；花瓣5裂，圓形；雄蕊多數；花柱與雄蕊約等長，柱頭膨大，黃色。核果，球形，徑7~8 mm，熟時紅色。



Prunus phaeosticta (Hance) Maxim.

Rosaceae

Stratum

Canopy

Description

Bark gray, with pale lenticels. Leaves nearly coriaceous, oblong-ovate to oblong-lanceolate, 5~12 cm long, 3~5 cm wide, apex caudate-acuminate, broadly acute at base, margins entire or slightly wavy, green and lustrous above, pale and sparsely black-punctate below. Bisexual; inflorescence a raceme, axillary; calyx-tube obconical, lobes 5, rounded; petals 5-lobed, rounded; stamens numerous, style as long as stamens, stigma swollen, yellow. Drupe globose, 7~8 mm across, red when mature.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

葉秋好 Chiou-Yu Yeh/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	128	42.11
2~5	120	39.47
5~10	36	11.84
10~20	18	5.92
20~30	1	0.33
30~60	1	0.33
60~115	0	0.00

Total basal area= 6555.37 cm²/25 ha

Number of trees/25 ha = 304



樹皮 Bark

林奐慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
花期 Flowering 果期 Fruiting											



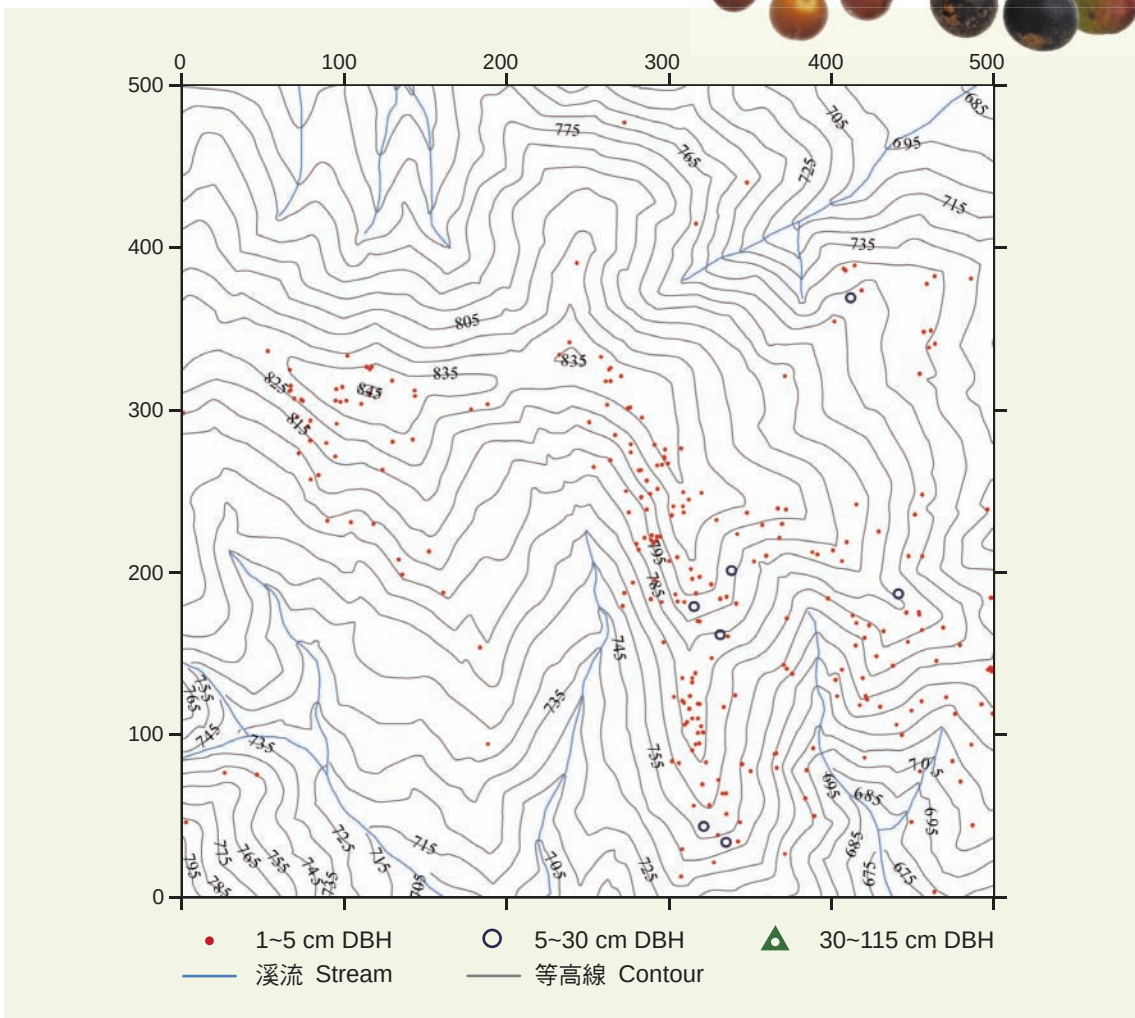
薔薇科

樹冠層級

次冠層

描述

葉互生，厚革質，長橢圓形或橢圓形，長3~7 cm，寬1~2.5 cm，先端銳尖或鈍，基部楔形下延，粗鋸齒緣，近基部全緣，葉兩面光滑；托葉披針形，長2~3 cm，被絨毛。花兩性；頂生，圓錐花序，密被鏽色絨毛；苞片線狀披針形，早落；花萼筒鐘形，裂片5，披針形，具緣毛；花瓣5，白色，長倒卵形，先端銳尖至鈍；雄蕊多數；花柱2。核果，球形，徑5~6 mm，熟時紅黑色。



Rhaphiolepis indica (L.) Lindl. ex Ker var. *tashiroi* Hayata ex Matsum. & Hayata

Rosaceae

Stratum

Sub-canopy

Description

Leaves alternate, thick-coriateous, oblong or elliptical, 3~7 cm long, 1~2.5 cm wide, apex acute or obtuse, cuneate-decurrent at base, margins coarsely serrate but entire toward base, glabrous on both surfaces; stipules lanceolate, 2~3 cm long, tomentose. Bisexual; inflorescence a terminal panicle, densely ferruginous-tomentose; bracts linear-lanceolate, caducous; calyx tube campanulate, lobes 5, lanceolate, ciliate; petals 5, white, long-obovate, acute to obtuse at apex; stamens numerous; styles 2. Drupe globose, 5~6 mm across, reddish-black when mature.



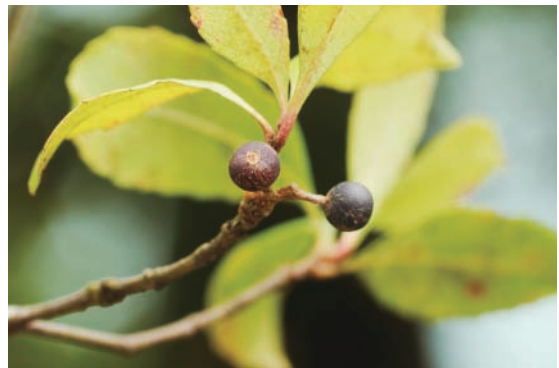
枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



核果 Drupes

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	163	59.49
2~5	103	37.59
5~10	7	2.55
10~20	1	0.37
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

Total basal area= 1367.97 cm²/25 ha

Number of trees/25 ha = 274



樹皮 Bark

林炎慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
— 花期 Flowering				— 果期 Fruiting							



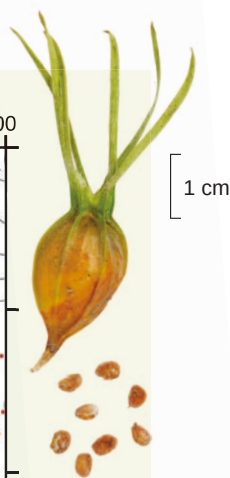
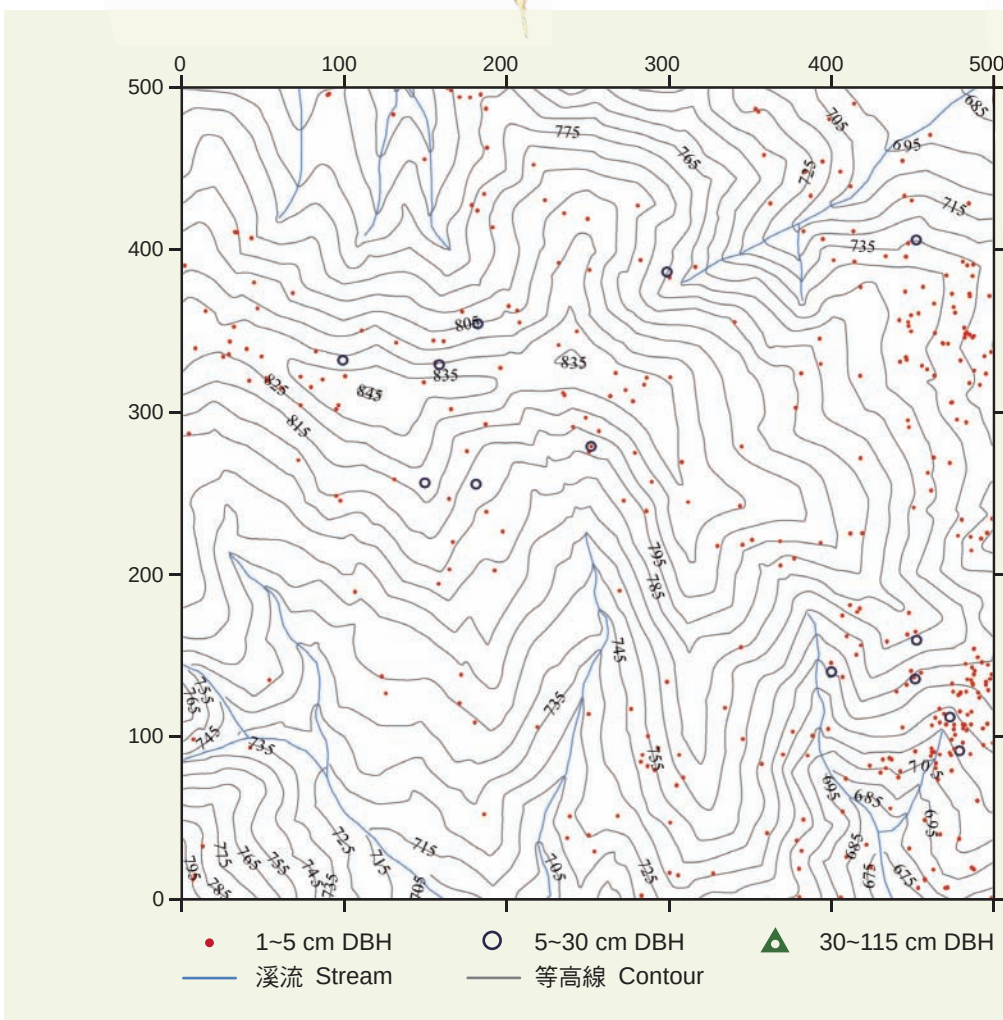
茜草科

樹冠層級

次冠層

描述

小枝被毛。葉對生，厚紙質，橢圓形至長橢圓形，長6~15 cm，寬3.5~5 cm，先端漸尖，基部銳尖或漸狹，兩面光滑；托葉合生，三角形；葉柄短或近無柄，光滑。花兩性；單生，頂生或腋生；花白色，大型，徑3~5 cm，花萼5~8裂，裂片線形，宿存；花冠筒長，先端裂片平展，5~8裂，倒卵形或橢圓狀卵形，反捲；雄蕊5~8，花藥線形；花柱突出，柱頭膨大。漿果，橢圓球形，具5稜，先端具宿存之花萼筒，熟時橘紅色；種子多數。



Rubiaceae

Stratum

Sub-canopy

Description

Branchlets pubescent. Leaves opposite, thick-chartaceous, elliptical to oblong, 6~15 cm long, 3.5~5 cm wide, apex acuminate, acute or attenuate at base, glabrous on both surfaces; stipules connate, triangular; petioles short or subsessile, glabrous. Bisexual; solitary, terminal or axillary; flowers white, large, 3~5 cm in diameter; calyx 5~8-lobed, lobes linear, persistent; corolla tube long, apex of lobes flat, 5~8-lobed, lobes obovate or oblong-ovate, reflexed; stamens 5~8, anthers linear; style prominent, stigma swollen. Berry ellipsoid,

5-ribbed, crowned with persistent calyx-tube, reddish-orange when mature. Seeds numerous.



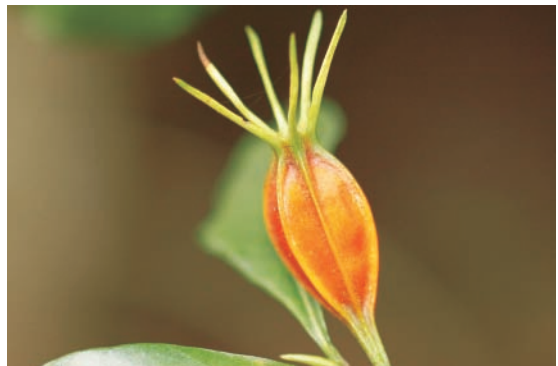
枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



漿果 Berry

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	189	49.35
2~5	179	46.73
5~10	15	3.92
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

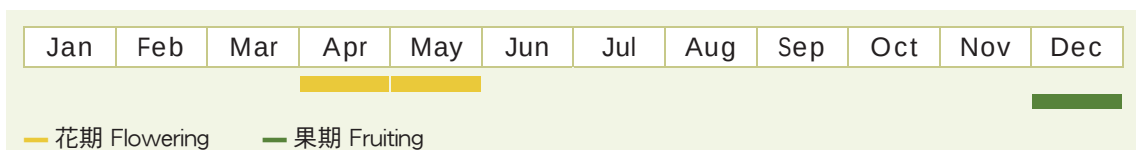
Total basal area= 2276.59 cm²/25 ha

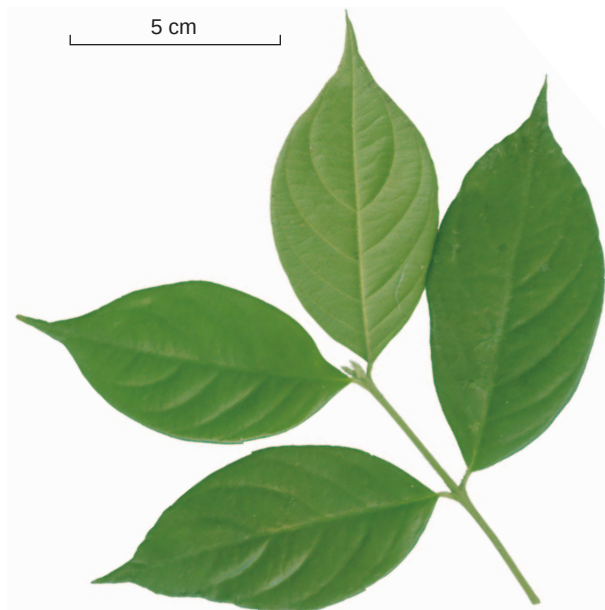
Number of trees/25 ha = 383



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





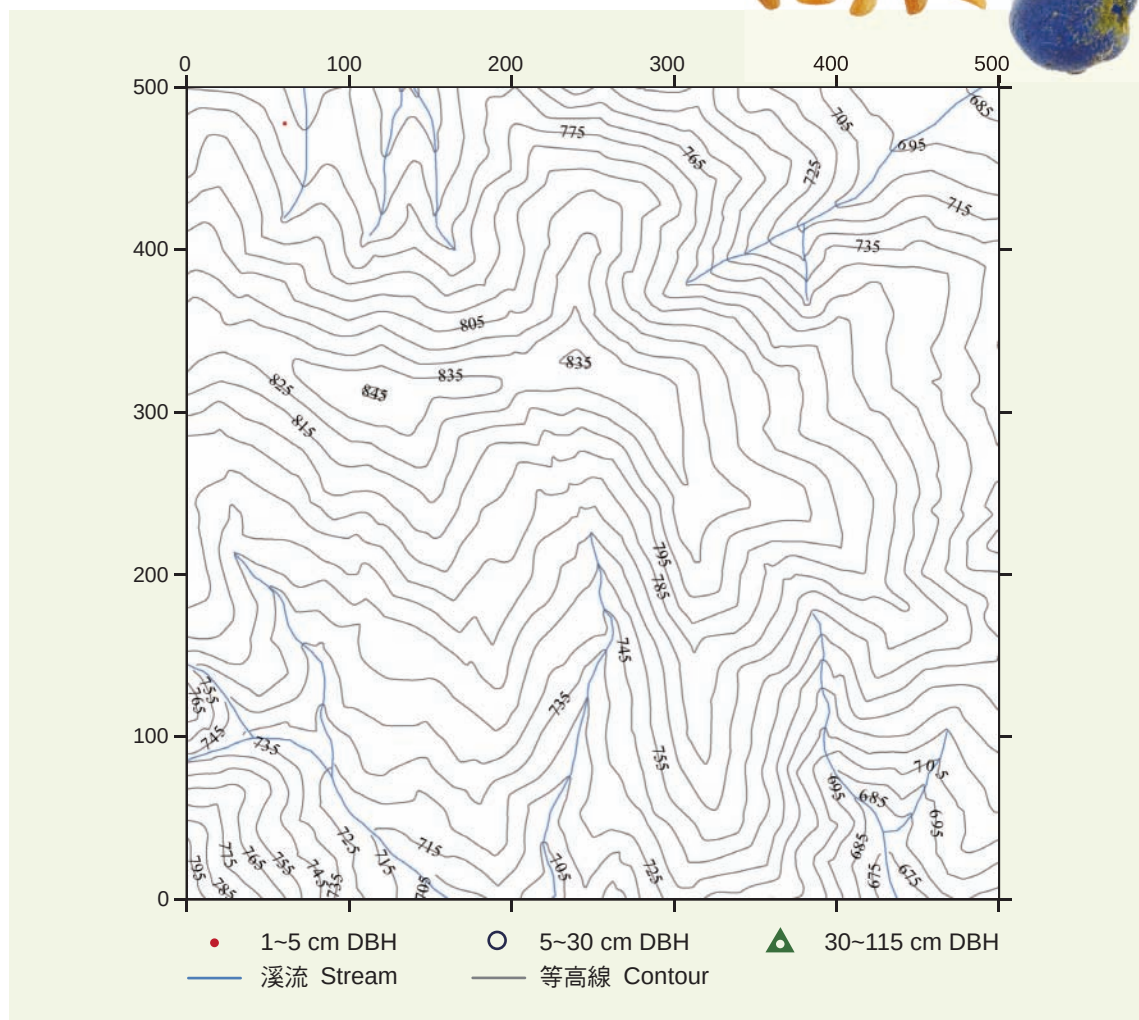
茜草科

樹冠層級

灌木層

描述

枝條密被毛。葉對生，厚膜質至紙質，橢圓形或倒卵形，長5~9 cm，寬3~4 cm，先端驟突尖或尾狀漸尖，基部鈍形，全緣，上表面無毛，下表面密被毛；葉柄短，密被毛，托葉三角形，被毛，於葉成熟後脫落。兩性花，4~5朵叢生於葉腋，無花柄及苞片；花萼鐘形，外側密被毛，裂片5；花冠漏斗狀，白色至淺紫色，先端5裂，密被毛；雄蕊5；柱頭5裂。核果，球形，徑約5 mm，藍色，花萼宿存，密被毛。



Lasianthus bunzanensis Simizu

Rubiaceae

Stratum

Shrub

Description

Branches and branchlets densely pubescent. Leaves opposite, thickly membranaceous to chartaceous, elliptical or obovate, 5~9 cm long, 3~4 cm wide; apex cuspidate-acuminate or caudate-acuminate, obtuse at base, entire, glabrous above; densely pubescent below; petioles short, densely tomentose; stipule triangular, tomentose, falling when leaves mature. Bisexual; 4 or 5 flowers clustered in axillary, sessile, ebracteate; calyx campanulate, densely pubescent outside, lobes 5; corolla funnelform, white to pale-violet, 5-lobed at apex, densely tomentose;

stamens 5; stigmas 5-lobed. Drupe globose, ca. 5 mm across, blue, with persistent calyx lobes, densely pubescent.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果 Drupe

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	1	100.00
2~5	0	0.00
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

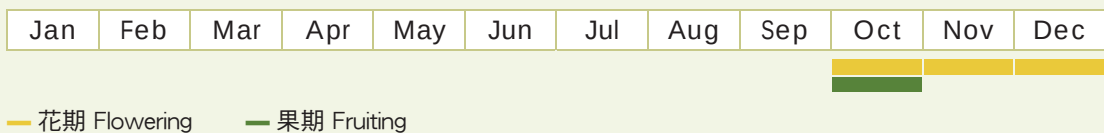
Total basal area= 0.79 cm²/25 ha

Number of trees/25 ha = 1



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





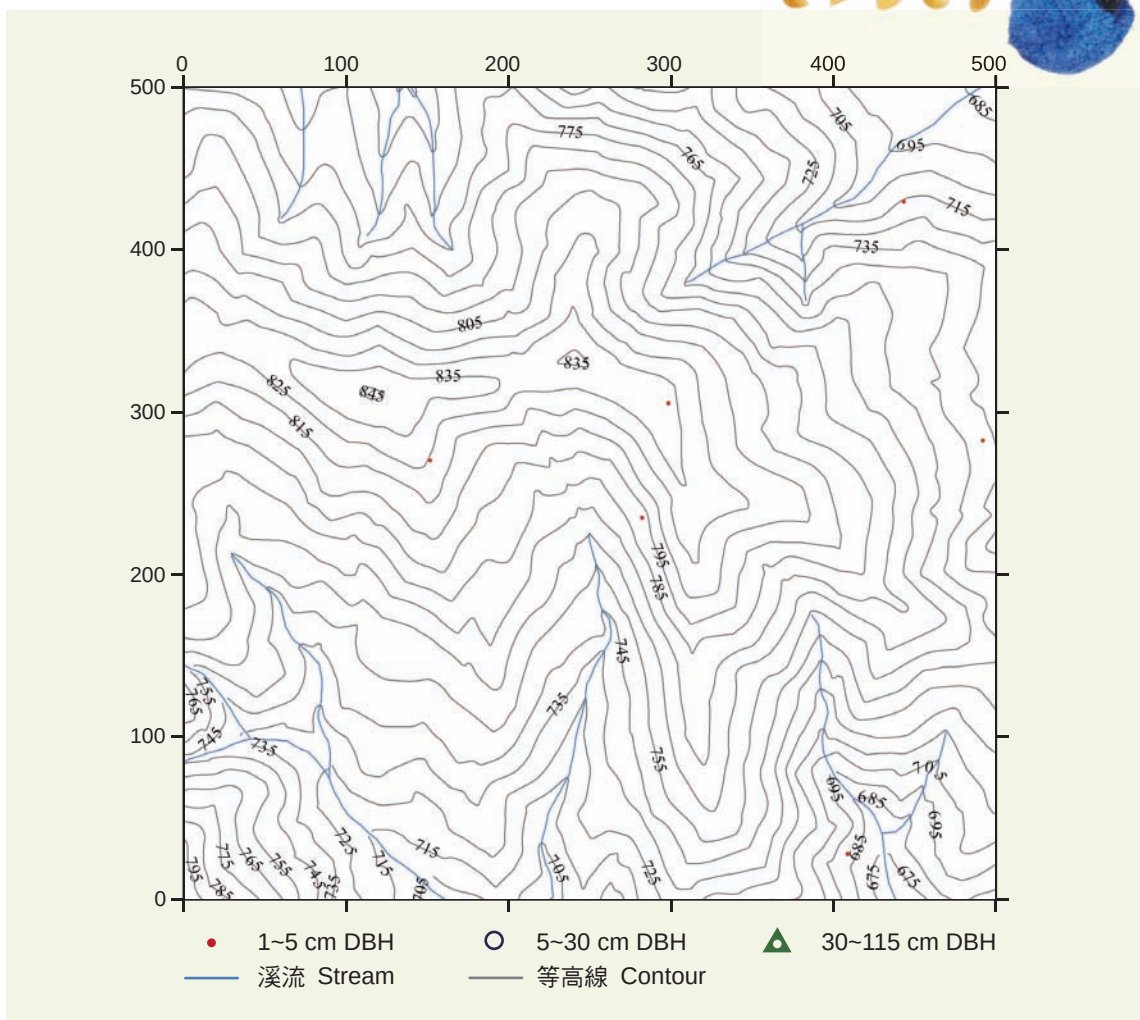
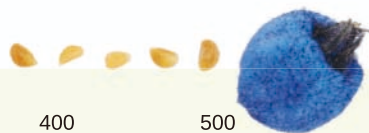
茜草科

樹冠層級

灌木層

描述

枝條密被粗毛。葉對生，近革質至紙質，披針狀長橢圓形、橢圓形至倒卵形，長5~10 cm，寬2~3.5 cm，先端尾狀漸尖，基部楔形或鈍形，上表面光滑無毛，下表面密被粗毛；葉柄密被粗毛，托葉三角形，被毛，於葉成熟後脫落。花兩性；叢生於葉腋；花無花柄，無苞片；花萼鐘形，裂片4~5，密被毛；花冠漏斗狀，裂片4~5，白色或淡紫色，密被毛；雄蕊5；柱頭5裂。核果，卵球形，藍色，密被粗毛。



Lasianthus curtisii King & Gamble

Rubiaceae

Stratum

Shrub

Description

Branches and branchlets densely hirsute. Leaves opposite, subcoriaceous to chartaceous, lanceolate-oblong, elliptical to obovate, 5~10 cm long, 2~3.5 cm wide; apex caudate-acuminate, cuneate or obtuse at base, glabrous above, densely hirsute below; petioles densely hirsute; stipules triangular, hirsute, falling when leaves mature. Bisexual; clustered in axillary; flowers sessile, ebracteate; calyx campanulate, lobes 4 or 5, densely hirsute; corolla funnelform, lobes 4 or 5, white

or purplish, densely hirsute; stamens 5; stigmas 5-lobed. Drupe ovoid-globose, blue, densely hirsute.



植株 Entire plant

李碧鳳 Bi-Fong Lee/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



核果 Drupe

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	6	100.00
2~5	0	0.00
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

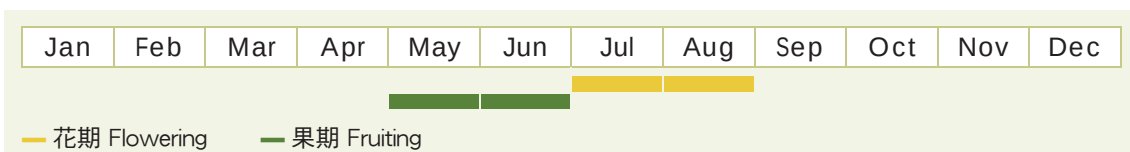
Total basal area= 5.06 cm²/25 ha

Number of trees/25 ha = 6



核果(未熟) Immature drupes

葉秋好 Chiou-Yu Yeh/攝





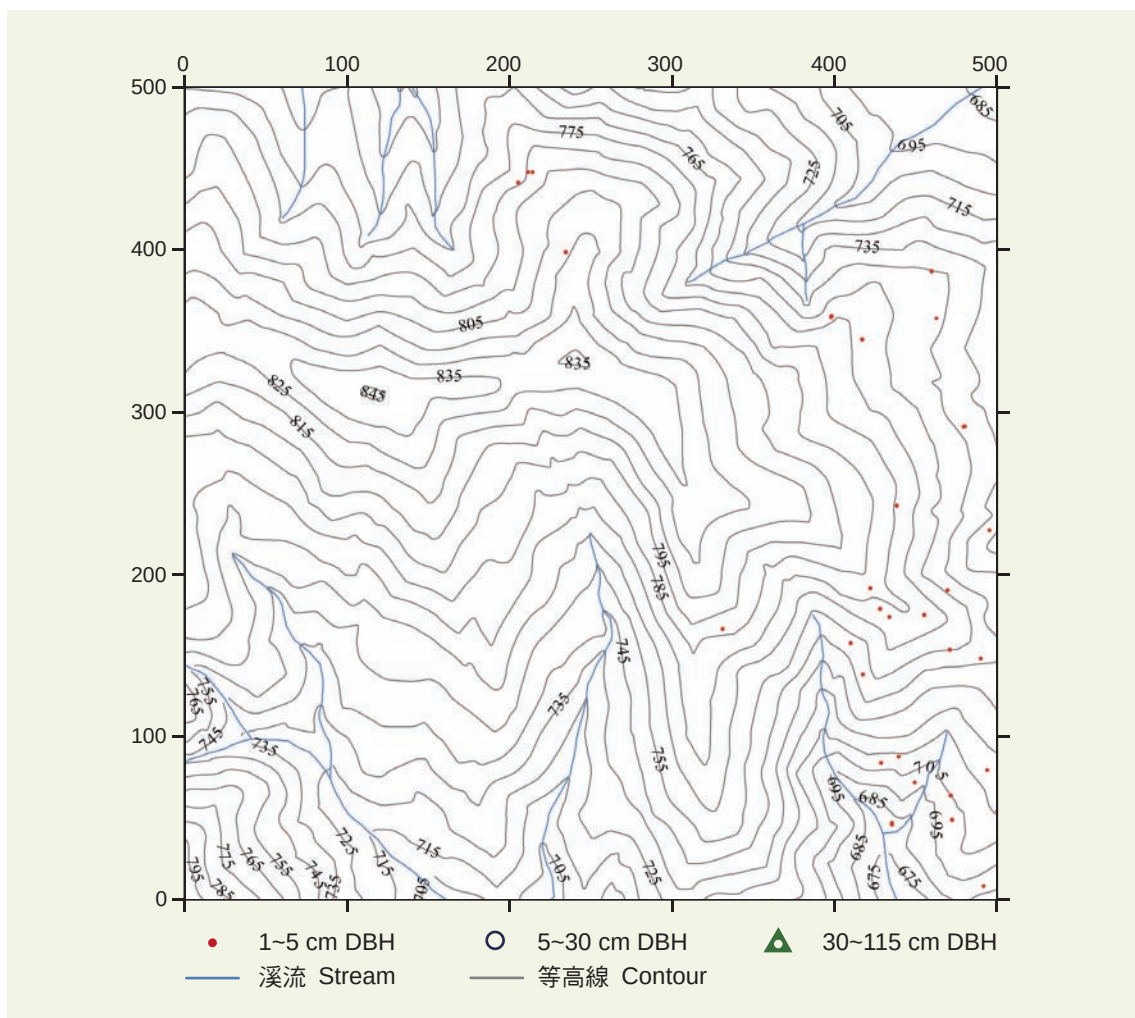
茜草科

樹冠層級

灌木層

描述

幼莖及幼枝密被粗長毛。葉對生，厚紙質，長橢圓形至倒披針形，長12~25 cm，寬4~7 cm，先端漸尖，基部銳形，上下表面密被粗毛；葉柄被粗毛；托葉三角形，於葉成熟後脫落。花兩性；2~4朵叢生葉腋，無花柄；被長形宿存苞片圍繞，苞片葉片狀，三角狀披針形，密被粗毛；花萼鐘形，裂片5，被毛；花冠漏斗狀，白色，裂片5，被毛。核果，卵球形，藍紫色，上被長毛。



221



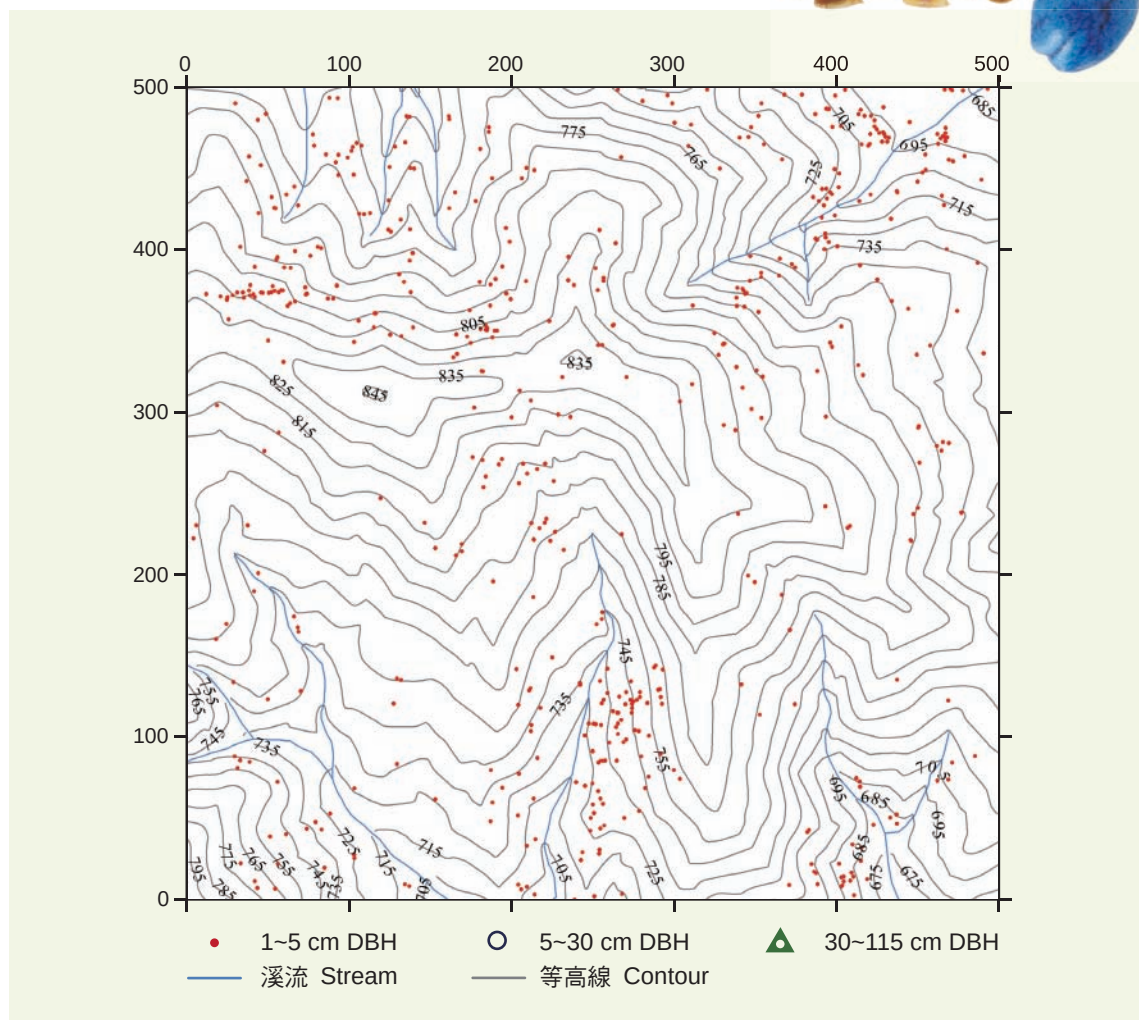
茜草科

樹冠層級

灌木層

描述

枝條光滑或疏被毛。葉對生，近革質或紙質，卵形、披針形、橢圓形或狹橢圓形，長5~13 cm，寬2.5~5 cm，先端尾狀漸尖，基部大多楔形，上表面無毛且光亮，下表面脈上被毛；葉柄被短毛；托葉三角形，被毛，於葉成熟後脫落。花兩性；叢生葉腋；花無柄，無苞片；花萼鐘形，外側疏被毛，裂片5；花冠漏斗狀，白色或粉紫色，裂片5，外側無毛，內側被毛。核果，球形，藍色。



Rubiaceae

Stratum

Shrub

Description

Branches and branchlets glabrous or sparsely pubescent. Leaves opposite, subcoriaceous or chartaceous, oblong, narrowly oblong, ovate, lanceolate, elliptical, narrowly elliptical, 5~13 cm long, 2.5~5 cm wide; apex caudate-acuminate, mostly cuneate at base; glabrous and polished above, veins pubescent below; petioles short-pubescent; stipules triangular, pubescent, falling when leaves mature. Bisexual; clustered in axillary; flowers sessile, ebracteate; calyx campanulate, sparsely pubescent outside, lobes 5; corolla funnelform,

white or pinkish-purple, lobes 5, glabrous outside, pubescent inside. Drupe globose, blue.



枝條 Branch

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

葉秋好 Chiou-Yu Yeh/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	548	99.46
2~5	3	0.54
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

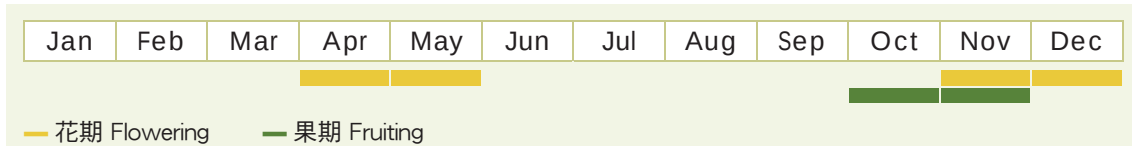
Total basal area= 956.29 cm²/25 ha

Number of trees/25 ha = 551



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





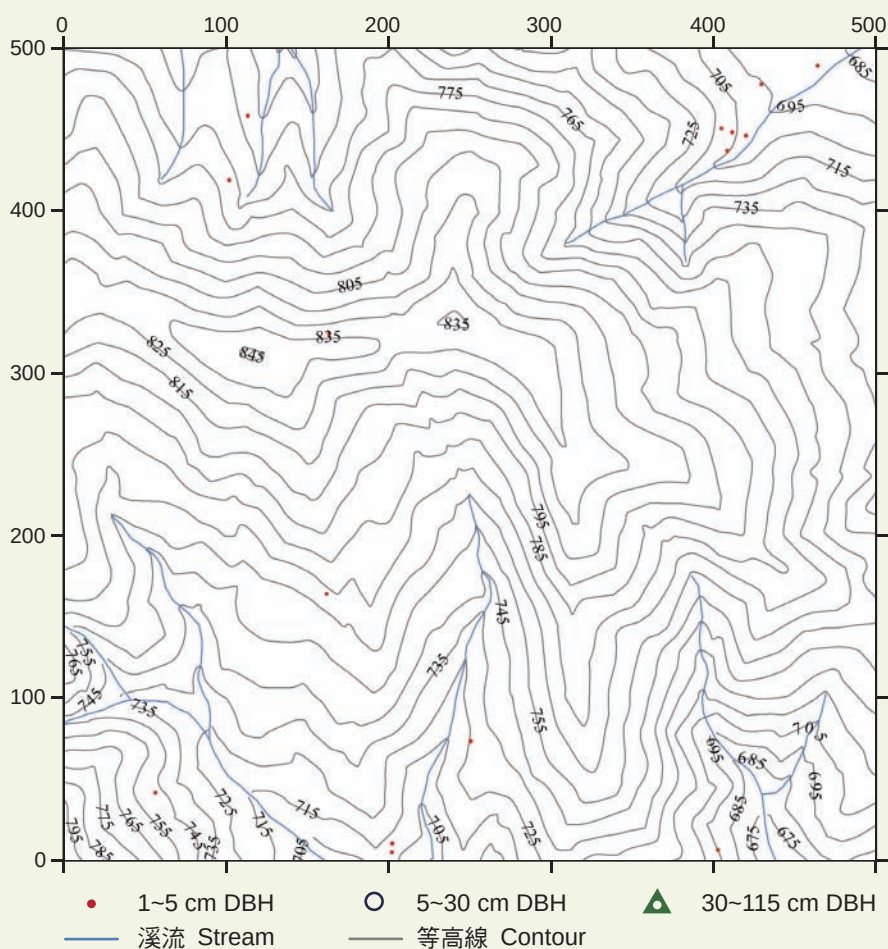
茜草科 特有種

樹冠層級

灌木層

描述

枝條細長，無毛。葉對生，近革質或紙質，長橢圓形、卵形、披針形或狹橢圓形，長5~11 cm，寬2~4 cm，先端長驟尖至漸尖，基部鈍，上表面光滑無毛，下表面脈上被伏毛；葉柄疏被短毛；托葉三角形，被毛，於葉成熟後脫落。花兩性；短聚繖花序，腋生，花序梗短；花近無柄；無苞片；花萼鐘形，外側疏被毛，裂片5；花冠漏斗狀，白色，裂片5，外側光滑，內側被毛。核果，球形，藍紫色，疏被毛。



Lasianthus microstachys Hayata

Rubiaceae

Endemic

Stratum

Shrub

Description

Branches and branchlets slender, glabrous. Leaves opposite, subcoriaceous or chartaceous, oblong, ovate, lanceolate, or narrowly elliptical, 5~11 cm long, 2~4 cm wide, apex long cuspidate-acuminate, obtuse at base; glabrous above, veins with appressed short pubescence below; petioles sparsely appressed short-pubescent; stipules triangular, pubescent, falling when leaves mature. Bisexual; short-cyme in axillary, peduncles short; flowers subsessile; ebracteate; calyx campanulate, sparsely pubescent outside,

lobes 5; corolla funnelform, white, lobes 5, glabrous outside, pubescent inside. Drupe globose, sparsely pubescent, bluish-purple.



花 Flowers

林炎慶 Huan-Ching Lin/攝



核果 Drupes

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	16	100.00
2~5	0	0.00
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

Total basal area= 29.63 cm²/25 ha

Number of trees/25 ha = 16



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





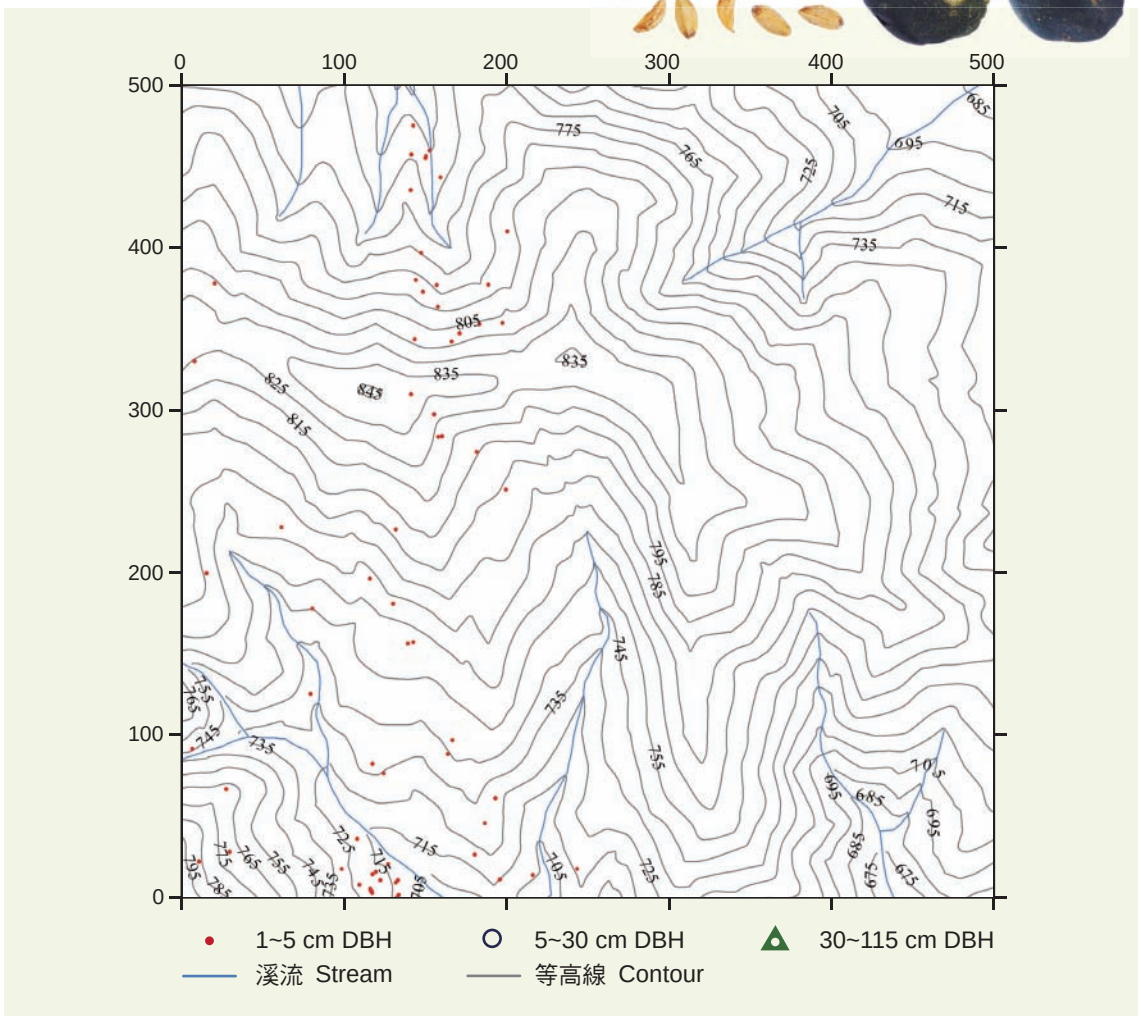
茜草科

樹冠層級

灌木層

描述

枝條被短毛。葉對生，革質，橢圓形、長橢圓或狹長橢圓形，長10~20 cm，寬3~6 cm，先端漸尖，基部楔形，上表面光滑無毛，下表面被平伏短毛；葉柄近軸面有溝且被短毛；托葉三角狀披針形，被毛，於葉成熟後脫落。花兩性；叢生於葉腋；花無柄；無苞片；花萼鐘形，外側被毛，裂片5；花冠漏斗狀，白色，裂片5，內外側皆被毛。核果，橢圓球形，被毛，黑紫色。



Lasianthus obliquinervis Merr.

Rubiaceae

Stratum

Shrub

Description

Branches and branchlets short-pubescent. Leaves opposite, coriaceous, elliptical, oblong, or narrowly oblong, 10~20 cm long, 3~6 cm wide, apex acuminate, cuneate at base; glabrous above, appressed short-pubescent below; upper surface of petioles slightly grooved, appressed short-pubescent; stipules triangular-lanceolate, pubescent, falling when leaves mature. Bisexual; clustered in axillary; flowers sessile; ebracteate; calyx campanulate, pubescent outside, lobes 5;

corolla funnelform, white, lobes 5, pubescent on both surfaces. Drupe ellipsoid, pubescent, blackish-purple.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



核果 Drupes

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	61	92.42
2~5	5	7.58
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

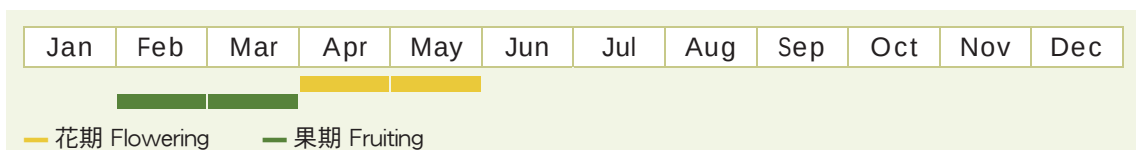
Total basal area= 139.30 cm²/25 ha

Number of trees/25 ha = 66



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





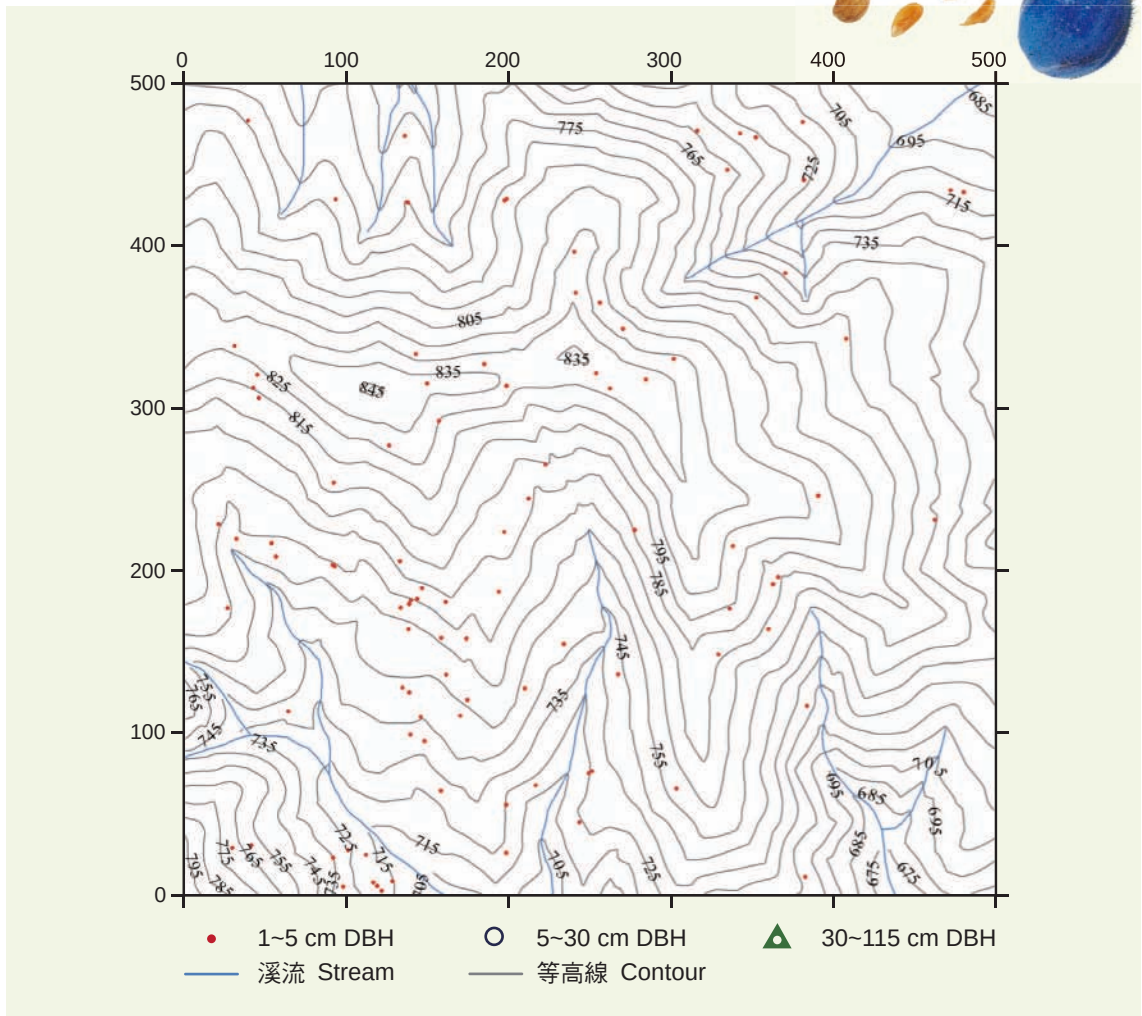
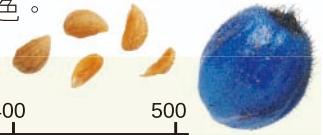
茜草科

樹冠層級

灌木層

描述

枝條多且被粗毛。葉對生，長橢圓形、橢圓形或近圓形，長5~8 cm，寬2.5~4 cm，先端漸尖或銳尖，基部歪斜圓形或心形，幼葉具緣毛，上表面光滑無毛，下表面密被毛；幾乎無葉柄；托葉三角形，密被毛。花兩性；2~6朵叢生於葉腋；被苞片覆蓋，苞片3~4深裂，密被毛；花萼鐘形，5裂，外側被毛。花冠漏斗狀，白色或淡紫色，裂片5，外側無毛，內側被毛。核果，橢圓球形或球形，疏被毛，藍紫色。



Rubiaceae

Stratum

Shrub

Description

Branches and branchlets densely hirsute. Leaves opposite, oblong, elliptical or suborbicular, 5~8 cm long, 2.5~4 cm wide; apex acuminate or acute, obliquely rounded or cordate at base, margins ciliate when young; glabrous above, densely pubescent below; petiole nearly absent; stipules triangular, densely pubescent. Bisexual; flowers 2~6 in axillary; surrounded by bracts, bracts deeply 3- or 4-lobed, densely pubescent; calyx campanulate, 5-lobed, pubescent outside; corolla funnelform, white or pale-violet, lobes 5. Drupe ellipsoid or globular, bluish-purple, sparsely pubescent.



植株 Entire plant

翁明毅 Ming-I Weng/攝



花 Flowers

林奂慶 Huan-Ching Lin/攝



核果 Drupe

林奂慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	100	100.00
2~5	0	0.00
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

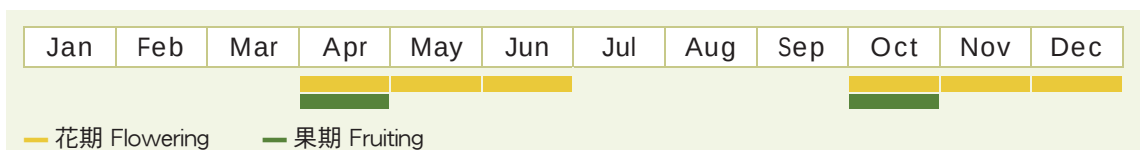
Total basal area= 124.26 cm²/25 ha

Number of trees/25 ha = 100



樹皮 Bark

林奂慶 Huan-Ching Lin/攝





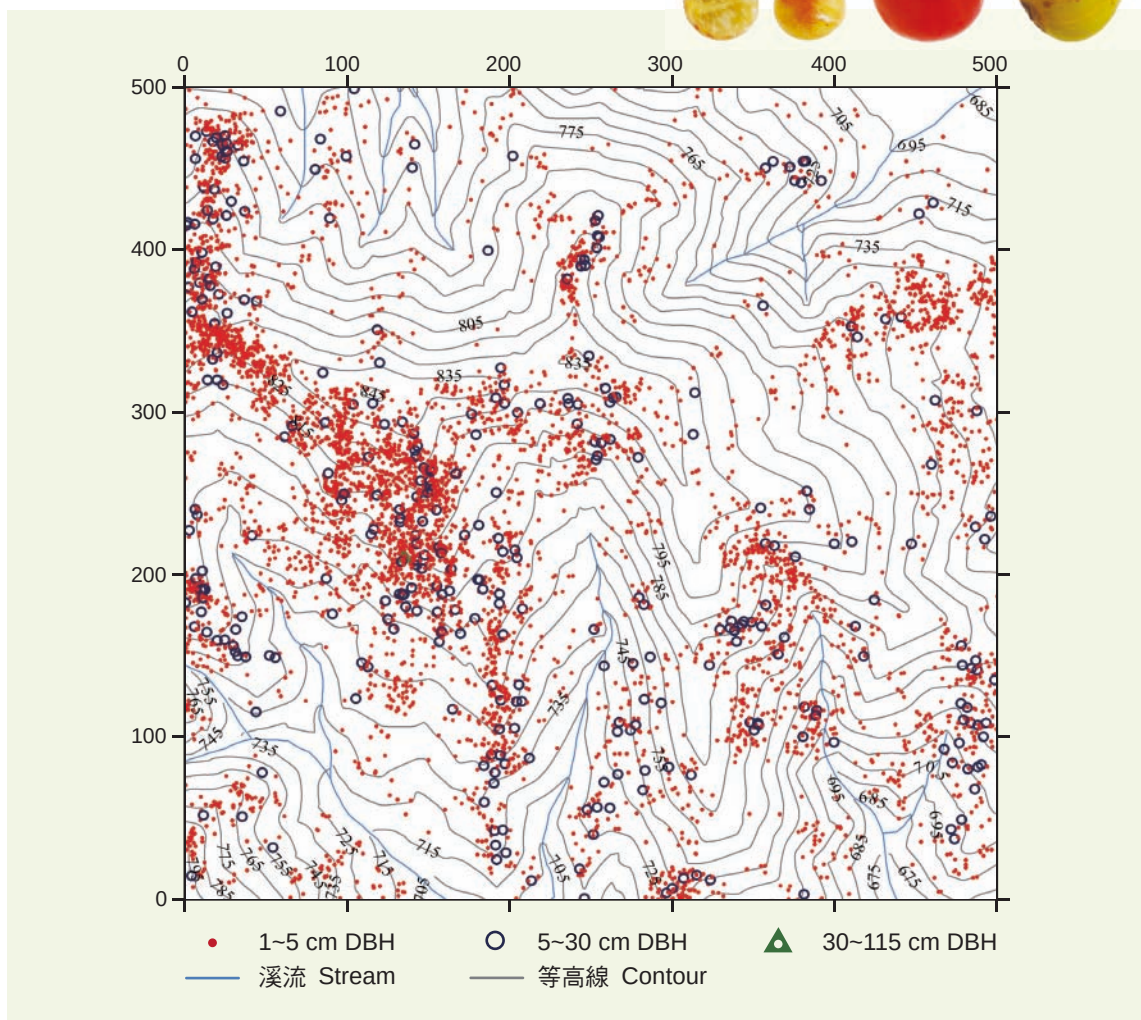
茜草科

樹冠層級

次冠層

描述

小枝殘留葉痕，光滑。葉對生，長橢圓形、長橢圓狀披針形或橢圓形，長9~18 cm，寬3.5~6 cm，先端銳尖至漸尖，基部楔形，上表面綠色具光澤，中肋及側脈略凹下，下表面淡綠色，側脈7~11對；托葉闊三角形。雌雄異株；聚繖花序，頂生；花黃綠色；花萼鐘形，花冠杯形，先端5裂，內側密生毛茸；雄花雄蕊5枚；雌花花柱細長，柱頭2裂。核果，球形，熟時紅或橘紅色。



Psychotria rubra (Lour.) Poir.

Rubiaceae

Stratum

Sub-canopy

Description

Branchlets with leaf scars, glabrous. Leaves opposite, oblong, oblong-lanceolate, or elliptical, 9~18 cm long, 3.5~6 cm wide, apex acute to acuminate, cuneate at base, green and lustrous above, midrib and lateral veins slightly concave, greenish below, lateral veins 7~11 pairs; stipules broadly triangular. Dioecious; inflorescence in terminal cymes; flowers yellowish-green; calyx campanulate; corolla cupulate, 5-lobed at apex, densely tomentose outside; staminate flowers with

5 stamens; style of pistillate flowers slender, stigma 2-lobed. Drupe globose, red or orangish-red when mature.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	2858	49.97
2~5	2506	43.81
5~10	348	6.08
10~20	7	0.12
20~30	1	0.02
30~60	0	0.00
60~115	0	0.00

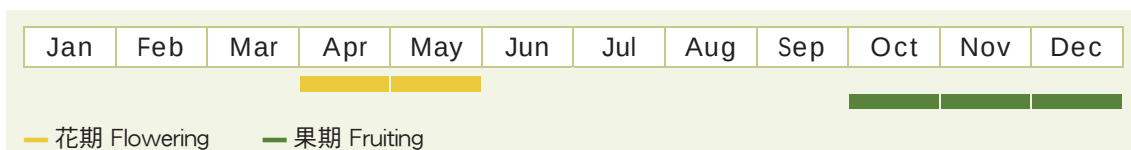
Total basal area = 45725.10 cm²/25 ha

Number of trees/25 ha = 5720



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





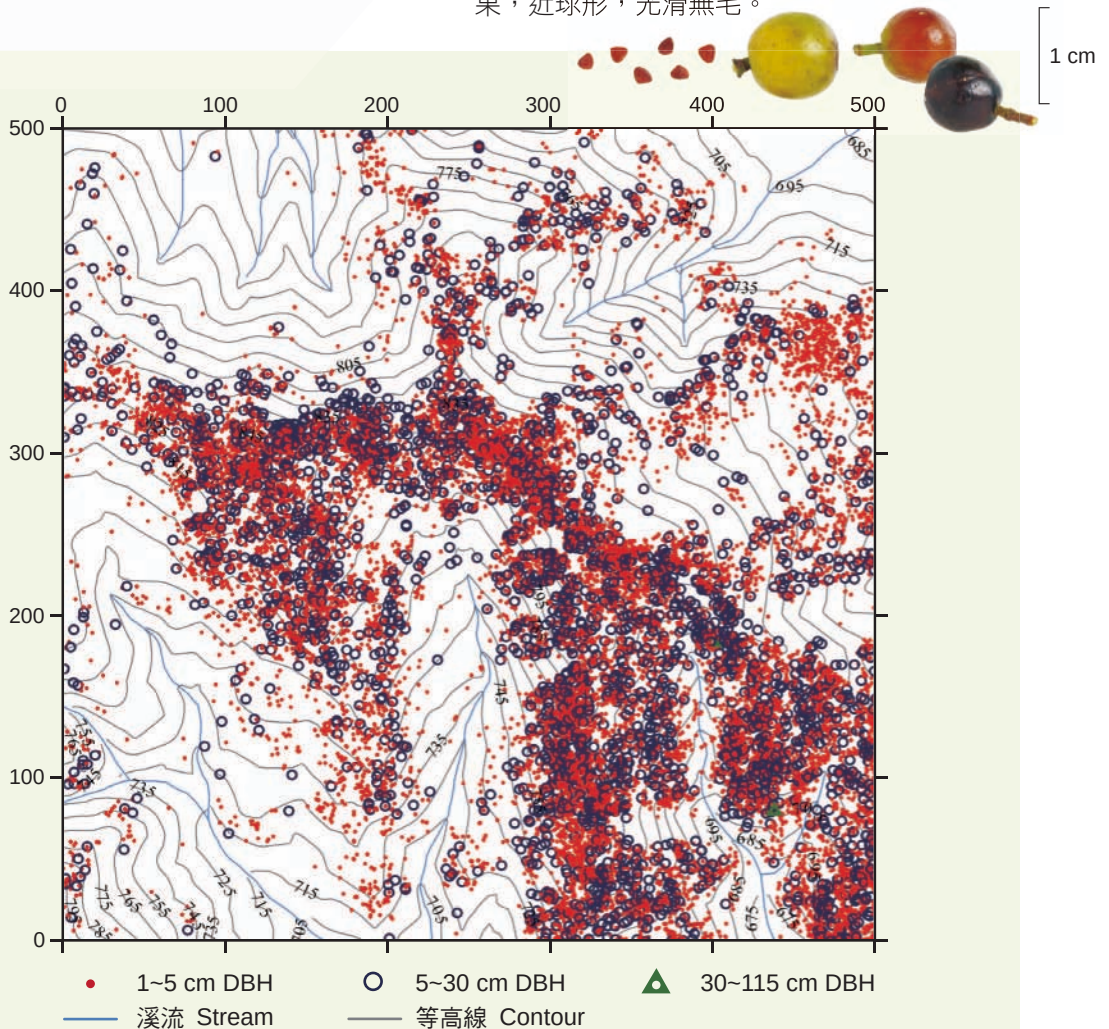
茜草科

樹冠層級

次冠層

描述

枝條光滑無毛。葉對生，薄革質，長橢圓狀披針形至長橢圓形，長6~14 cm，寬3~5 cm，先端銳尖至漸尖，基部楔形至漸狹，全緣，下表面側脈基部初被毛；葉柄長5~12 mm，光滑；托葉狹三角形，光滑。花兩性；腋生，聚繖花序，常與葉對生；苞片及小苞片三角形；花萼鐘形，4~5裂；花冠筒長，先端裂片4~5，長披針形，反折，淺黃色；雄蕊4~5，花絲短，花藥線形；子房2室，柱頭長。漿果，近球形，光滑無毛。



Randia cochinchinensis (Lour.) Merr.

Rubiaceae

Stratum

Sub-canopy

Description

Branches glabrous. Leaves opposite, thin-coriaceous, oblong-lanceolate to oblong, 6~14 cm long, 3~5 cm wide, apex acute to acuminate, cuneate to attenuate at base, margins entire, base of lateral veins pubescent below; petioles 5~12 mm long, glabrous; stipules narrowly deltoid, glabrous. Bisexual; flowers in axillary cymes, often opposite of leaf; bracts and bracteoles deltoid; calyx campanulate, 4- or 5-lobed; corolla tube long, lobes 4 or 5 at apex, long lanceolate, reflexed,

pale-yellow; stamens 4 or 5, filaments short, anthers linear; ovary 2-celled, style long. Berry subglobose, glabrous.



新葉 New leaves

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



漿果 Berries

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	10494	49.79
2~5	7679	36.44
5~10	2129	10.10
10~20	763	3.62
20~30	8	0.04
30~60	2	0.01
60~115	0	0.00

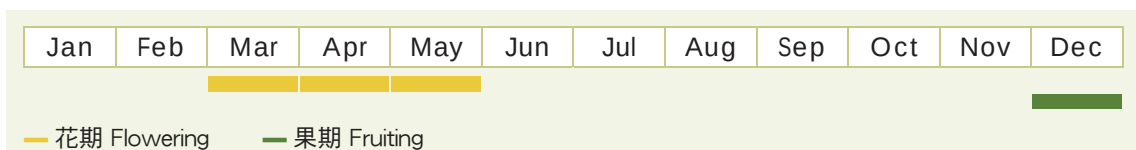
Total basal area = 269533.76 cm²/25 ha

Number of trees/25 ha = 21075



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





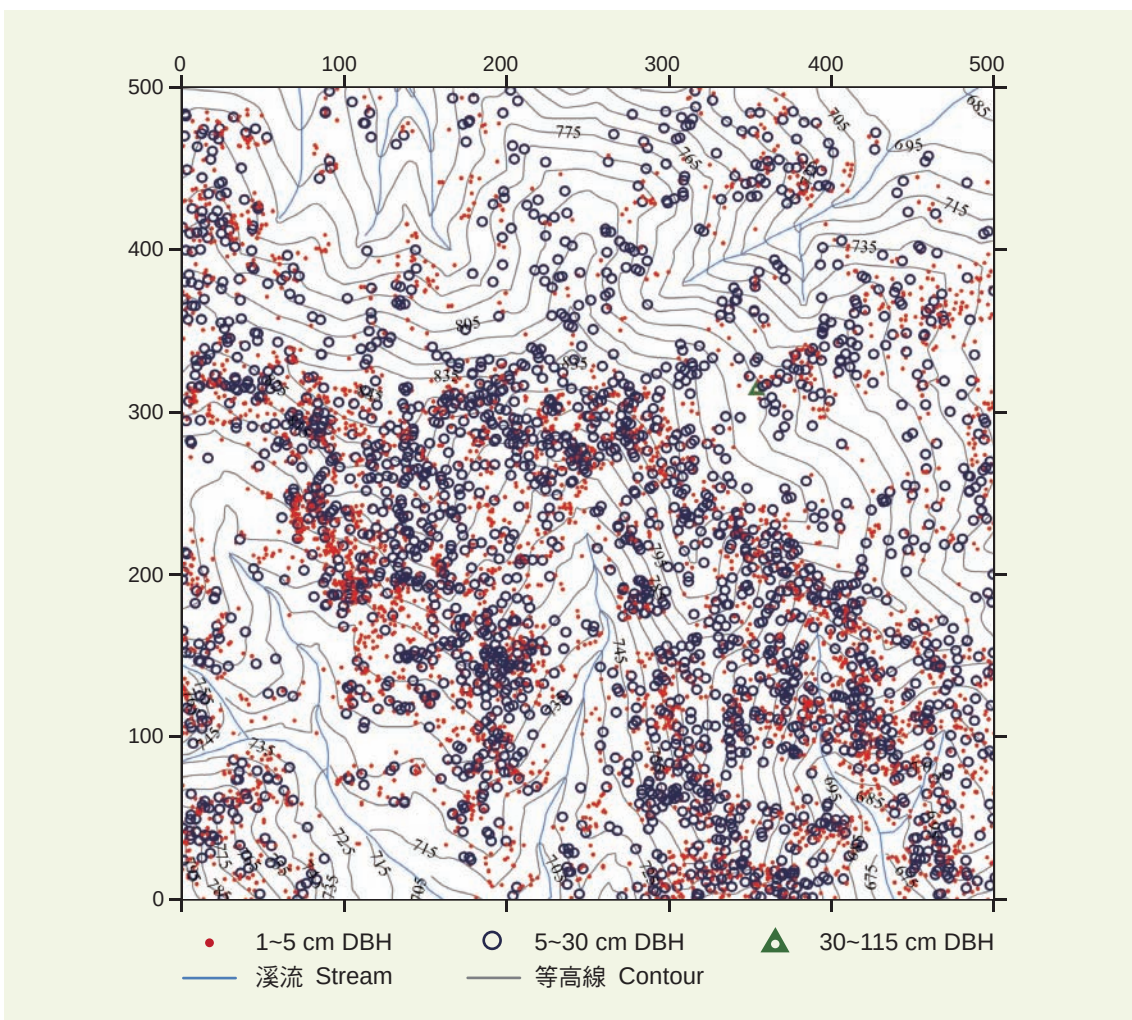
茜草科

樹冠層級

次冠層

描述

枝條圓柱形，光滑無毛，節處略膨大。葉對生，紙質，長橢圓形，長5~15 cm，寬3~6 cm，先端漸尖，基部楔形至漸狹，全緣，光滑；葉柄長5~9 mm；托葉闊三角形，先端似針形。花兩性；叢生於葉腋；苞片合生成杯狀；花萼4裂；花冠筒短，鐘形或漏斗狀，黃白色，裂片4，冠喉部被毛；雄蕊4；子房2室，柱頭2裂。漿果，球形，紅色。



Tricalysia dubia (Lindl.) Ohwi

Rubiaceae

Stratum

Sub-canopy

Description

Branches terete, glabrous, slightly swollen on node. Leaves opposite, chartaceous, oblong, 5~15 cm long, 3~6 cm wide, apex acuminate, cuneate to attenuate at base, margins entire, glabrous; petioles 5~9 mm long; stipules broadly triangular, needle-like at apex. Bisexual; flowers in axillary fascicles; bracteoles connate in a cup; calyx 4-lobed; corolla tube short, campanulate or funnelform, yellowish-white, lobes 4, throat pubescent; stamens 4; ovary 2-celled, stigma 2-lobed. Berry globose, red.



1 cm



枝條 Branches

李碧鳳 Bi-Fong Lee/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



漿果 Berries

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	1515	24.24
2~5	2449	39.18
5~10	1872	29.95
10~20	413	6.61
20~30	2	0.03
30~60	0	0.00
60~115	0	0.00

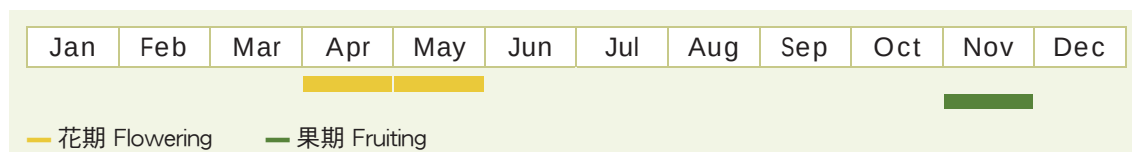
Total basal area = 154146.05 cm²/25 ha

Number of trees/25 ha = 6251



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





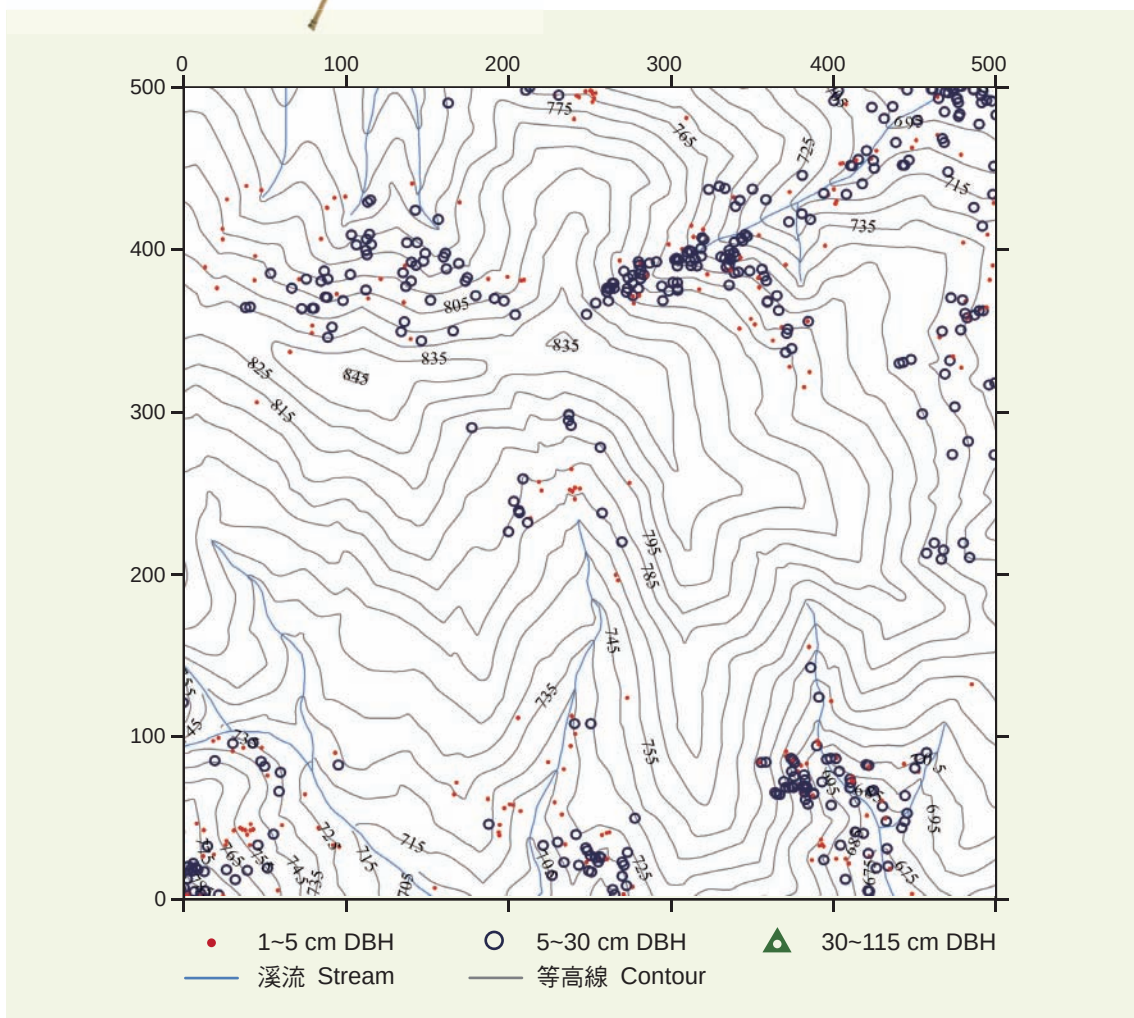
茜草科

樹冠層級

次冠層

描述

枝條疏被毛。葉對生，紙質，長橢圓形至長橢圓狀披針形，長9~18 cm，寬3~6 cm，先端銳尖至漸尖，基部楔形，全緣，側脈7~8對；葉柄常帶紅色；托葉三角形，宿存。花兩性；頂生，圓錐花序，花序長7~14 cm；花白色至黃白色；花萼鐘形，光滑，4~5裂；花冠管狀，4~5裂，裂片反捲，冠喉部被毛；雄蕊5，花藥線形；子房2室，柱頭膨大，2裂。蒴果，球形，光滑，深褐色。



Stratum

Sub-canopy

Description

Branches sparsely pubescent. Leaves opposite, chartaceous, oblong to oblong-lanceolate, 9~18 cm long, 3~6 cm wide, apex acute or acuminate, cuneate at base, margins entire, lateral veins 7 or 8 pairs; petioles often tinged with red; stipules triangular, persistent. Bisexual; inflorescence in terminal panicles, 7~14 cm long; flowers white to yellowish-white; calyx campanulate, glabrous, 4- or 5-lobed; corolla tubular, 4- or 5-lobed, lobes reflexed, throat pubescent; stamens 5, anthers linear; ovary 2-celled, stigma swollen, 2-lobed. Capsule globose, glabrous, dark-brown.



林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	82	12.81
2~5	165	25.78
5~10	223	34.84
10~20	161	25.16
20~30	9	1.41
30~60	0	0.00
60~115	0	0.00

Total basal area = 38922.19 cm²/25 ha

Number of trees/25 ha = 640



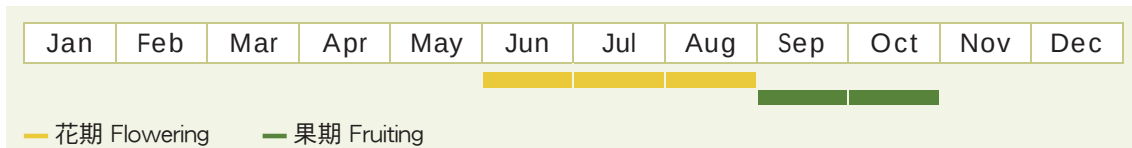
李碧鳳 Bi-Fong Lee/攝



林煥慶 Huan-Ching Lin/攝



林奐慶 Huan-Ching Lin/攝





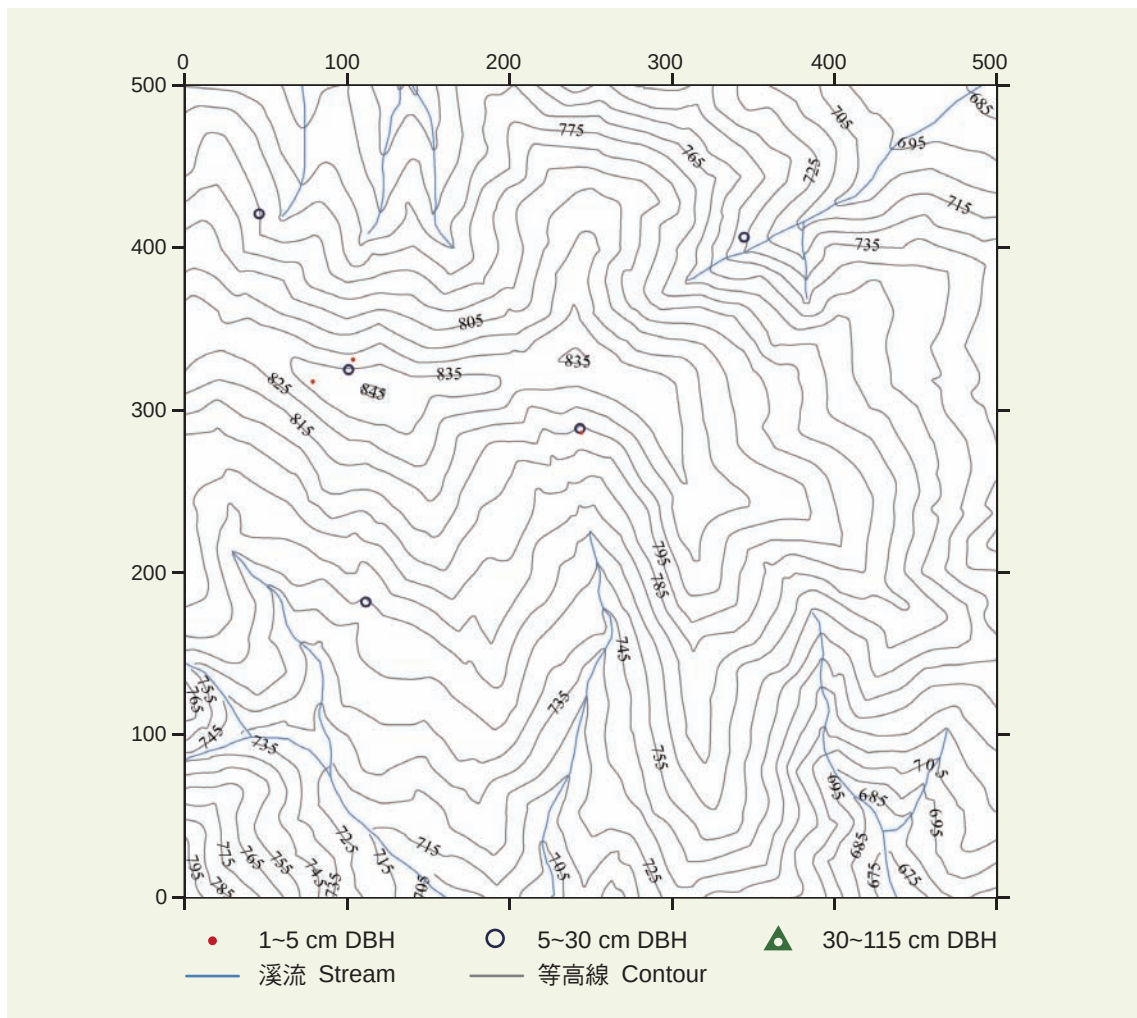
茜草科

樹冠層級

次冠層

描述

枝條、葉柄、葉下表面及花梗被毛。葉對生，紙質，長橢圓形、橢圓形或長橢圓狀披針形，長13~25 cm，寬6~10 cm，先端銳尖，基部楔形，全緣，上表面疏被直柔毛或近光滑，側脈7~9對；托葉闊圓形，反折，宿存。花兩性；頂生，密集圓錐狀排列之聚繖花序；花近無柄，白色至黃白色；花萼鐘形，被毛至近光滑，4~5裂；花冠管狀，4~5裂，裂片反捲；雄蕊5，花藥長橢圓形；子房2室，柱頭2裂。蒴果，球形，被毛，深褐色。



239



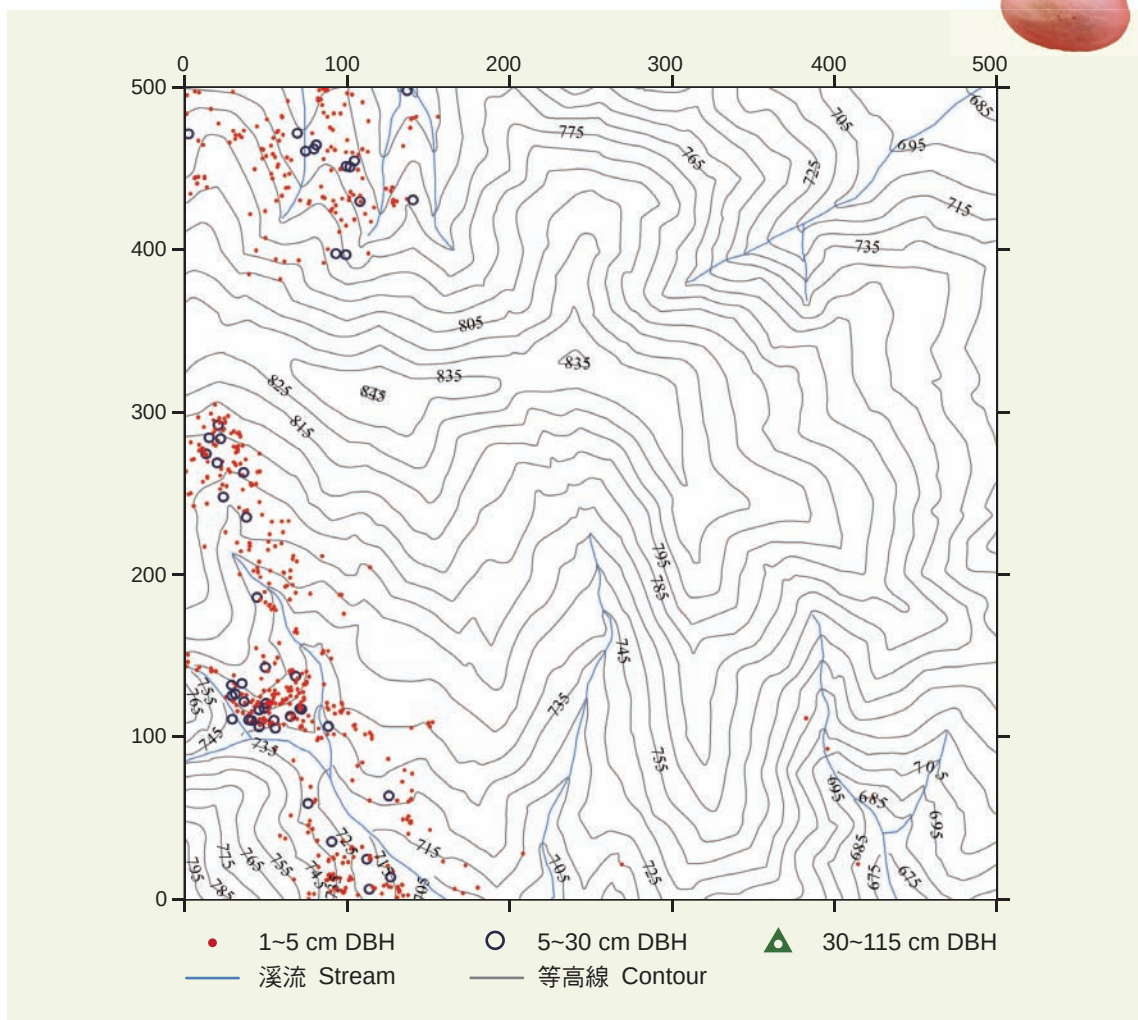
芸香科

樹冠層級

次冠層

描述

小枝初被毛，後漸光滑。單葉或3~5複葉，小葉互生，紙質，長橢圓狀披針形至披針形，長5~10 cm，寬2~3.5 cm，先端銳尖或鈍突起狀漸尖，基部銳尖或鈍，全緣，上下面光滑且具透明腺點；葉柄長1~2.5 cm，光滑。花兩性；腋生，聚繖狀圓錐花序；花萼5裂，裂片闊三角形，覆瓦狀排列；花瓣5，白色，橢圓形；雄蕊10，花絲扁平線形；子房平滑，花柱短，柱頭頭狀。漿果，球形或卵形，徑約1.5 cm，成熟為透明粉紅色。



Glycosmis citrifolia (Willd.) Lindl.

Rutaceae

Stratum

Sub-canopy

Description

Branchlets pubescent, gradually glabrous. Leaves solitary or 3~5-foliolate, leaflets alternate, chartaceous, oblong-lanceolate to lanceolate, 5~10 cm long, 2~3.5 cm wide, acute or acuminate with obtuse acumens at apex, acute or obtuse at base, margins entire, glabrous with transparent glands on both surfaces; petioles 1~2.5 cm long, glabrous. Bisexual; inflorescence a cymose panicles, axillary; calyx 5-lobed, broadly triangular, imbricate; petals 5, white, elliptical; stamens 10, filaments depressed, linear; ovary smooth,

style short, stigma capitate. Berry globose or ovoid, ca. 1.5 cm across, transparent pink when mature.



枝條 Branches

林炎慶 Huan-Ching Lin/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



漿果 Berries

翁明毅 Ming-I Weng/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	254	40.32
2~5	320	50.79
5~10	56	8.89
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

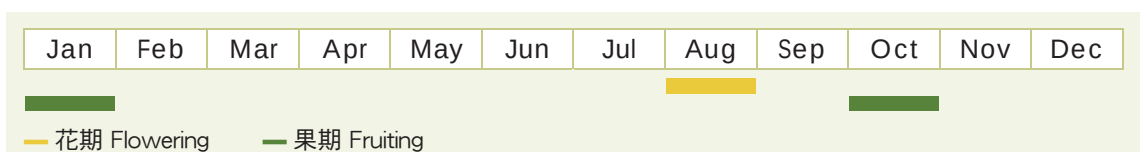
Total basal area = 5900.41 cm²/25 ha

Number of trees/25 ha = 630



樹皮 Bark

林炎慶 Huan-Ching Lin/攝



5 cm



芸香科

樹冠層級

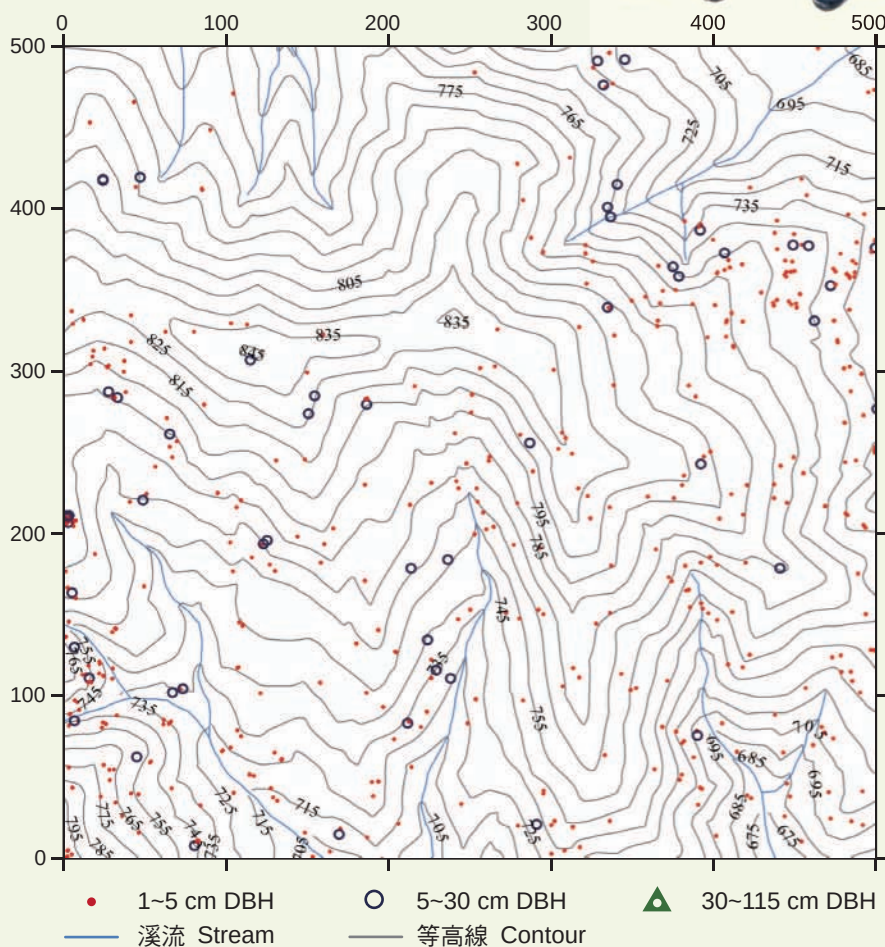
次冠層

描述

枝條幼時被柔毛，後漸光滑。葉對生，3出複葉，長8~30 cm，葉柄長3~15 cm；小葉紙質，卵狀披針形至橢圓狀倒卵形，長6~22 cm，寬3~8 cm，先端漸尖或近尾狀，基部楔形至漸狹，全緣，光滑，具腺點；小葉柄短。花單性或兩性；腋生，聚繖花序；花萼4，闊卵形；花瓣4，卵圓形，白色至黃白色；雄蕊4，花絲細長；心皮基部合生。蓇葖果，1~4粒基部合生，近球形至倒卵球形，成熟時開裂至基部；種子黑色。



5 mm



Stratum

Description

slender; carpels connate at base. Fruit of 1-4 basally connate follicles, subglobose to obovoid, dehiscent to base when mature. Seeds black.



林煥慶 Huan-Ching Lin/攝



林煥慶 Huan-Ching Lin/攝

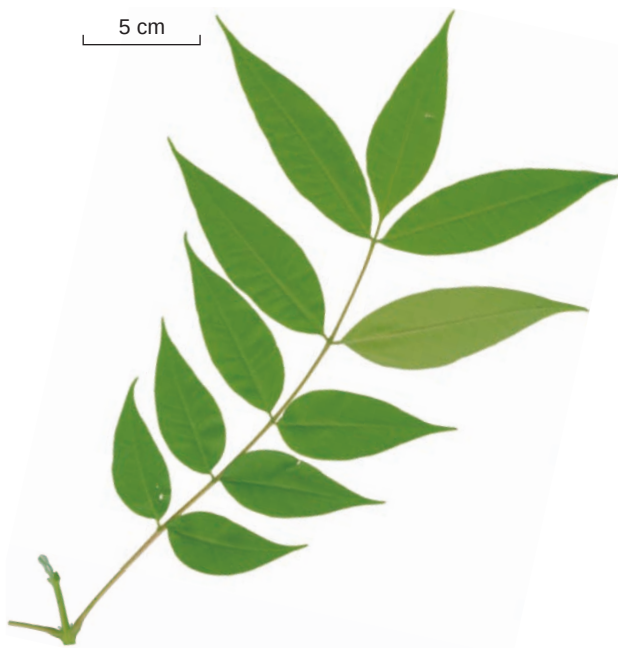


林煥慶 Huan-Ching Lin/攝

林煥慶 Huan-Ching Lin/攝

Number of trees/25 ha = 484

— 花期 Flowering — 果期 Fruiting



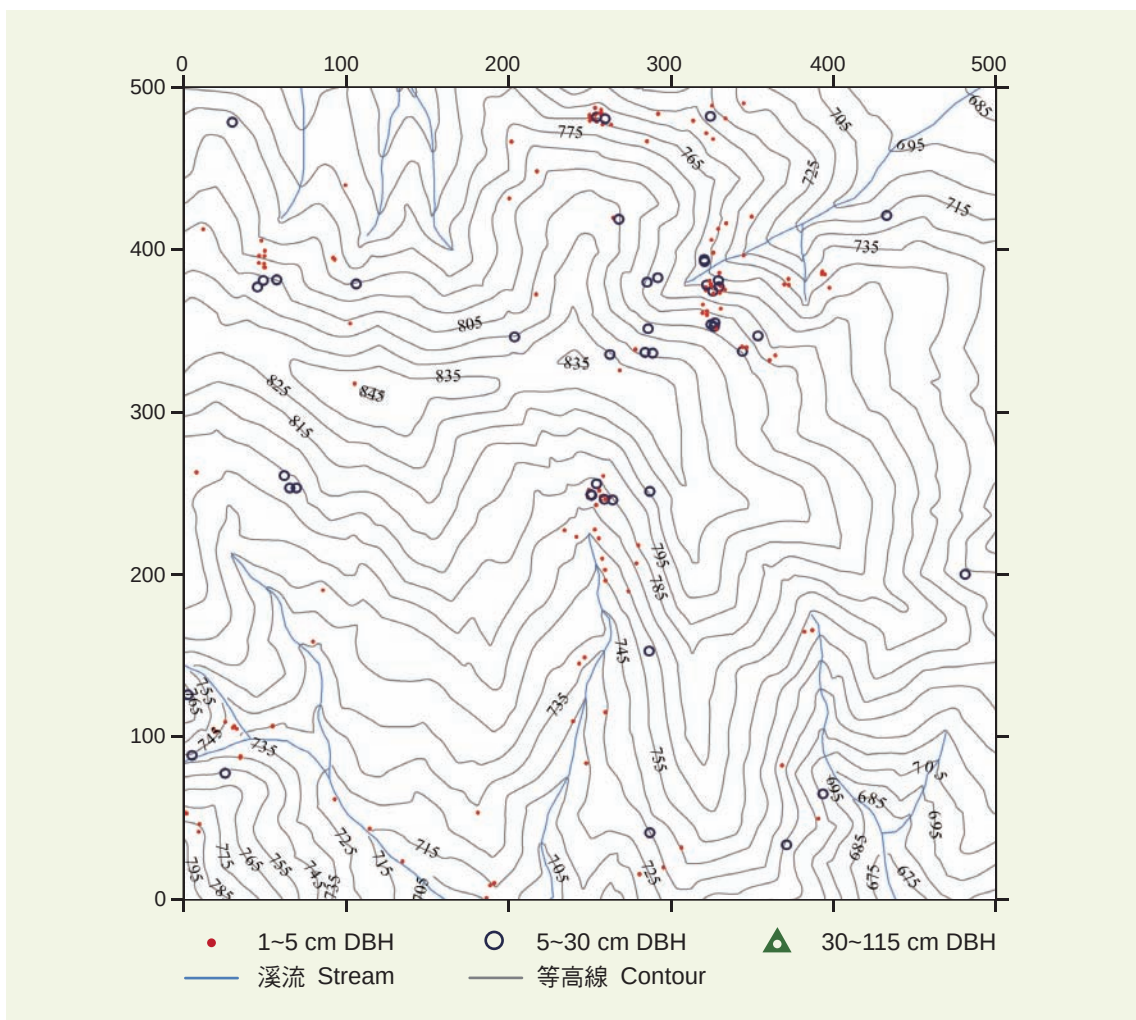
芸香科

樹冠層級

次冠層

描述

奇數羽狀複葉，長20~40 cm；小葉2~9對，對生，紙質，被疏且不明顯之油點，闊卵形至披針形或橢圓形，長4~15 cm，寬1.5~3 cm，先端漸尖，基部明顯不對稱歪形，全緣。雌雄異株；頂生，聚繖花序；花黃白色；花萼5；花瓣5，卵形；雄蕊5，花絲被毛茸；心皮5裂，花柱短。蓇葖果，4~5枚組成，側面有平貼伏毛，三稜狀。種子黑褐色，有光澤。



Tetradium glabrifolium (Champ. ex Benth.) T. Hartley

Rutaceae

Stratum

Sub-canopy

Description

Leaves odd-pinnate, 20~40 cm long; leaflets 2~9 pairs, opposite, chartaceous, sparsely indistinctly oil-dotted, broadly ovate to lanceolate or elliptical, 4~15 cm long, 1.5~3 cm wide, apex acuminate, obviously unequally oblique at base, margins entire. Dioecious; inflorescence a cyme, terminal; flowers yellowish-white; calyxes 5; petals 5, ovate; stamens 5, filaments pubescent; carpel 5-lobed, style short. Follicles 4 or 5, apressed-pubescent laterally, trigonous. Seeds blackish-brown, lustrous.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flowers

翁明毅 Ming-I Weng/攝



蓇葖果 Follicles

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	53	29.61
2~5	80	44.69
5~10	32	17.88
10~20	11	6.14
20~30	3	1.68
30~60	0	0.00
60~115	0	0.00

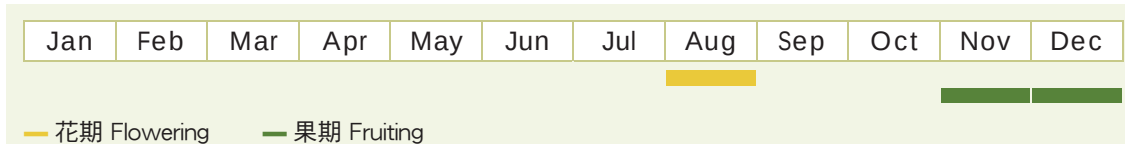
Total basal area= 4282.76 cm²/25 ha

Number of trees/25 ha = 179



樹皮 Bark

林奐慶 Huan-Ching Lin/攝



5 cm

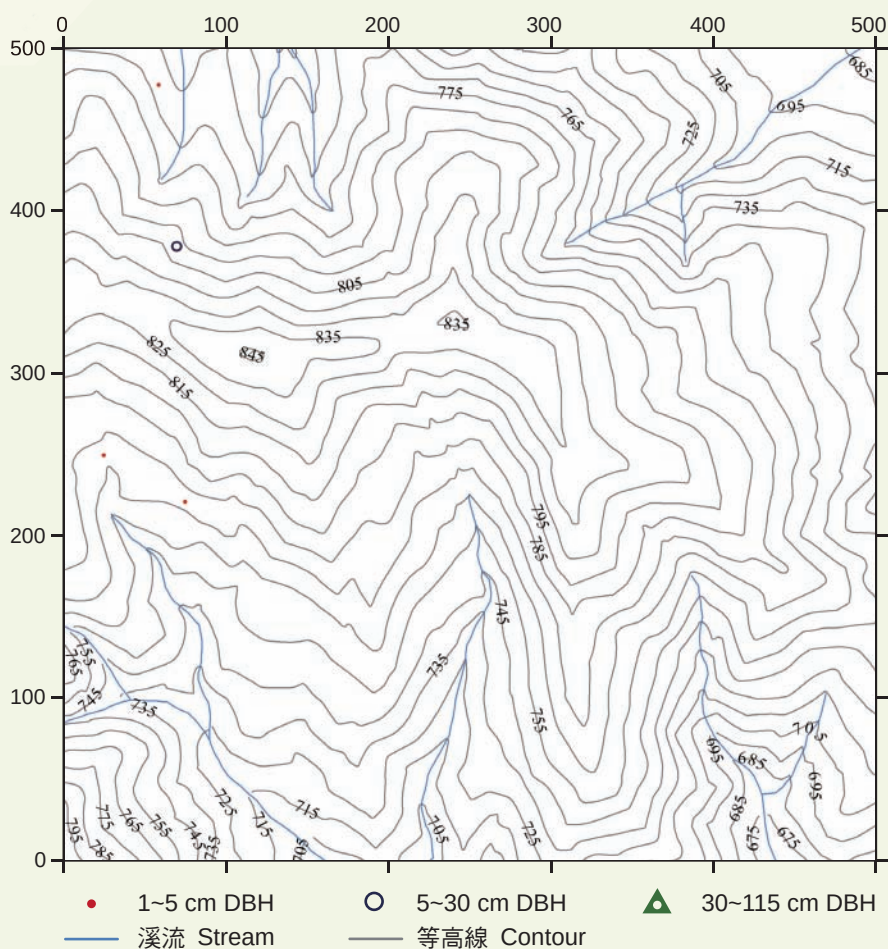
芸香科

樹冠層級

次冠層

描述

主幹密生皮刺或短瘤狀刺；幼枝密被尖銳刺，直立且散布。奇數羽狀複葉，長25~80 cm；小葉7~15對，對生，紙質至近革質，橢圓狀披針形至披針形，長9~14 cm，寬3~5 cm，先端漸尖，基部略歪鈍形至圓形，細鋸齒緣，散生透明油腺點。雌雄異株；聚繖花序，頂生或於上位葉之葉腋；花黃白色；萼片5，小型；花瓣5，橢圓形；雄花雄蕊5，花絲細長；雌花花柱短，柱頭頭狀，具退化雄蕊。蓇葖果，近球形。種子黑色。



1 cm

Zanthoxylum ailanthoides Siebold & Zucc.

Rutaceae

Stratum

Sub-canopy

Description

Main stem with dense thorns or short swollen thorns; branchlets with dense thorns straight and scattered. Leaves odd-pinnate, 25~80 cm long; leaflets 7~15 pairs, opposite, chartaceous to subcoriaceous, elliptical-lanceolate to lanceolate, 9~14 cm long, 3~5 cm wide, acuminate at apex, base sub-obliquely acute to rounded, margins serrulate, sparsely transparent glands. Dioecious; inflorescence a cyme, terminal or from upper leaf axils; flowers yellowish-white; calyxes 5, small; petals 5, elliptical; staminate flowers with 5 stamens,

filaments slender; style of pistillate flowers short, stigma capitate, with staminodia. Follicle subglobose. Seeds black.



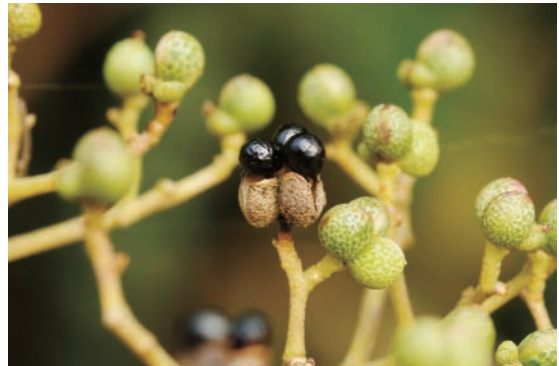
枝條 Branches

李碧鳳 Bi-Fong Lee/攝



雌花 Female flowers

林奐慶 Huan-Ching Lin/攝



蓇葖果 Follicles

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	1	25.00
2~5	2	50.00
5~10	1	25.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

Total basal area= 40.43 cm²/25 ha

Number of trees/25 ha = 4



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





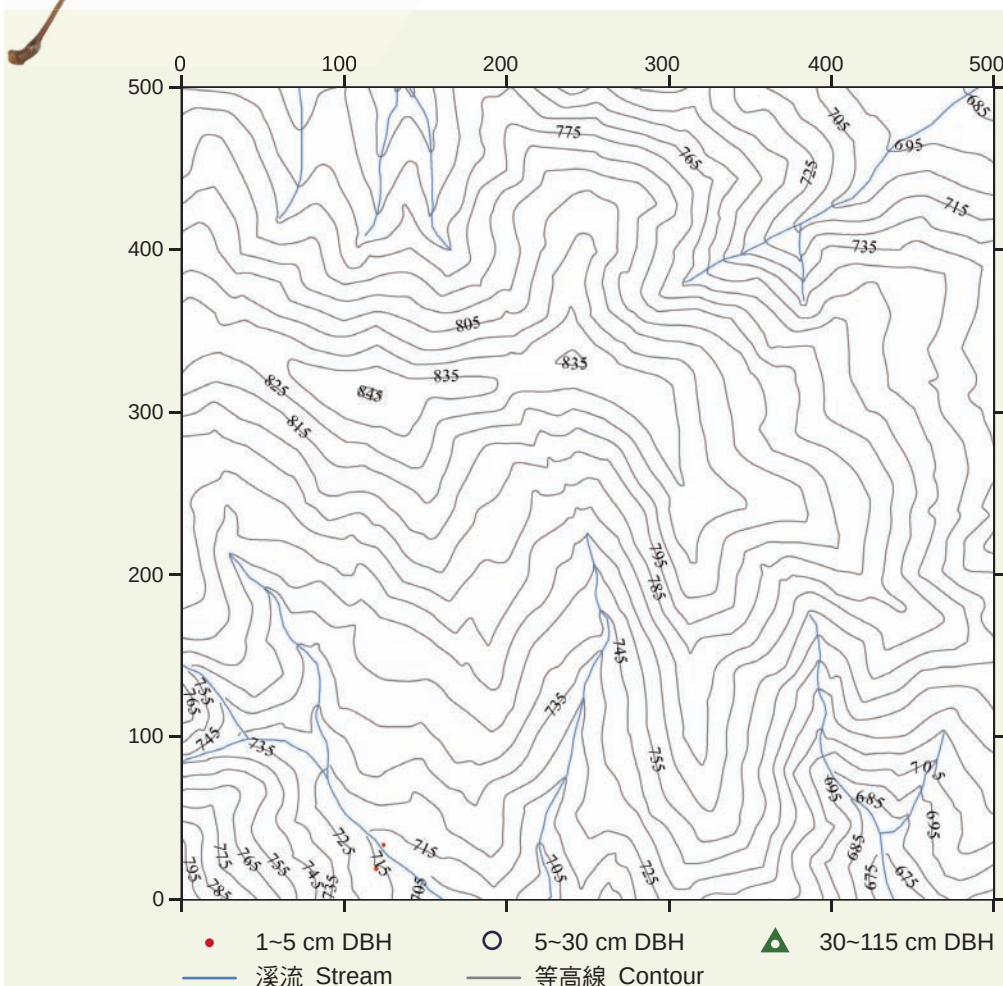
清風藤科

樹冠層級

次冠層

描述

奇數羽狀複葉，互生，叢生於枝條先端，長35~55 cm，葉柄基部膨大，葉軸紅色至淡紫色；小葉4~7對，革質，長橢圓狀披針形，長3~15 cm，寬2~4 cm，先端漸尖至尾狀漸尖，基部楔形至近圓形，全緣至細刺狀鋸齒緣；小葉柄短，長5~12 mm。花兩性；頂生，圓錐花序；花白色，花萼小，5~6齒裂；花瓣5，略為圓形，大小不一，其中3枚較大，2枚較小；子房密被毛。核果，球形，徑4~5 mm，成熟時紅色。



Sabiaceae

Stratum

Sub-canopy

Description

Leaves odd-pinnate, alternate, clustered at top of branches, 35~55 cm long, petioles dilated at base, rachis red to light-purple; leaflets 4~7 pairs, coriaceous, oblong-lanceolate, 3~15 cm long, 2~4 cm wide, apex acuminate to caudate-acuminate, cuneate to subrounded at base, entire to prickly serrate; petiolule short, 5~12 mm long. Bisexual; inflorescences in terminal panicles; flowers white; calyx small, 5- or 6-tooth-lobed; petals 5, subrounded, unequal, 3 larger, 2 smaller, ovary densely pubescent. Drupe globose, 4~5 mm across, red when mature.



植株 Entire plant

翁明毅 Ming-I Weng/攝



花 Flowers

翁明毅 Ming-I Weng/攝



核果 Drupes

翁明毅 Ming-I Weng/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	1	50.00
2~5	1	50.00
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

Total basal area=10.53 cm²/25 ha

Number of trees/25 ha = 2



樹皮 Bark

林奐慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
花期 Flowering 果期 Fruiting											



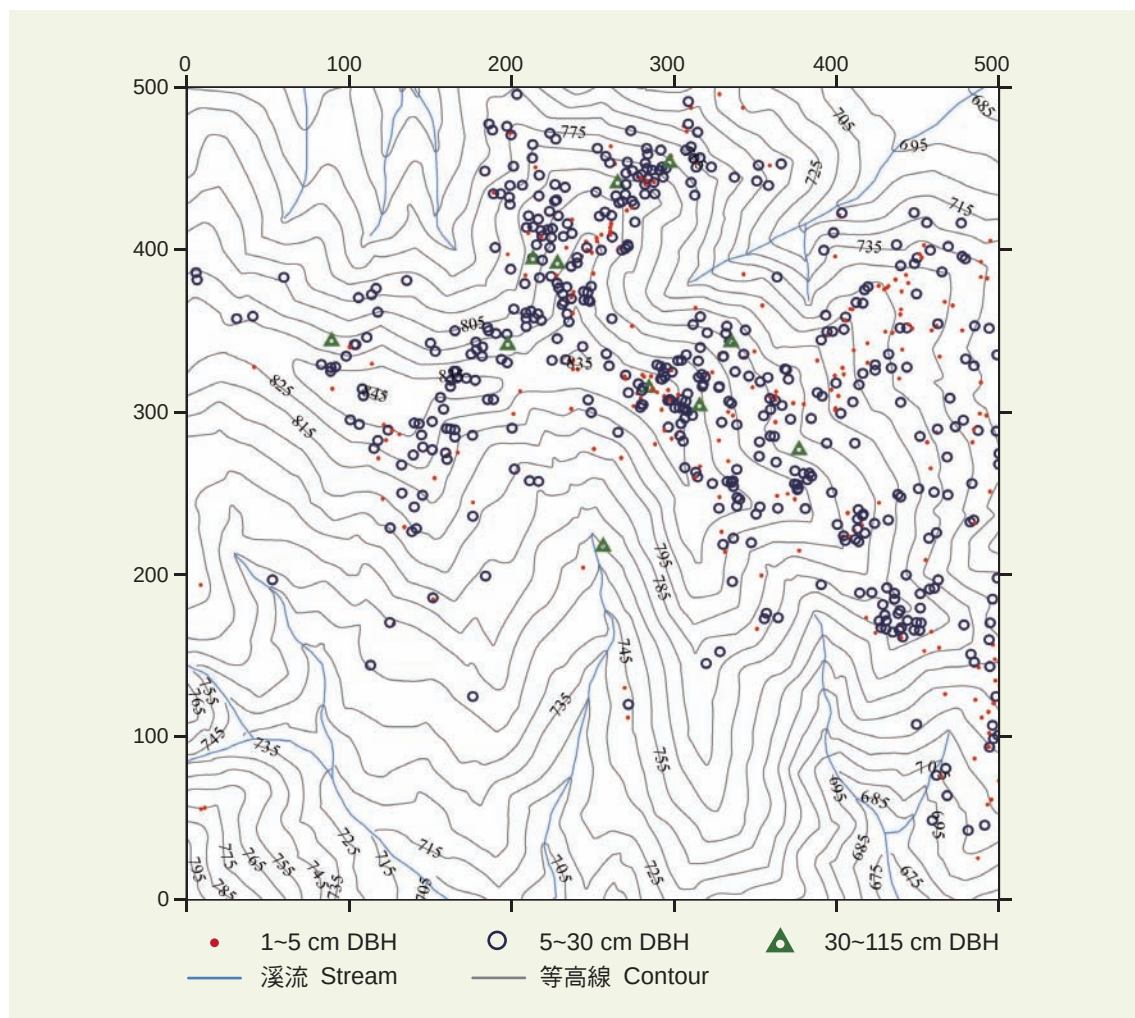
清風藤科

樹冠層級

冠層

描述

葉互生，革質，長橢圓形至長橢圓狀披針形，長8~11 cm，寬3~5 cm，先端漸尖至尾狀漸尖，基部楔形，近全緣，兩面光滑，上表面綠色有光澤，下表面灰綠色；葉柄細長，長5~10 cm。花兩性；頂生，圓錐花序，長15 cm，被赤褐色毛；花白色；花萼3，邊緣被毛；花瓣3，圓形或卵形，大小不一；可孕性雄蕊2；子房卵形。核果，圓形，徑5~6 mm。



Meliosma squamulata Hance

Sabiaceae

Stratum

Canopy

Description

Leaves alternate, coriaceous, oblong to oblong-lanceolate, 8~11 long, 3~5 cm wide, acuminate to caudate-acuminate at apex, base cuneate, nearly entire, glabrous on both surfaces, green and shiny above, grayish-green below; petioles slender, 5~10 cm long. Bisexual, inflorescence in terminal panicles to 15 cm long; flowers white; sepals 3, ciliate; petals 3, rounded or ovate, unequal; fertile stamens 2; ovary ovoid. Drupe globose, 5~6 mm in diameter.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	84	11.81
2~5	145	20.39
5~10	201	28.27
10~20	211	29.68
20~30	59	8.30
30~60	11	1.55
60~115	0	0.00

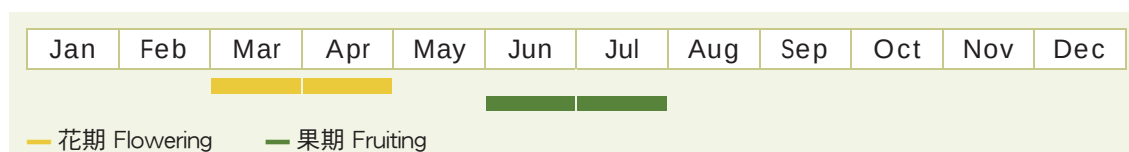
Total basal area= 84241.31 cm²/25 ha

Number of trees/25 ha = 711



樹皮 Bark

林奐慶 Huan-Ching Lin/攝



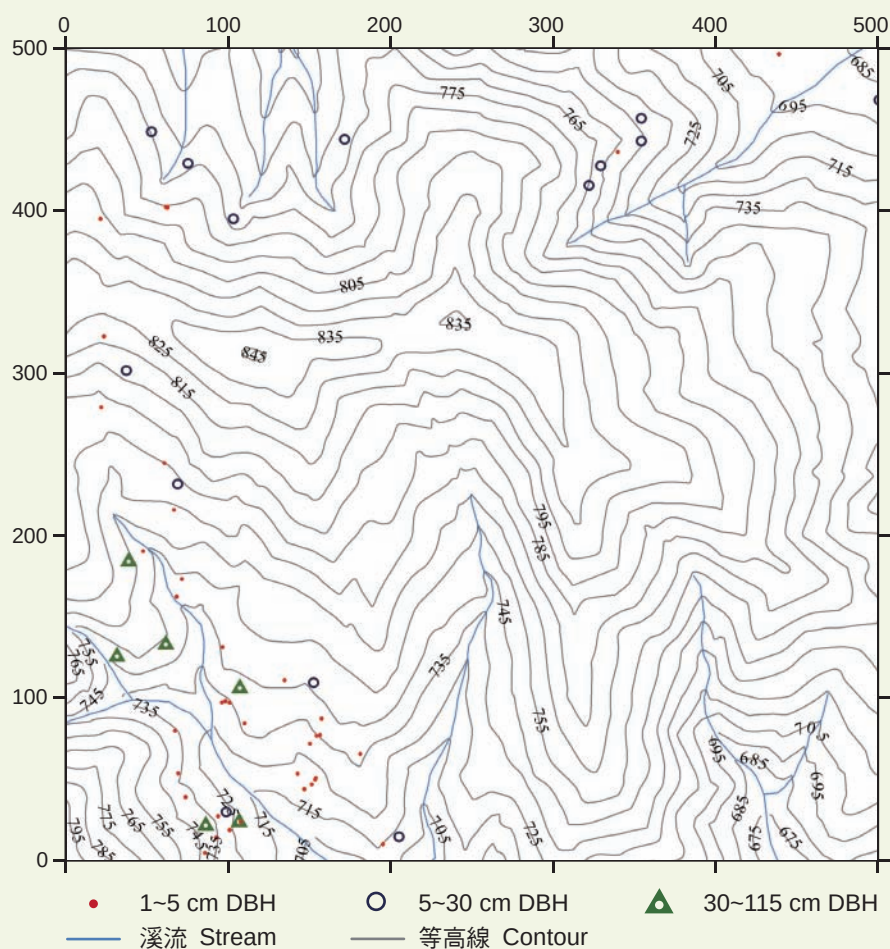
無患子科

樹冠層級

冠層

描述

葉互生，偶數羽狀複葉；小葉對生，4~8對，紙質，長橢圓狀披針形，長7~16 cm，寬2.5~5 cm，先端漸尖，基部楔形且歪斜，全緣，光滑；小葉柄長2~4 mm。雌雄同株，花單性或兩性；頂生或腋生，圓錐花序；花小，白色；花萼5；花瓣5；雄蕊8枚，花絲密生毛；子房光滑，柱頭3裂。核果，近球形，約1.5 cm，熟時為黃色。種子1，球形，黑色。



Sapindaceae

Stratum

Canopy

Description

Leaves alternate, even-pinnate; leaflets opposite, 4~8 pairs, chartaceous, oblong-lanceolate, 7~16 cm long, 2.5~5 cm wide, acuminate at apex, base cuneate and oblique, margins entire, glabrous; petiolule 2~4 mm long. Monoecious; unisexual or bisexual; inflorescence a panicle, terminal or axillary; flowers small, white; sepals 5; petals 5; stamens 8, filaments densely pubescent; ovary glabrous, style 3-lobed. Drupe subglobose, ca. 1.5 cm across, yellow when mature. Seed 1, globose, black.

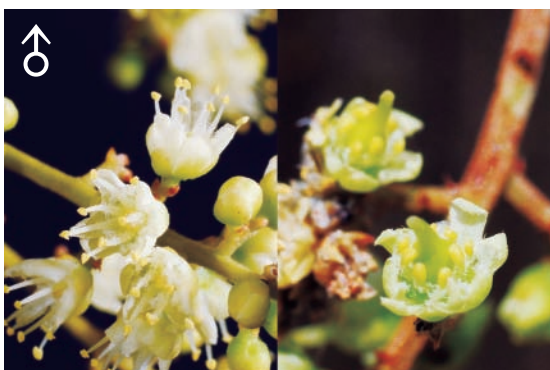


1 cm



植株 Entire plant

翁明毅 Ming-I Weng/攝



雄花與兩性花 Male and bisexual flowers

林炎慶 Huan-Ching Lin/攝



核果 Drupes

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	24	41.38
2~5	14	24.13
5~10	5	8.62
10~20	5	8.62
20~30	4	6.90
30~60	2	3.45
60~115	4	6.90

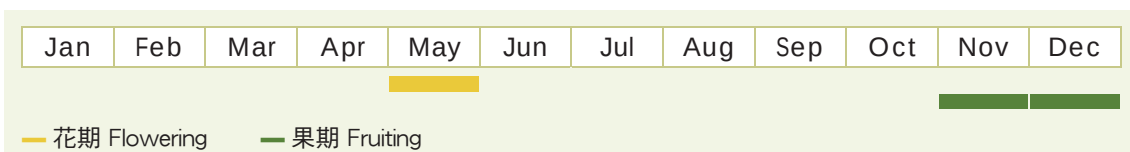
Total basal area= 21841.49 cm²/25 ha

Number of trees/25 ha = 58



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





省沽油科

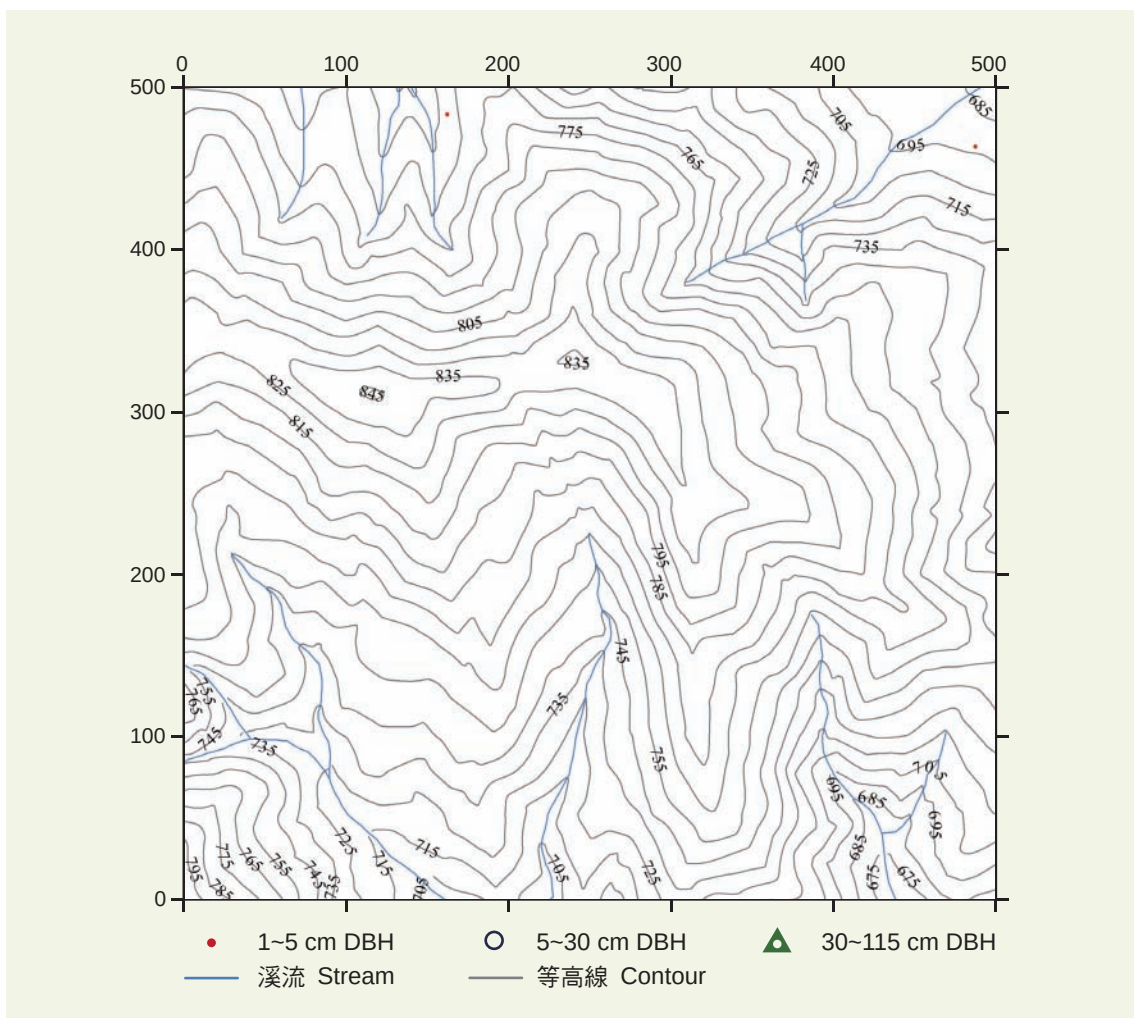
特有種

樹冠層級

次冠層

描述

小枝光滑無毛。葉對生，革質，長橢圓形至長橢圓狀披針形，長8~12 cm，寬4~7 cm，先端漸尖至鈍，基部楔形，鋸齒緣，兩面光滑；葉柄兩端膨大，先端略彎折，長3~5 cm，有時帶紫色。花兩性；頂生或腋生，圓錐花序，長20~30 cm；花黃白色；花萼5；花瓣5，覆瓦狀排列；雄蕊5；心皮合生，不完全3室。漿果狀蒴果，球形，綠色至黃橙色，徑約8 mm，不開裂。



Staphyleaceae

Endemic

Stratum

Sub-canopy

Description

Branchlets glabrous. Leaves opposite, coriaceous, oblong to oblong-lanceolate, 8~12 cm long, 4~7 cm wide, acuminate to obtuse at apex, cuneate at base, serrulate, glabrous on both surfaces; petioles swollen at 2 extremities, sparsely bent at top, 3~5 cm long, sometimes purplish. Bisexual; inflorescence a terminal or axillary panicle, 20~30 cm long; flowers yellowish-white; sepals 5; petals 5, imbricate; stamens 5; carpels connected, imperfectly 3-celled. Berry-capsule globose, greenish or yellowish-orange, ca. 8 mm across, indehiscent.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



蒴果 Capsules

翁明毅 Ming-I Weng/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	0	0.00
2~5	2	100.00
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

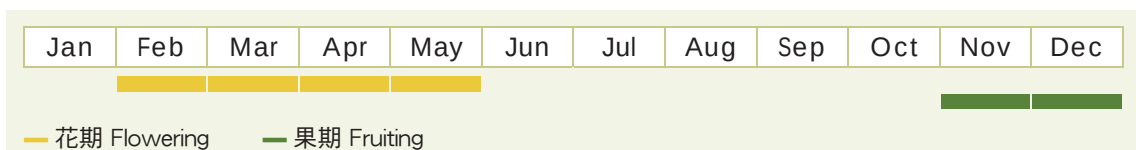
Total basal area= 29.06 cm²/25 ha

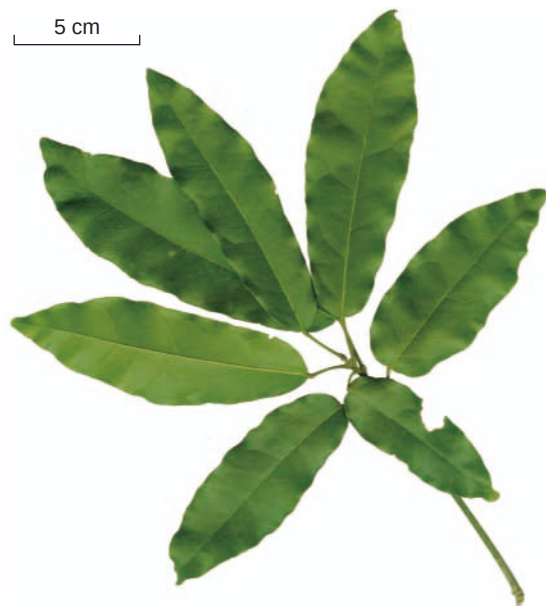
Number of trees/25 ha = 2



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





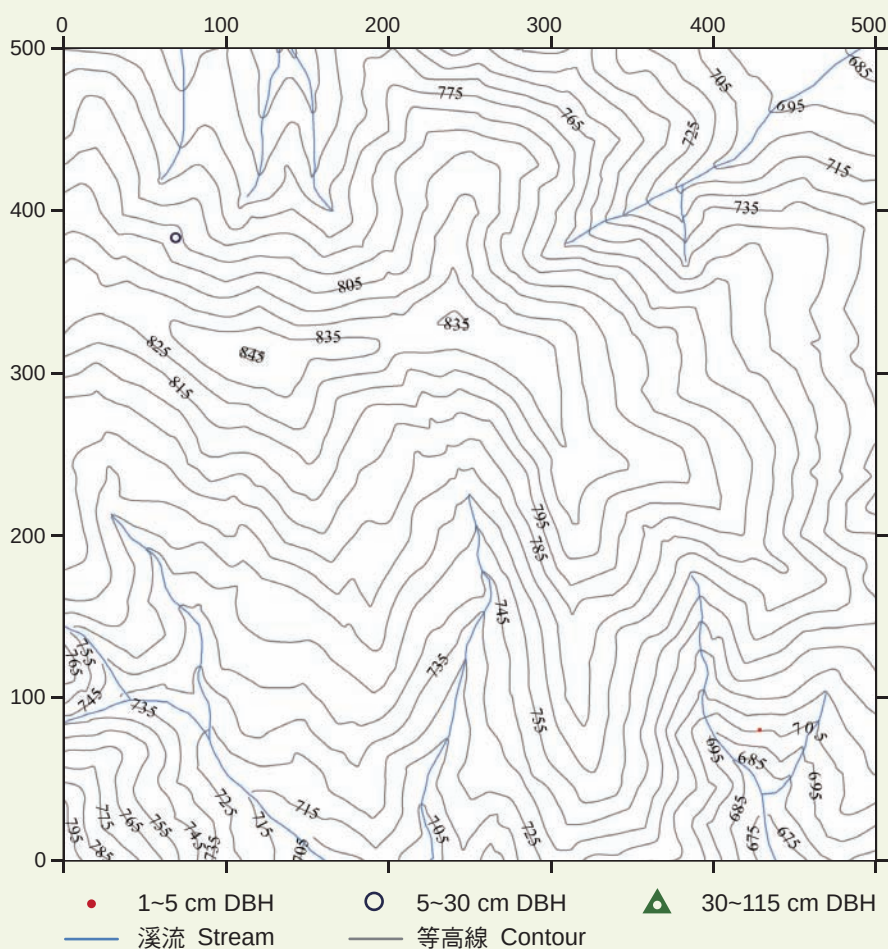
梧桐科 特有種

樹冠層級

次冠層

描述

小枝密被星狀毛。葉互生，革質，倒卵狀長橢圓形，先端銳尖至漸尖，基部楔形至圓形，長2.5~10 cm，寬0.8~4 cm，全緣或波狀緣；葉柄兩端膨大，被星狀毛。花兩性；圓錐狀繖房花序，頂生，長1.5~3 cm，密被星狀毛；花萼漏斗形；花瓣5，白色；雄蕊15，合生成圓球狀，徑2~3 mm；子房包被於雄蕊中，5室。蒴果，具長梗，木質，棕色，倒卵圓形，5裂，成熟後開裂。種子扁平，具翅，長約18 mm。



Reevesia formosana Sprague

Sterculiaceae

Endemic

Stratum

Sub-canopy

Description

Branchlets densely covered with stellate hairs. Leaves alternate, coriaceous, obovate-oblong, acute to acuminate at apex, base cuneate to rounded, 2.5~10 cm long, 0.8~4 cm wide, entire to undulate; petioles swollen at 2 extremities, stellate-pubescent. Bisexual; panicle-corymbs, terminal, 1.5~3 cm long, densely stellate-pubescent; calyx funnelform; petals 5, white; stamens 15, connected in globose arrangement, 2~3 mm across; ovary covered with stamens, 5-celled. Capsule on long stalk, woody, brown, obovoid, 5-lobed, dehiscent when mature. Seed flat, winged, ca. 18 mm long.



蒴果 Capsules

伍淑惠 Shu-Hui Wu/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



枝條 Branches

翁明毅 Ming-I Weng/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	0	0.00
2~5	1	50.00
5~10	0	0.00
10~20	1	50.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

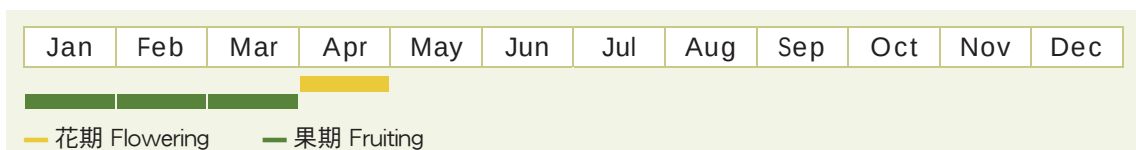
Total basal area= 232.78 cm²/25 ha

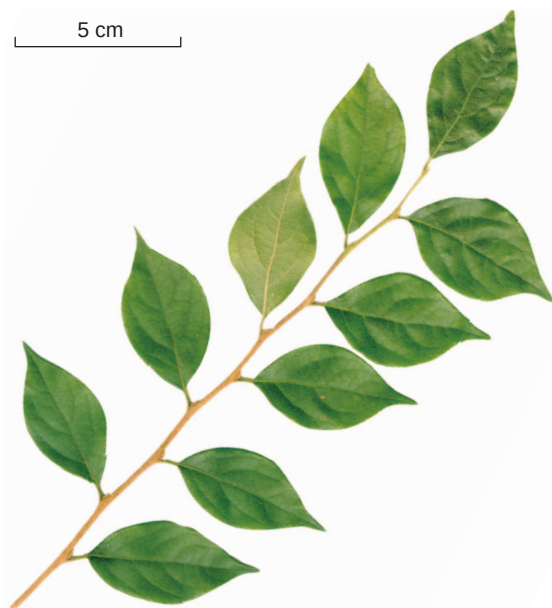
Number of trees/25 ha = 2



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





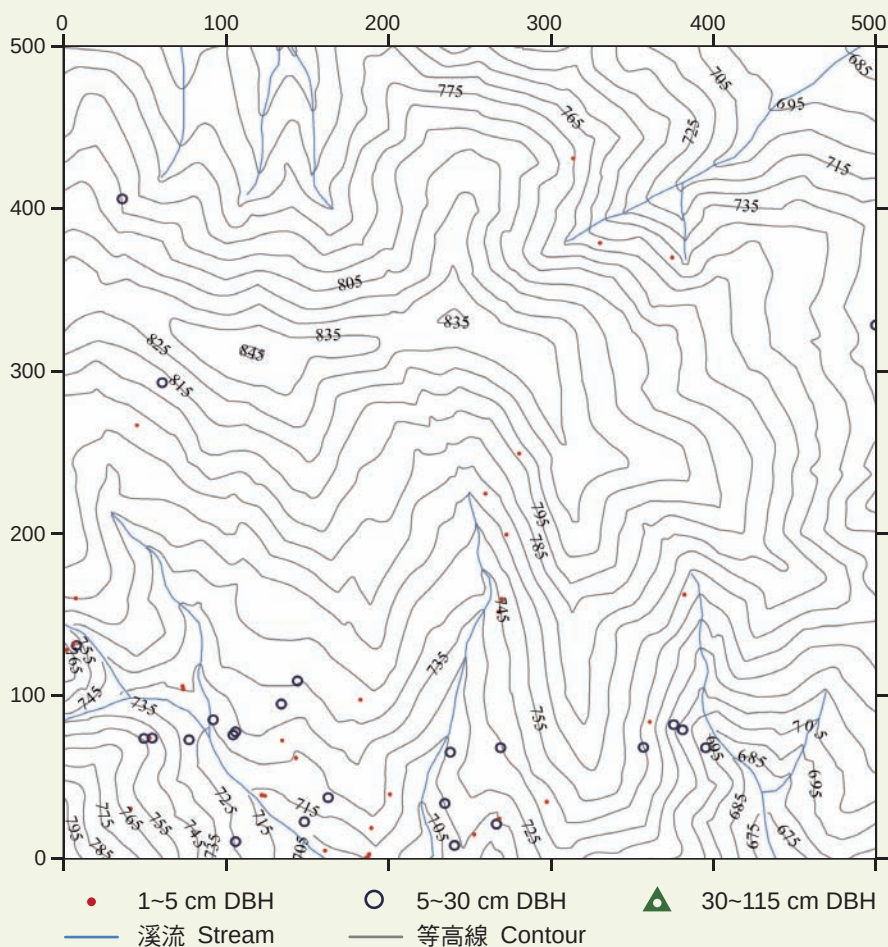
安息香科 特有種

樹冠層級

次冠層

描述

幼枝被星狀毛。葉互生，紙質，菱狀長橢圓形，長4~6 cm，寬2~3 cm，先端銳尖至短漸尖，基部楔形，全緣或淺鋸齒緣，幼葉密被褐色星狀毛，成熟後上表面光滑無毛，下表面被絨毛，側脈7~9對；葉柄長3~5 mm，被星狀毛。花兩性；腋生或頂生，總狀花序，被灰色絨毛；花萼不整，具明顯細齒緣；花冠5，白色，長約1.5 cm；雄蕊10，花藥線形；子房4室。蒴果，卵形或橢圓形。種子1。



Styrax formosana Matsum.

Styracaceae

Endemic

Stratum

Sub-canopy

Description

Branchlets with stellate. Leaves alternate, chartaceous, rhombic-oblong, 4~6 cm long, 2~3 cm wide, apex acute to short-acuminate, cuneate at base, entire or shallowly serrate, densely brownish stellate-tomentose when young, glabrescent above when mature, and sparsely tomentose below, lateral veins 7~9; petiole 3~5 mm long, with stellate. Bisexual; inflorescence a raceme, axillary or terminal, grayish tomentose; calyx irregularly but distinctly denticulate; corollas 5, white, ca. 1.5 cm long; stamens 10, anthers linear; ovary 4-celled. Capsule ovoid or ellipsoid. Seed 1.



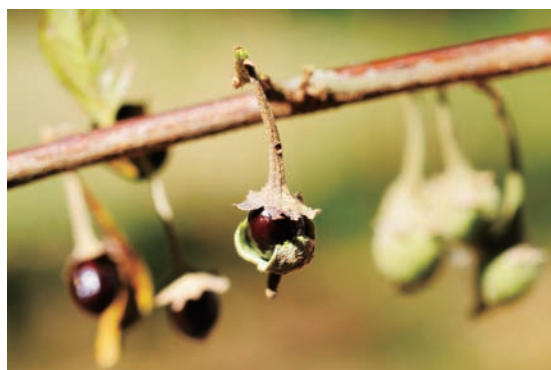
枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



蒴果 Capsules

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	10	17.54
2~5	22	38.60
5~10	17	29.82
10~20	8	14.04
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

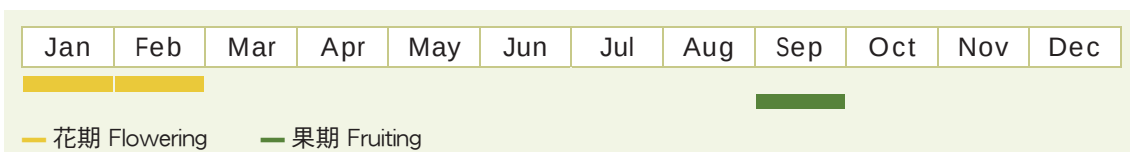
Total basal area= 2954.80 cm²/25 ha

Number of trees/25 ha = 57



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





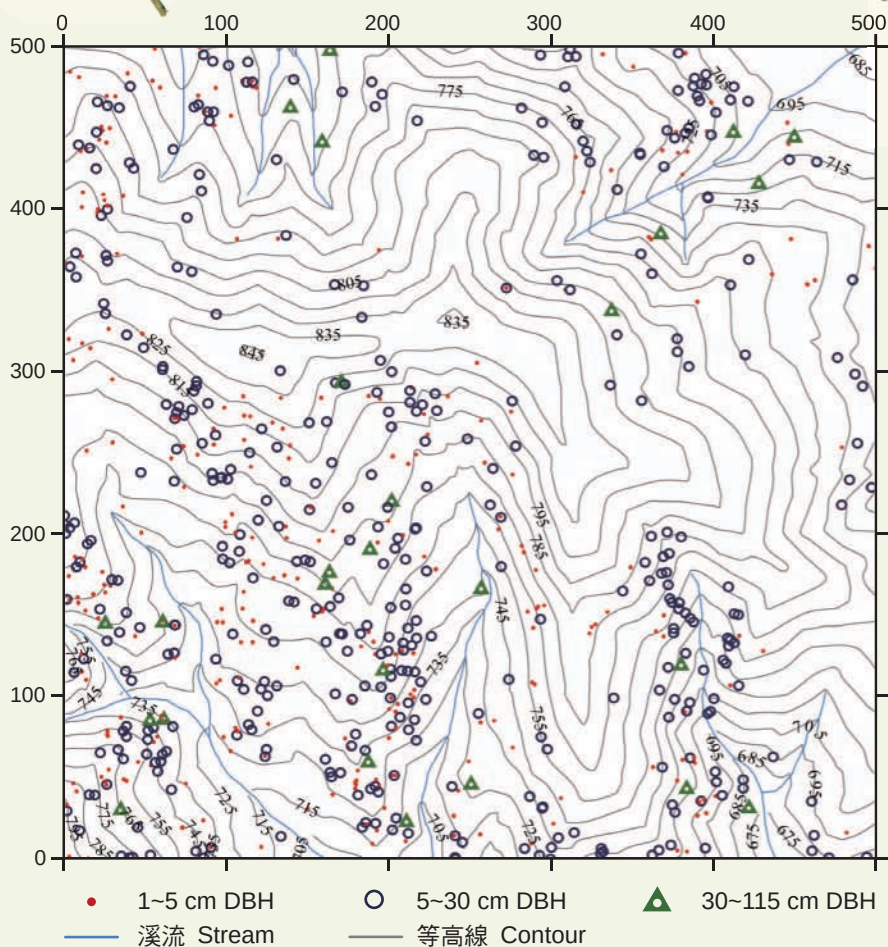
安息香科

樹冠層級

冠層

描述

樹皮紅褐色，常細薄片狀剝落；葉互生，近革質，卵狀長橢圓形至長橢圓狀披針形，長5~11 cm，寬2~5 cm，先端漸尖，基部楔形，全緣，幼葉兩面被褐色星狀毛，成熟後上表面無毛，下表面密被灰白色毛；葉柄長約1 cm。花兩性；總狀花序，腋生或頂生，8~12朵小花組成，軸上被褐色星狀毛；花萼鐘形，具細齒緣或全緣；花冠白色，4~5裂，裂片狹長橢圓形；雄蕊8~9，花藥線形。蒴果，近球形，被絨毛，徑約1 cm，萼片宿存。種子1。



Styrax suberifolia Hook. & Arn.

Styracaceae

Stratum

Canopy

Description

Bark reddish-brown, often finely exfoliated. Leaves alternate, subcoriaceous, ovate-oblong to oblong-lanceolate, 5~11 cm long, 2~5 cm wide, acuminate at apex, base cuneate, entire, brownish stellate-tomentose on both surfaces when young, glabrous above when mature, densely grayish-white tomentose below; petioles ca. 1 cm long. Bisexual; inflorescence a raceme, axillary or terminal, 8~12 flowered, rachis brownish stellate-tomentose; calyx campanulate, margins minutely denticulate or entire; corolla white, 4- or 5-lobed, lobes narrowly oblong;

stamens 8 or 9, anthers linear. Capsule subglobose, tomentose, ca. 1 cm across, calyx persistent. Seed 1.



枝條 Branches

翁明毅 Ming-I Weng/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



蒴果 Capsules

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	134	18.43
2~5	159	21.87
5~10	142	19.53
10~20	179	24.62
20~30	87	11.97
30~60	25	3.44
60~115	1	0.14

Total basal area= 116008.71 cm²/25 ha

Number of trees/25 ha = 727



樹皮 Bark

林炎慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
花期 Flowering 果期 Fruiting											



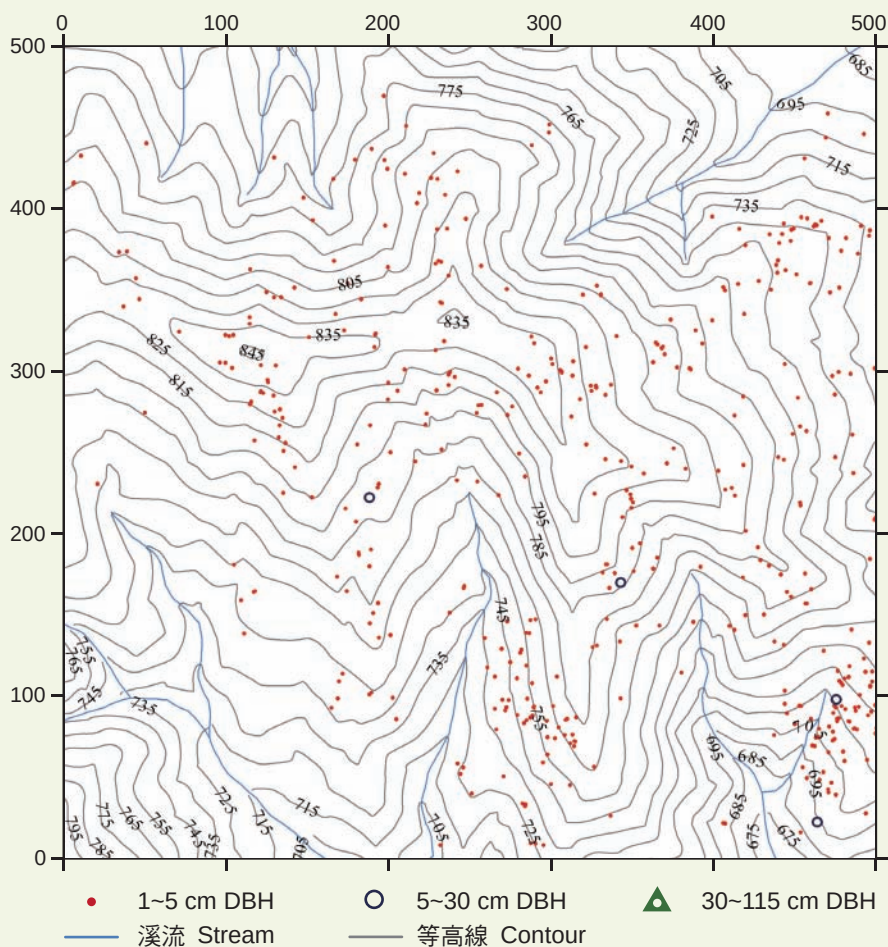
灰木科 特有種

樹冠層級

次冠層

描述

小枝灰褐色；頂芽卵形，芽鱗密被鏽色絨毛。葉互生，革質，披針形、橢圓形或長橢圓形，長6.5~15 cm，寬2~6 cm，先端漸尖，基部銳尖至漸狹，腺狀鋸齒緣至疏鋸齒緣；葉柄漸無毛，長5~10 mm。花兩性；3~5朵組成極短之穗狀花序，叢生於小枝或葉腋；花萼筒光滑或疏被毛；花冠5裂，白色，長6~8 mm；雄蕊多數；花柱細長。核果，褐色，長圓筒形，頂端具宿存萼片，長7~11 mm，徑3~4 mm。





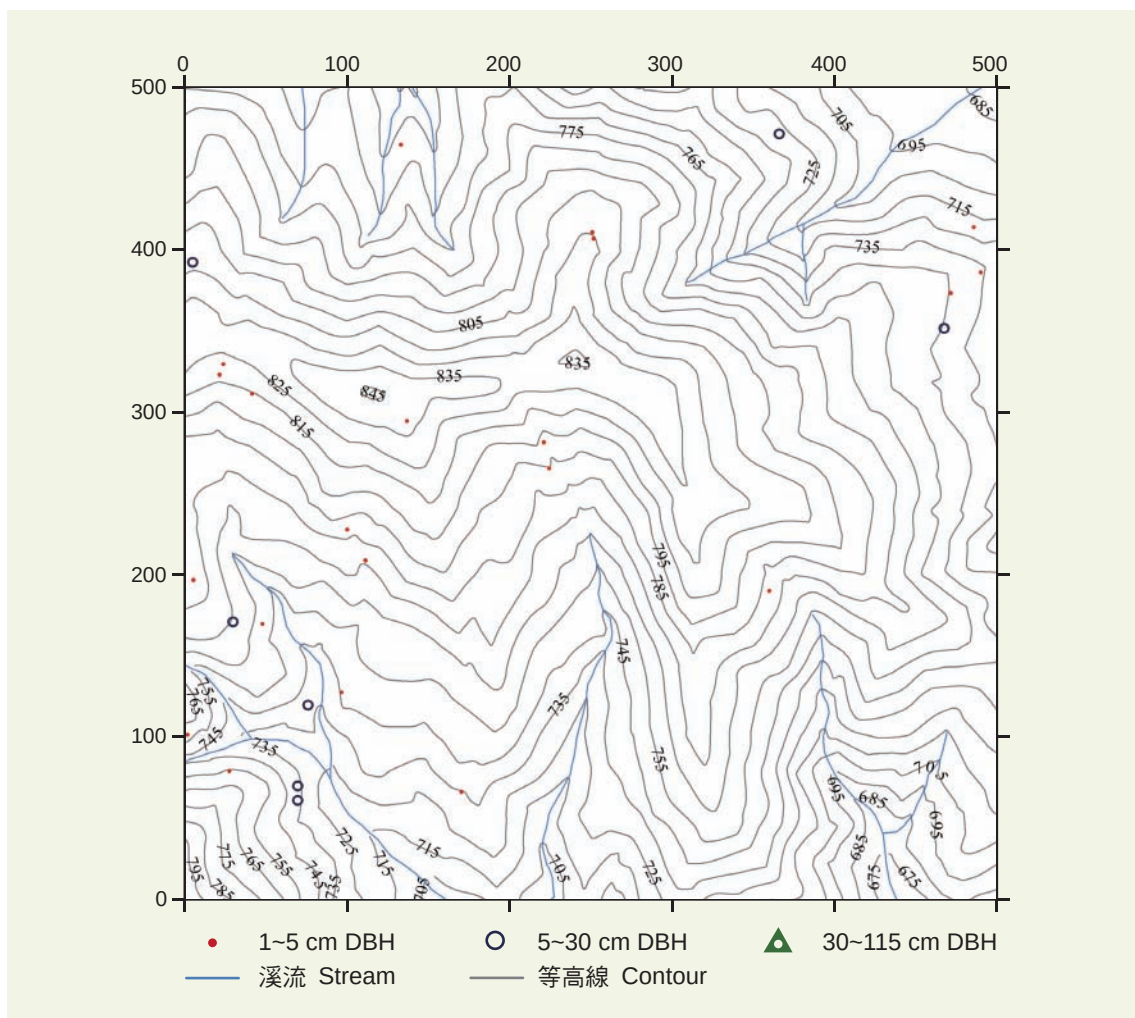
灰木科

樹冠層級

次冠層

描述

枝條具髓，光滑。葉互生，革質，狹長橢圓形、狹橢圓形或狹倒卵形，長8~15 cm，寬2~4 cm，先端漸尖或尾狀，有時銳尖，基部楔形，葉緣反捲，全緣或稀疏腺狀鋸齒緣，下表面密被乳頭狀突起，側脈8~13對；葉柄近光滑至被鏽色絨毛，長8~20 mm。花兩性；短縮穗狀花序，叢生於葉腋或小枝上；花萼5裂，褐色，外被毛；花冠白色，5深裂，裂片橢圓形；雄蕊多數；花柱光滑。核果，卵球形，藍黑色，萼裂片早落或部分宿存。



Stratum

Description

numerous; style glabrous. Drupe ovoid, bluish-black, calyx lobes caducous or partly persistent.



翁明毅 Ming-I Weng/攝



翁明毅 Ming-I Weng/攝

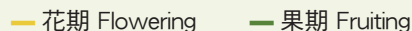


翁明毅 Ming-I Weng/攝

A close-up photograph of a tree trunk with rough, textured bark. A silver coin, marked with '拾圓' (10 Yuan) and '10', is placed on the bark for scale. Below the coin, there is a distinct, reddish, circular lesion on the bark surface.

林煥慶 Huan-Ching Lin/攝

Number of trees/25 ha = 28





灰木科

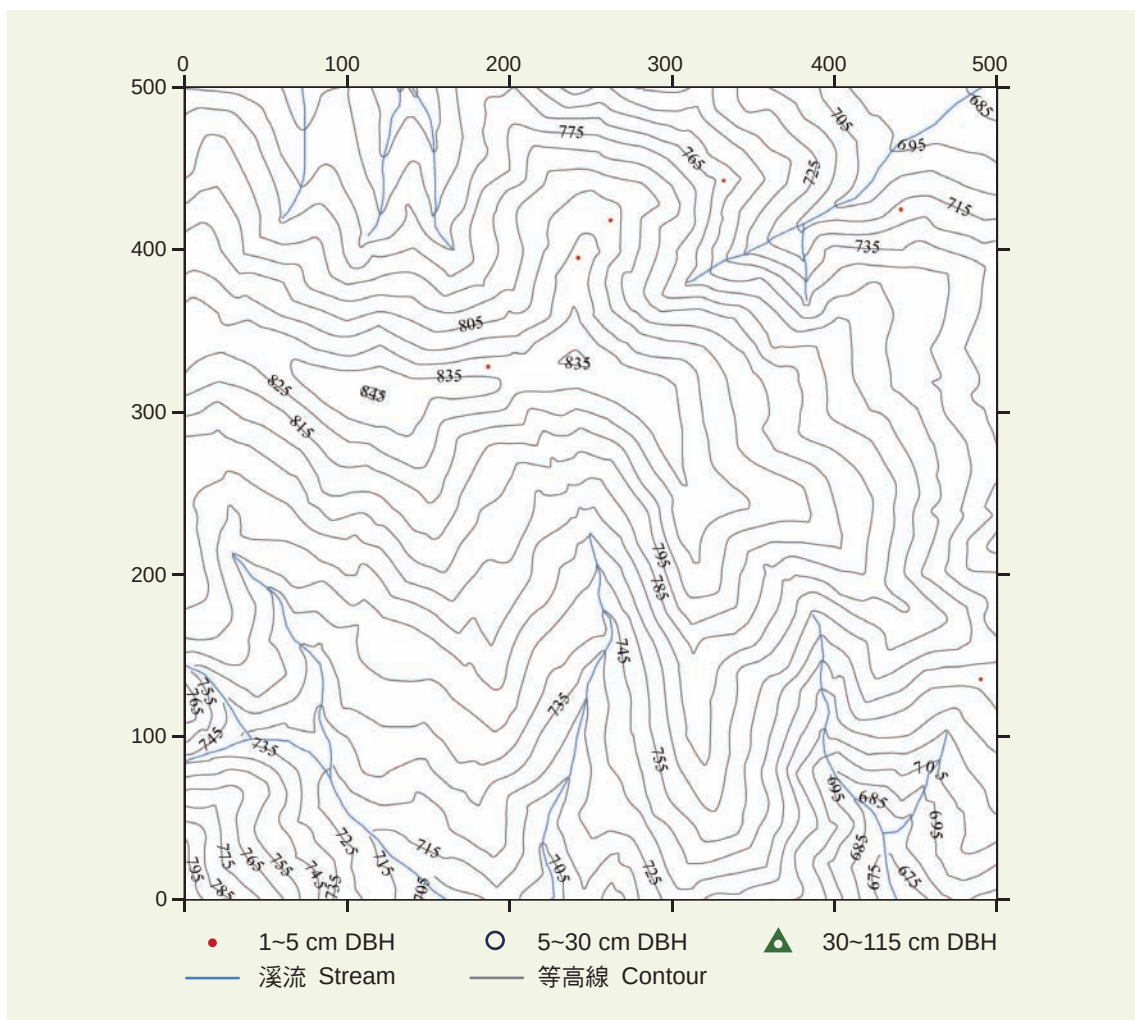
特有種

樹冠層級

灌木層

描述

葉互生，革質或薄革質，卵形至披針形，長1.5~4 cm，寬1~3 cm，先端銳尖至尾狀，具小突尖，基部圓形，楔形或銳形，葉緣稍反捲，全緣或上部具不明顯鋸齒緣，兩面光滑或稀下表面中脈上被疏毛；中肋凸出於上表面；側脈4~8對；葉柄具狹翼，長1~5 mm。花兩性；腋生，短總狀花序，被毛；花萼鐘形，5裂，外被毛；花冠白色，先端帶紫色，5深裂，裂片橢圓形；雄蕊多數；花柱光滑。核果，橢圓球形，頂端具宿存萼片。



Symplocos morrisonicola Hayata

Symplocaceae

Endemic

Stratum

Shrub

Description

Leaves alternate, coriaceous or thinly coriaceous, ovate to lanceolate, 1.5~4 cm long, 1~3 cm wide, apex acute to caudate with apiculate tip, rounded, cuneate or acute at base, margins slightly recurved, entire or obscurely serrate on upper parts, glabrous on both surfaces or rarely sparsely hairy on midrib on lower surface; midrib prominent on upper surface; lateral veins 4~8 pairs; petioles narrowly winged, 1~5 mm long. Bisexual; inflorescence a short axillary raceme, pubescent; calyx campanulate, 5-lobed, appressed pubescent outside; corolla white, purplish at top, deeply 5-lobed, lobes elliptical; stamens numerous; style glabrous. Drupe ellipsoid, crowned by persistent calyx lobes.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

葉秋好 Chiou-Yu Yeh/攝



核果 Drupe

葉秋好 Chiou-Yu Yeh/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	6	100.00
2~5	0	0.00
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

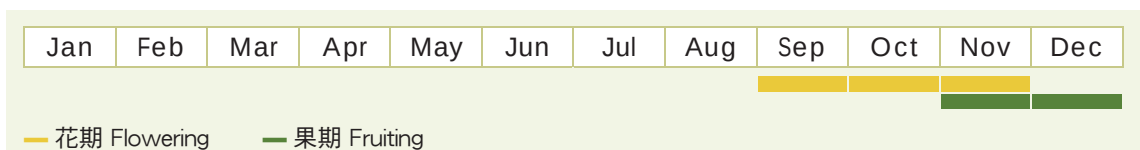
Total basal area= 9.50 cm²/25 ha

Number of trees/25 ha = 6



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





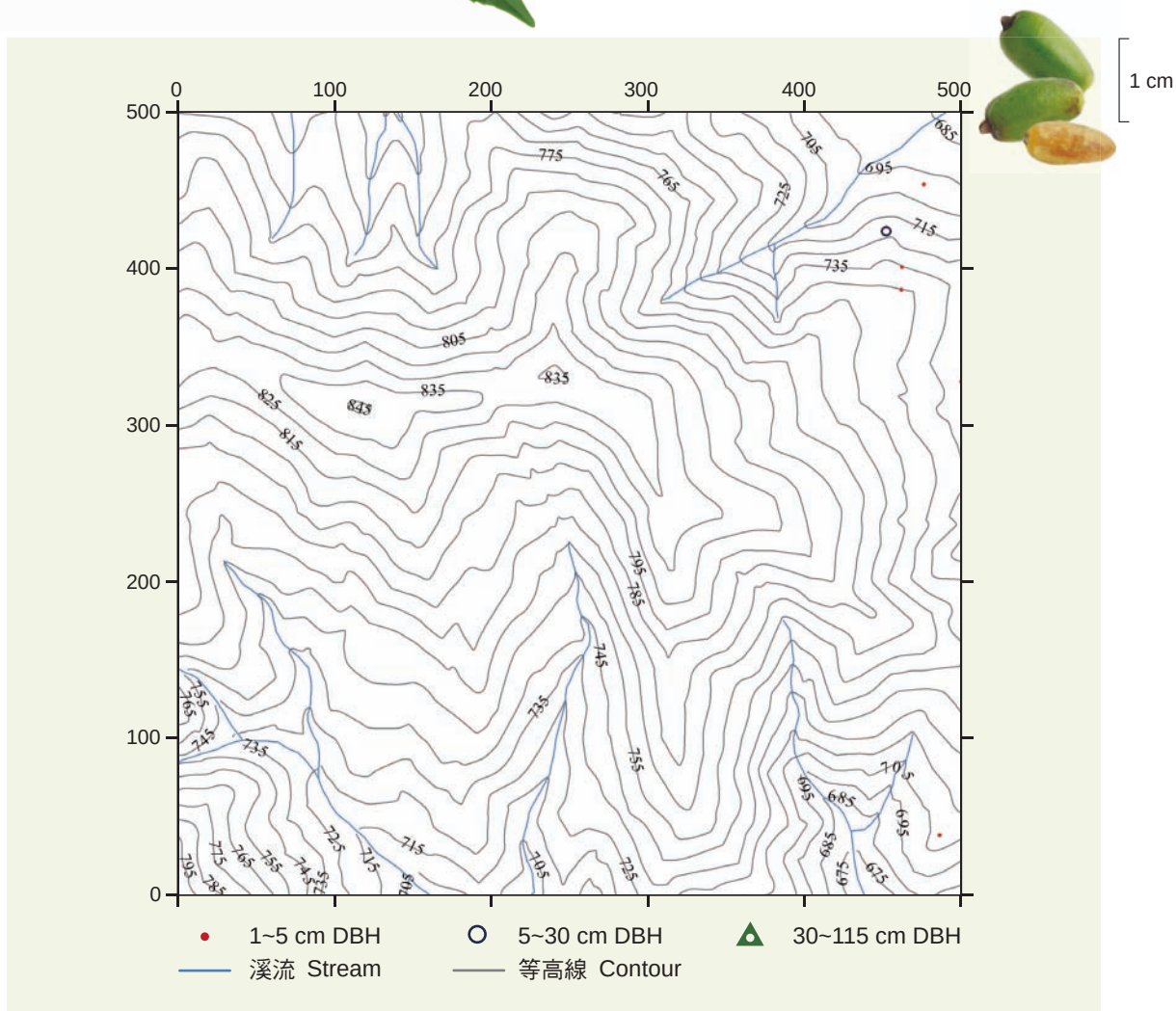
灰木科

樹冠層級

次冠層

描述

小枝綠色至褐色帶紫，圓柱形或具稜；頂芽光滑。葉互生，革質，橢圓形、狹橢圓形或卵形，長7~10 cm，寬3~4 cm，先端漸尖至尾狀，有小突尖，基部漸狹，葉緣反捲，圓齒狀鋸齒緣，光滑，側脈6~12對；葉柄長5~10 mm，光滑。花兩性；短縮之穗狀花序，腋生，長約1 cm；花近無柄，花萼筒光滑；花冠鐘形，黃紅色，5深裂，裂片長橢圓形；雄蕊多數；花柱細長，柱頭3裂。核果，卵球形至圓筒形，長5~8 mm，萼片宿存於頂端。



Stratum

Description

葉秋好 Chiou-Yu Yeh/攝



林煥慶 Huan-Ching Lin/攝



林奐慶 Huan-Ching Lin/攝

林煥慶 Huan-Ching Lin/攝

Number of trees/25 ha = 6

— 花期 Flowering — 果期 Fruiting



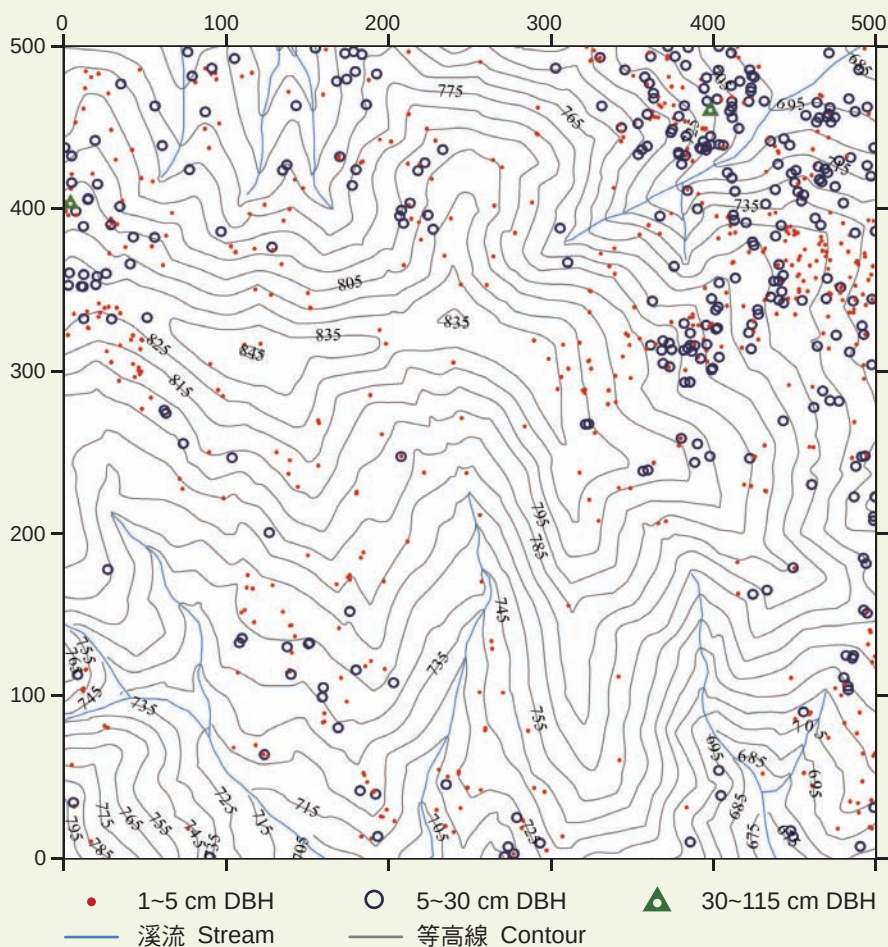
灰木科

樹冠層級

冠層

描述

新生葉為紫色。葉互生，革質，橢圓形至狹長橢圓形，長7~15 cm，寬2~5 cm，先端尾狀至漸尖，基部楔形至短漸狹，圓齒緣至鋸齒緣，上下表面光滑，側脈8~12對；葉柄長7~15 mm，光滑或疏被伏毛。花兩性；腋生，常於基部分枝的穗狀花序，長3~7 cm；花無柄；花萼5裂，具緣毛；花冠白色，長4~5 mm，5深裂，裂片長橢圓形；雄蕊多數；柱頭細長。核果，暗紫色，球形至壺形，徑5~6 mm，萼裂片宿存於頂端。種子1。



Symplocos theophrastifolia Siebold & Zucc.

Symplocaceae

Stratum

Canopy

Description

Young leaves purple. Leaves alternate, coriaceous, elliptical to narrowly oblong, 7~15 cm long, 2~5 cm wide; apex caudate to acuminate, cuneate to short-attenuate at base, margins crenate to serrate, glabrous on both surfaces, lateral veins 8~12 pairs; petiole 7~15 mm long, glabrous or sparsely appressed-pubescent. Bisexual; inflorescence in axillary spikes, often branched at base, 3~7 cm long; sessile; calyx 5-lobed, margins ciliate; corolla white, 4~5 mm long, deeply 5-lobed, lobes oblong; stamens numerous; style slender.

Drupe dark-violet, globose to urceolate, 5~6 mm across, crowned by persistent calyx lobes. Seed 1.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果 Drupes

李碧鳳 Bi-Fong Lee/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	267	31.16
2~5	271	31.62
5~10	180	21.00
10~20	122	14.24
20~30	15	1.75
30~60	2	0.23
60~115	0	0.00

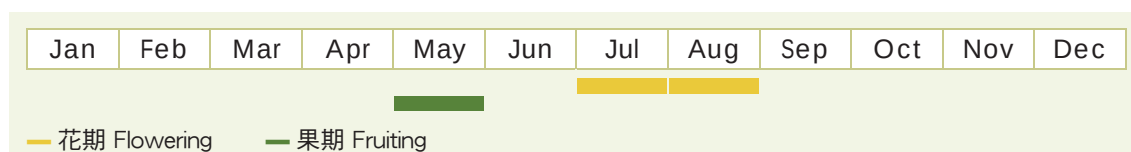
Total basal area= 38962.05 cm²/25 ha

Number of trees/25 ha = 857



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





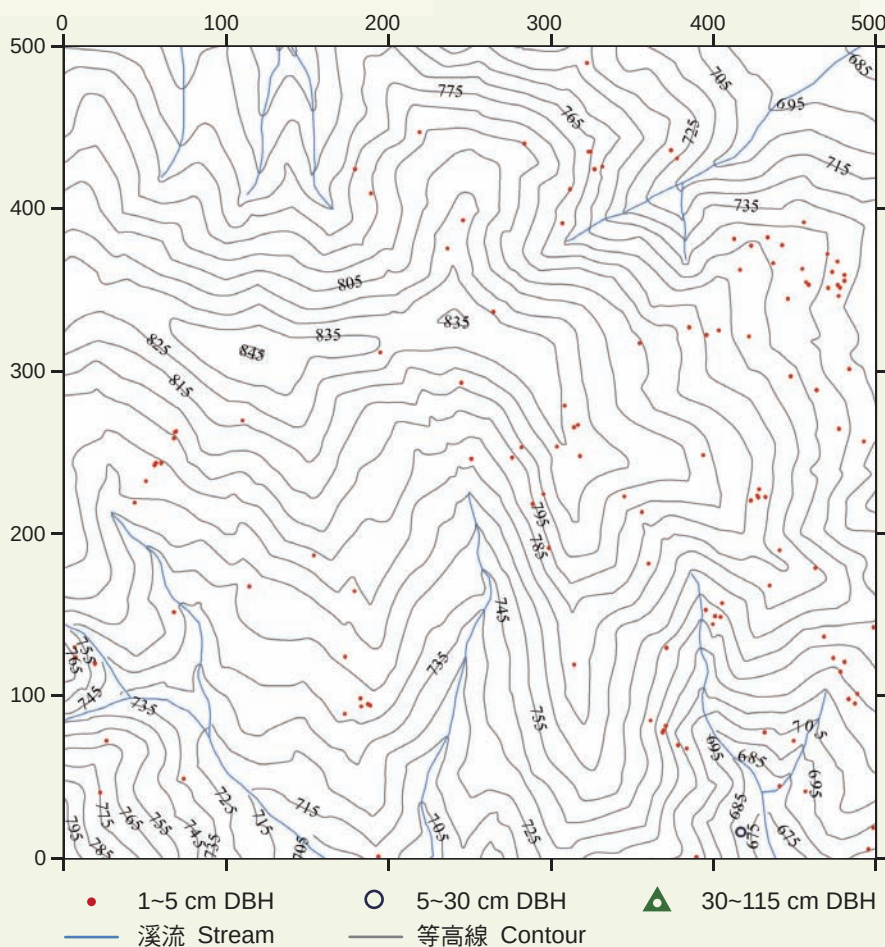
茶科 特有種

樹冠層級

次冠層

描述

小枝幼時被毛，漸無毛；葉芽密生褐色伏毛。葉革質，卵狀長橢圓形至倒卵狀披針形，長5~9 cm，寬2~3.5 cm，先端銳尖或漸尖，基部楔形，下表面中肋略被毛；葉柄長4 mm。花兩性；腋生，單生，花梗細長，長2~3.5 cm；花萼5，覆瓦狀，近相等，卵狀三角形，具細齒緣及緣毛，長7~8 mm，寬4~6 mm；花瓣5，與花萼同形，基部合生；雄蕊多數；花柱線形。漿果，漸無毛，近球形，萼及柱頭宿存。種子小，黑色有光澤。



Theaceae

Endemic

Stratum

Sub-canopy

Description

Branchlets pubescent when young, gradually glabrescent; leaf buds with dense brown appressed hairs. Leaves coriaceous, ovate-oblong to ovate-lanceolate, 5–9 cm long, 2–3.5 cm wide, apex acute or acuminate, cuneate at base, midrib pubescent below; petioles 4 mm long. Bisexual; flowers axillary, solitary; pedicels slender, 2–3.5 cm long; sepals 5, imbricate, subequal, ovate-deltoid, margins both denticulate and ciliate, 7–8 mm long, 4–6 mm wide; petals 5, similar to sepals in size and shape, connate at base; stamens numerous;

style linear. Berry glabrescent, subglobose, calyx and stigma persistent. Seeds minute, black and shiny.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花苞 Flower buds

翁明毅 Ming-I Weng/攝



漿果 Berry

翁明毅 Ming-I Weng/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	87	67.44
2~5	41	31.78
5~10	1	0.78
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

Total basal area= $511.41 \text{ cm}^2/25 \text{ ha}$

Number of trees/25 ha = 129



樹皮 Bark

林煥慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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— 花期 Flowering

— 果期 Fruiting



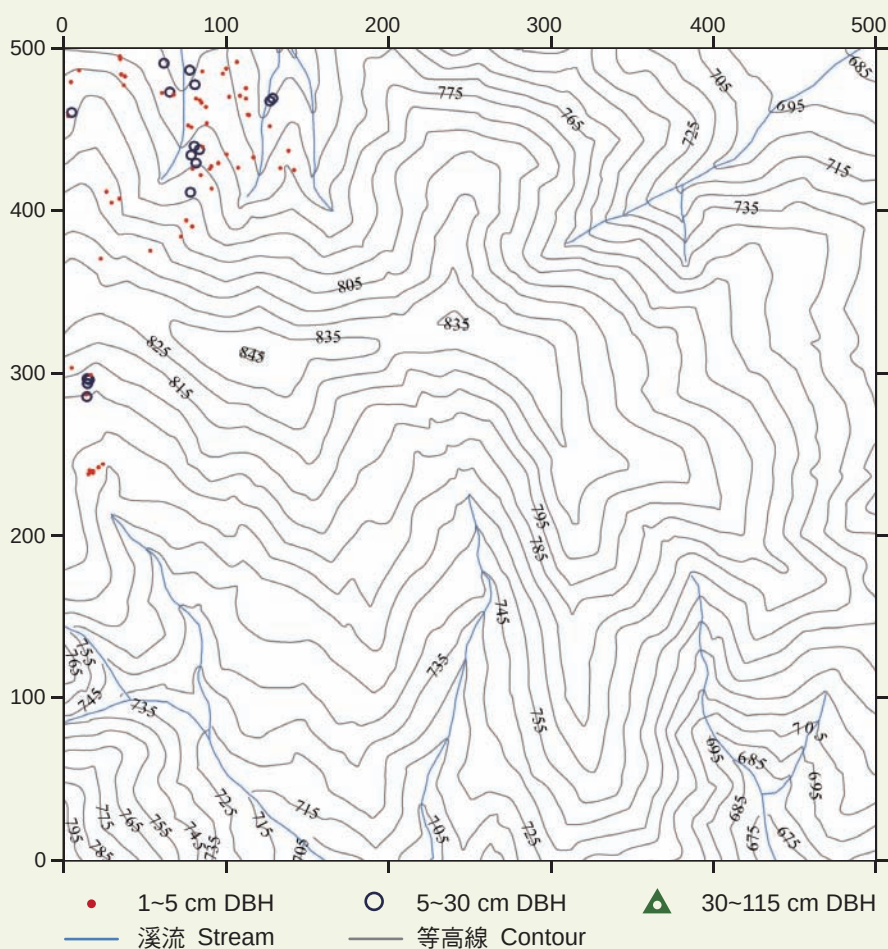
茶科

樹冠層級

次冠層

描述

小枝光滑。葉互生，革質，橢圓形或長橢圓形，長8~12 cm，寬3~6 cm，先端漸尖或驟突尖，基部楔形，細鋸齒緣，葉反捲，兩面光滑，中肋及側脈凹於上表面；葉柄長5~7 mm。花兩性；頂生或腋生，單生或成對，無柄；苞片和萼片5至6，外側被毛；花瓣5~6，倒卵狀橢圓形，光滑；雄蕊多數；柱頭3裂，細長。蒴果，球形，木質，寬2.5~3.5 cm，果實表面呈褐色垢屑狀。



Camellia furfuracea (Merr.) Cohen-Stuart

Theaceae

Stratum

Sub-canopy

Description

Branchlets glabrous. Leaves alternate, coriaceous, elliptical or oblong, 8~12 cm long, 3~6 cm wide, apex acuminate or cuspidate, cuneate at base, minutely serrate, leaves revolute, glabrous on both sides, midrib and lateral veins impressed above; petioles 5~7 mm long. Bisexual; flowers terminal or axillary, solitary or in pairs, sessile; bracts and sepals 5 or 6, pubescent outside; petals 5 or 6, obovate-elliptical, glabrous; stamens numerous; style 3-lobed, slender. Capsule globose, woody, 2.5~3.5 cm across, brown-scurfy on surface.



枝條 Branches

李碧鳳 Bi-Fong Lee/攝



花 Flower

林炎慶 Huan-Ching Lin/攝



蒴果(未熟) Immature capsule

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	32	41.56
2~5	29	37.66
5~10	7	9.09
10~20	9	11.69
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

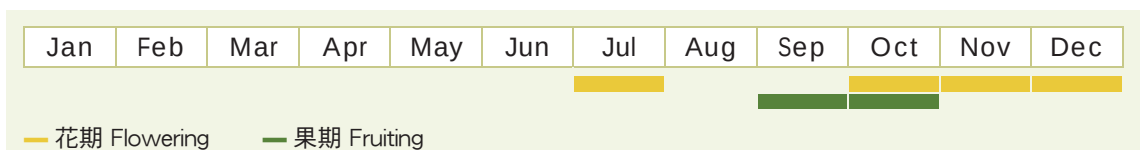
Total basal area= 2081.01 cm²/25 ha

Number of trees/25 ha = 77



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





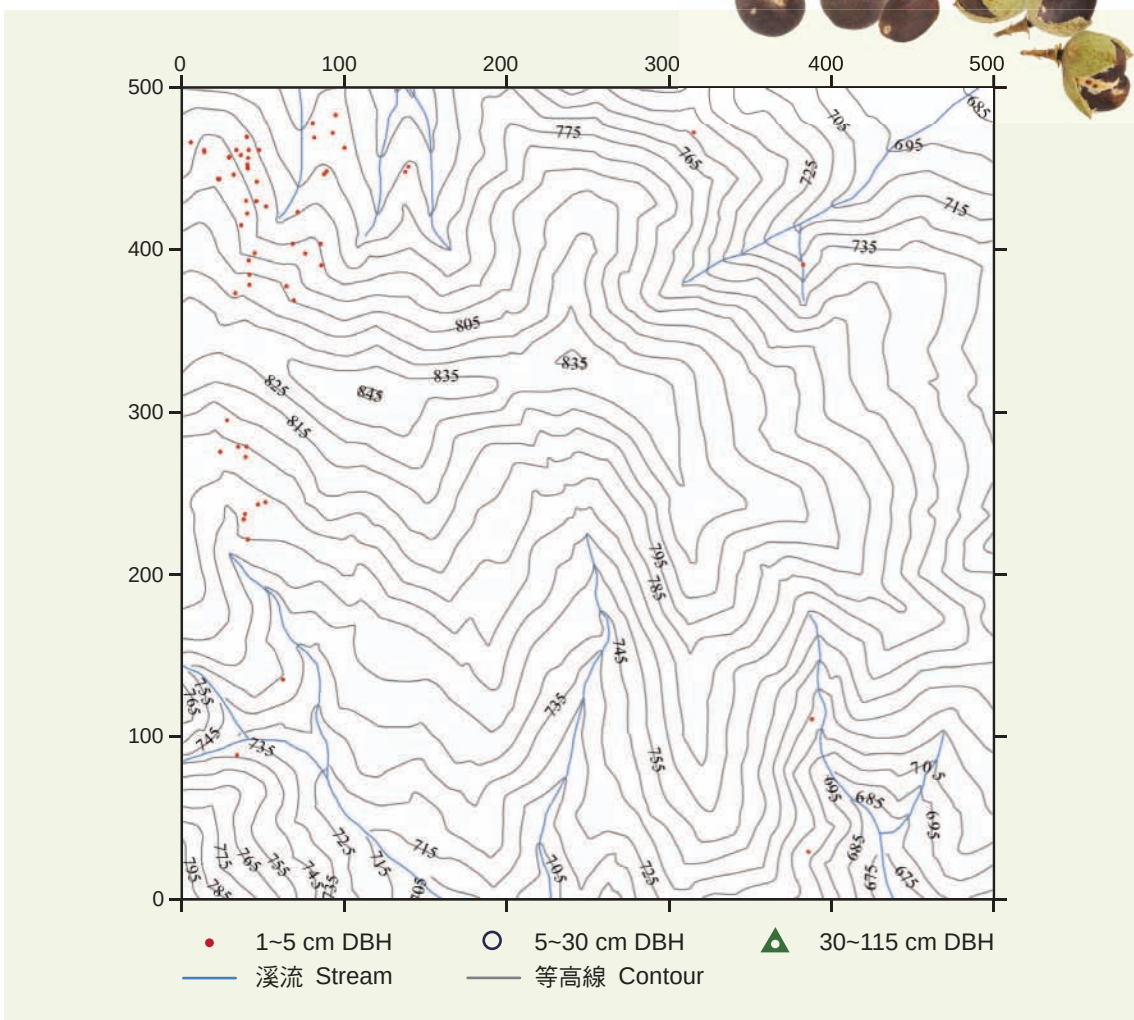
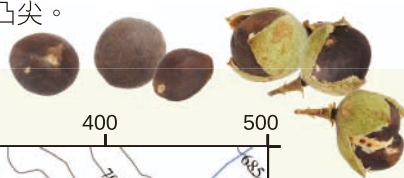
茶科 特有種

樹冠層級

灌木層

描述

枝條及小枝細長，幼嫩時有毛；葉芽線形漸尖，密被長絨毛。葉互生，薄革質，披針形，長3.5~5 cm，寬1.2~1.5 cm，先端尾狀漸尖或銳尖，基部楔形，細鋸齒緣，上表面光滑除中肋被粗毛，下表面疏被長毛；葉柄長1~2 mm或近無柄。花兩性，白色，腋生；花梗長4~6 mm，光滑；花萼片5；花瓣片5~6，基部合生，先端圓或微缺，光滑，具緣毛；雄蕊多數；花柱長0.8~1 cm。蒴果，球形，徑約1 cm，具短凸尖。



Camellia nokoensis Hayata

Theaceae

Endemic

Stratum

Shrub

Description

Branches and branchlets slender, pubescent when young; leaf buds linear-acuminate, densely villous. Leaves alternate, thin-coriaceous, lanceolate, 3.5~5 cm long, 1.2~1.5 cm wide, apex caudate-acuminate or acute, base cuneate, margins minutely serrulate, glabrous except for hirsute midrib above, slightly appressed-pilose below; petiole 1~2 mm long or subsessile. Bisexual; flowers axillary, white; pedicels 4~6 mm long, glabrous; sepals 5; petals 5 or 6, connate at base, apex rounded or emarginated, glabrous, margins

ciliate; stamens numerous; style 0.8~1 cm long. Capsule globose, ca. 1 cm in diameter, mucronate.



枝條 Branches

林炎慶 Huan-Ching Lin/攝



花 Flower

林炎慶 Huan-Ching Lin/攝



蒴果(未熟) Immature capsule

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	35	55.56
2~5	28	44.44
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

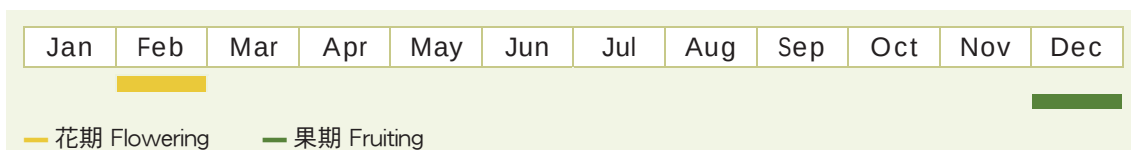
Total basal area= 338.17 cm²/25 ha

Number of trees/25 ha = 63



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





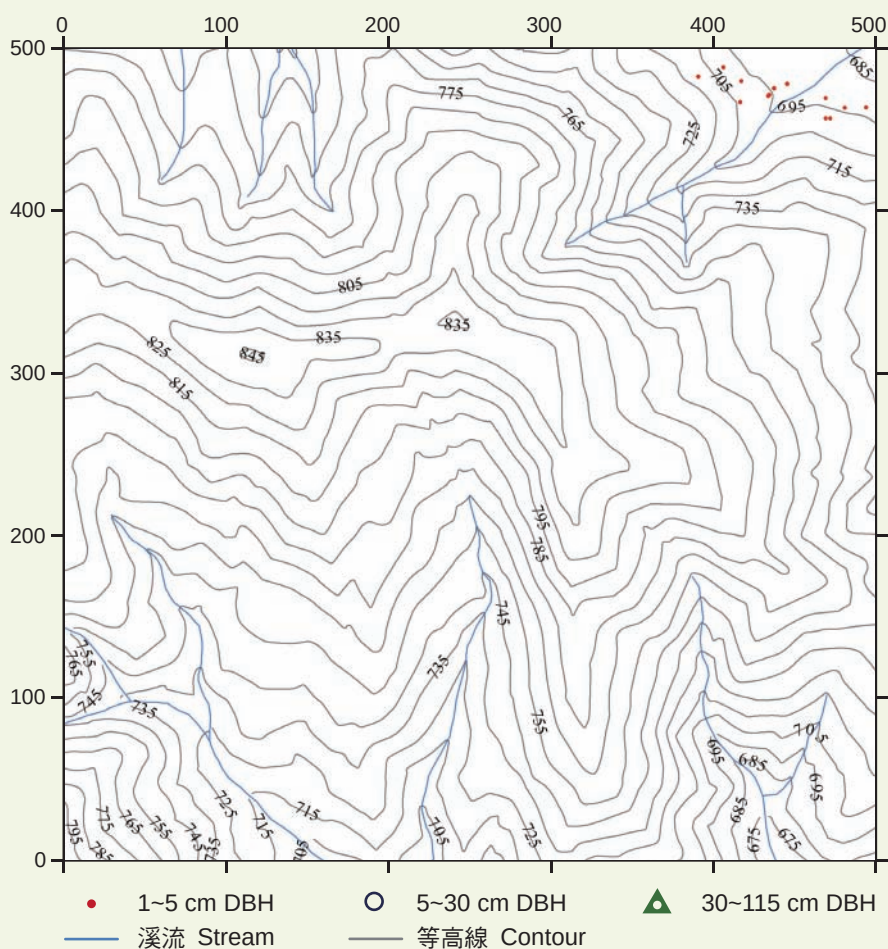
茶科

樹冠層級

次冠層

描述

幼枝密被軟毛，後漸光滑；葉芽被短毛。葉互生，紙質，披針形或長橢圓狀披針形，長6~11 cm，寬1.5~2.5 cm，先端漸尖或尾狀，基部鈍或圓，細鋸齒緣，上表面光滑，下表面密被長柔毛；葉柄長2~4 mm。花兩性，白色，腋生；花梗短或無柄；花萼5，略相等，披針形，外側被絹毛；花瓣片5~6，略相等，卵形或圓形；雄蕊多數，花絲被毛，基部合生；花柱長，柱頭短3裂。蒴果，球形，木質，熟時開裂，具宿存花萼。



Camellia salicifolia Champ.

Theaceae

Stratum

Sub-canopy

Description

Young branchlets densely covered with soft hairs becoming glabrescent with age; leaf buds puberulous. Leaves alternate, chartaceous, lanceolate or oblong-lanceolate, 6~11 cm long, 1.5~2.5 cm wide, apex acuminate or caudate, base obtuse or rounded, margins finely serrate, glabrous above, densely pilose below; petiole 2~4 mm long. Bisexual; flowers axillary, white; pedicels short or sessile; sepals 5, subequal, lanceolate, silky-hairy outside; petals 5 or 6, subequal, ovate or rounded; stamens numerous, filaments

pubescent, connate at base; style long, stigma shortly 3-lobed. Capsule globose, woody, dehiscent when mature, calyx persistent.



枝條 Branch

李碧鳳 Bi-Fong Lee/攝



花 Flower

李碧鳳 Bi-Fong Lee/攝



蒴果(未熟) Immature capsule

林仁瀚 Jen-Hun Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	4	30.77
2~5	9	69.23
5~10	0	0.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

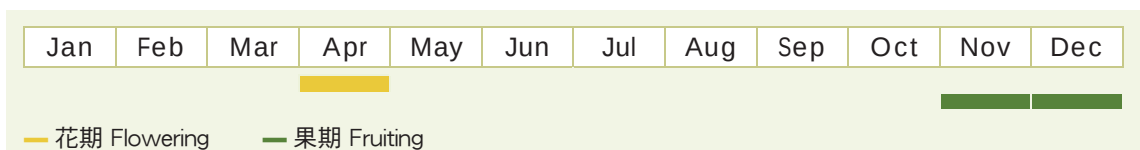
Total basal area= 80.71 cm²/25 ha

Number of trees/25 ha = 13



樹皮 Bark

林奐慶 Huan-Ching Lin/攝





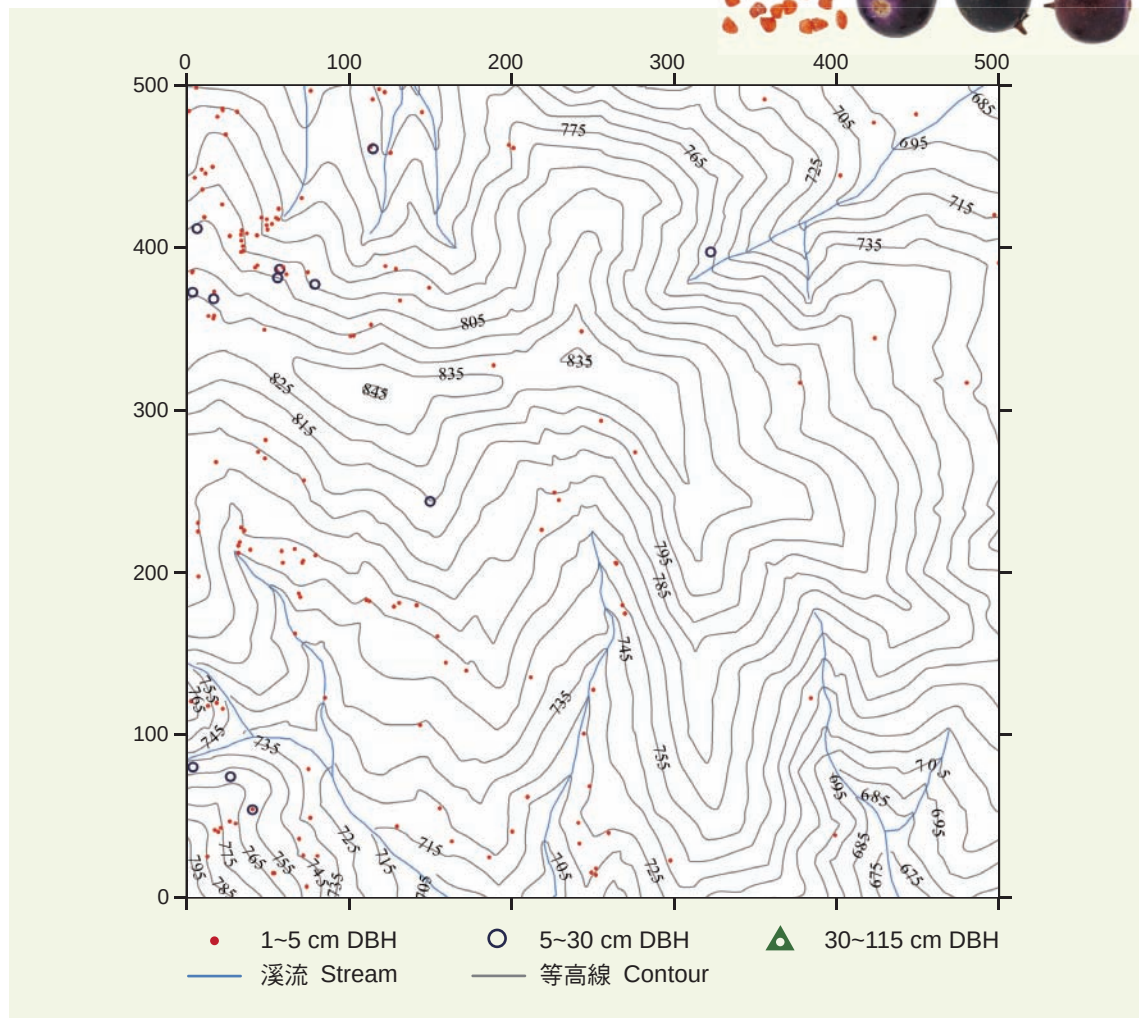
茶科

樹冠層級

次冠層

描述

小枝細長，略被短柔毛。葉互生，薄革質，披針形或長橢圓狀披針形，長4~8 cm，寬1.5~2.5 cm，先端尾狀漸尖，基部楔形至鈍，細鋸齒緣，上表面光滑且中肋下凹，下表面中肋略被毛；葉柄長2~3 mm，被毛。雌雄異株；單生或2~4朵叢生，腋生；花白色；花萼5，卵圓形，長1.5~2 mm，被毛至近光滑；花瓣5，倒卵形，長2.5~4 mm，光滑；雄花雄蕊10~15；雌花花柱淺3裂。漿果，卵球形，徑3~4 mm。



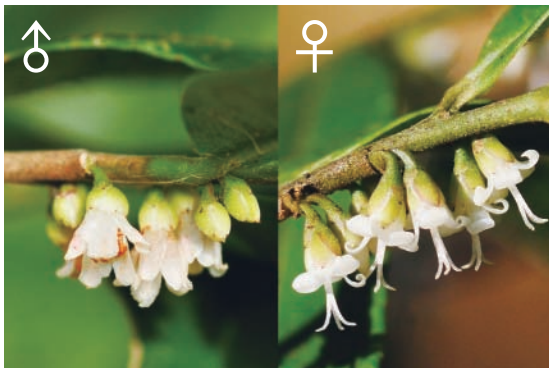
Stratum

Description

mm long, glabrous; staminate flowers with 10~15 stamens; style of pistillate flowers slightly 3-lobed. Berry ovoid, 3~4 mm in diameter.



葉秋好 Chiou-Yu Yeh/攝



林煥慶 Huan-Ching Lin/攝

A close-up photograph of a woody branch with several small, round berries. One berry is dark purple, while the others are green. The berries are attached to the branch by short stems. Large green leaves are visible in the background.

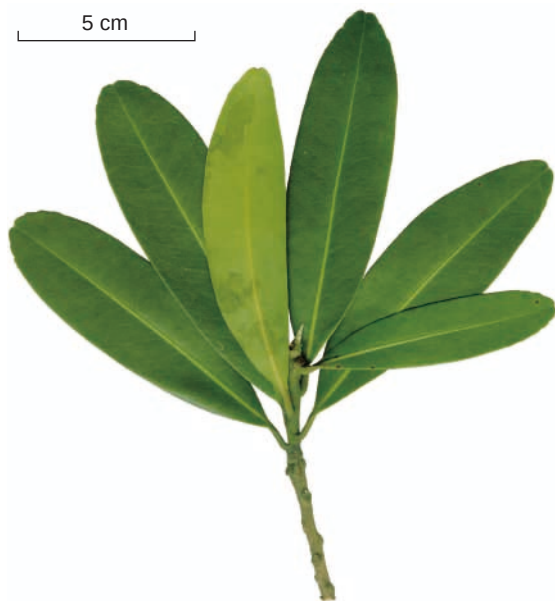
林奐慶 Huan-Ching Lin/攝



林煥慶 Huan-Ching Lin/攝

Number of trees/25 ha = 165

— 花期 Flowering — 果期 Fruiting



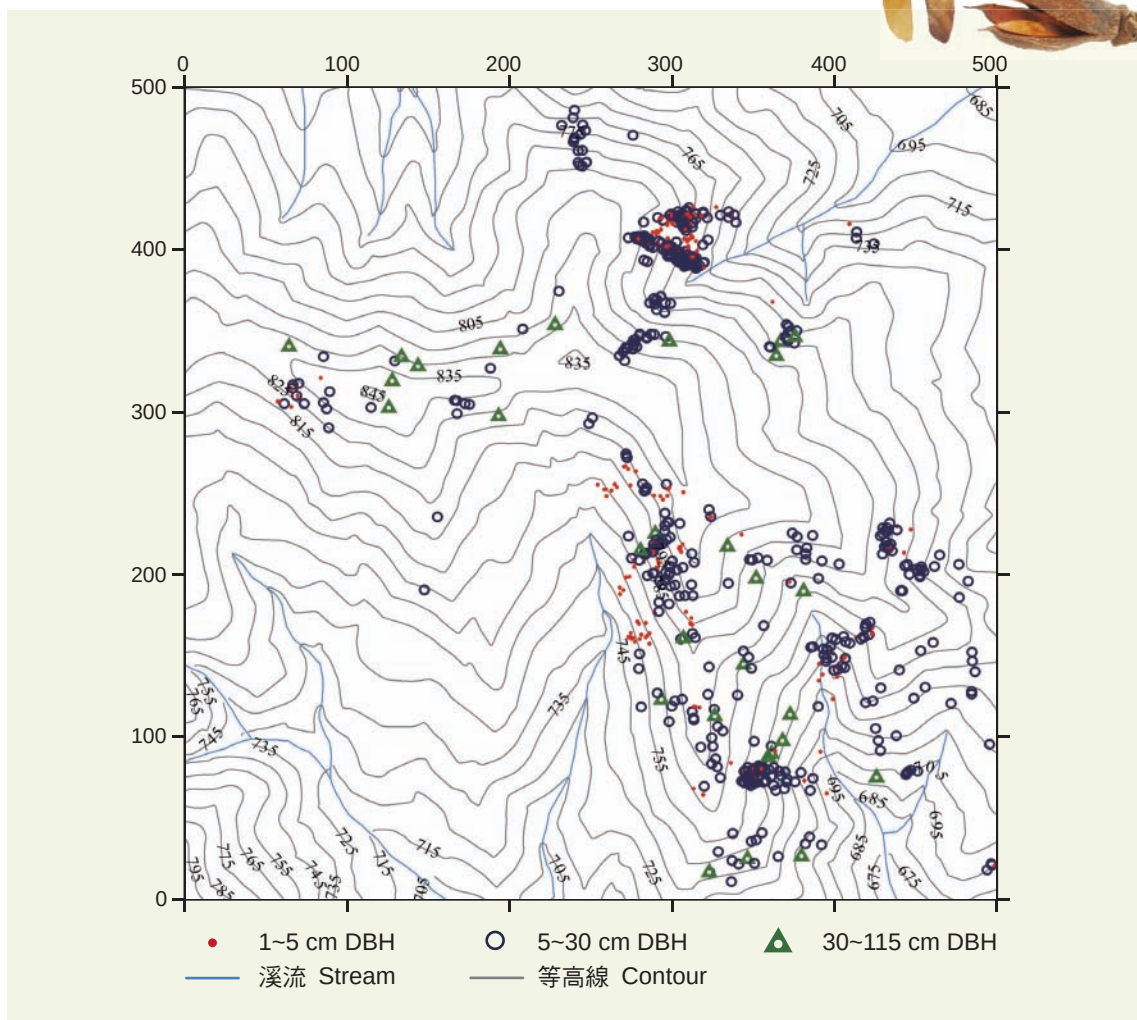
茶科

樹冠層級

冠層

描述

幼枝及頂芽密被毛。葉互生，革質，長橢圓形、長橢圓狀披針形或倒披針形，長8~12 cm，寬2~4 cm，先端鈍或圓，常微凹，基部銳尖或楔形，全緣，除先端具不明顯波狀鈍鋸齒，兩面側脈不明顯；葉柄長5~10 mm。花兩性；腋生或近頂生，單生或成對，近無柄；花萼5；花瓣5，白色，長3~4.5 cm，先端微凹；雄蕊多數；柱頭3~5裂。蒴果，長橢圓形，木質，長2~3.5 cm，疏被長毛。種子扁平，長橢圓形，具翅。



Gordonia axillaris (Roxb.) Dietr.

Theaceace

Stratum

Canopy

Description

Young branchlets and terminal buds densely pubescent. Leaves alternate, coriaceous, oblong, oblong-lanceolate, or oblanceolate, 8~12 cm long, 2~4 cm wide, apex obtuse or rounded, usually retuse, base acute or cuneate, margins entire but remotely crenate on upper part, lateral veins obscure on both surfaces; petioles 5~10 mm long. Bisexual; flowers axillary or subterminal, solitary or in pairs, nearly sessile; sepals 5; petals 5, white, 3~4.5 cm long, emarginated at apex; stamens numerous; stigma 3~5-lobed. Capsule oblong, woody, 2~3.5 cm long, pilose. Seeds compressed, oblong, winged.



植株 Entire plant

林炎慶 Huan-Ching Lin/攝



花 Flower

林炎慶 Huan-Ching Lin/攝



蒴果 Capsule

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	95	12.39
2~5	157	20.47
5~10	253	32.98
10~20	174	22.69
20~30	59	7.69
30~60	29	3.78
60~115	0	0.00

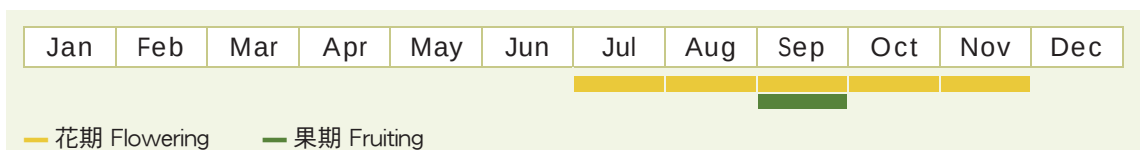
Total basal area= 101847.09 cm²/25 ha

Number of trees/25 ha = 767



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





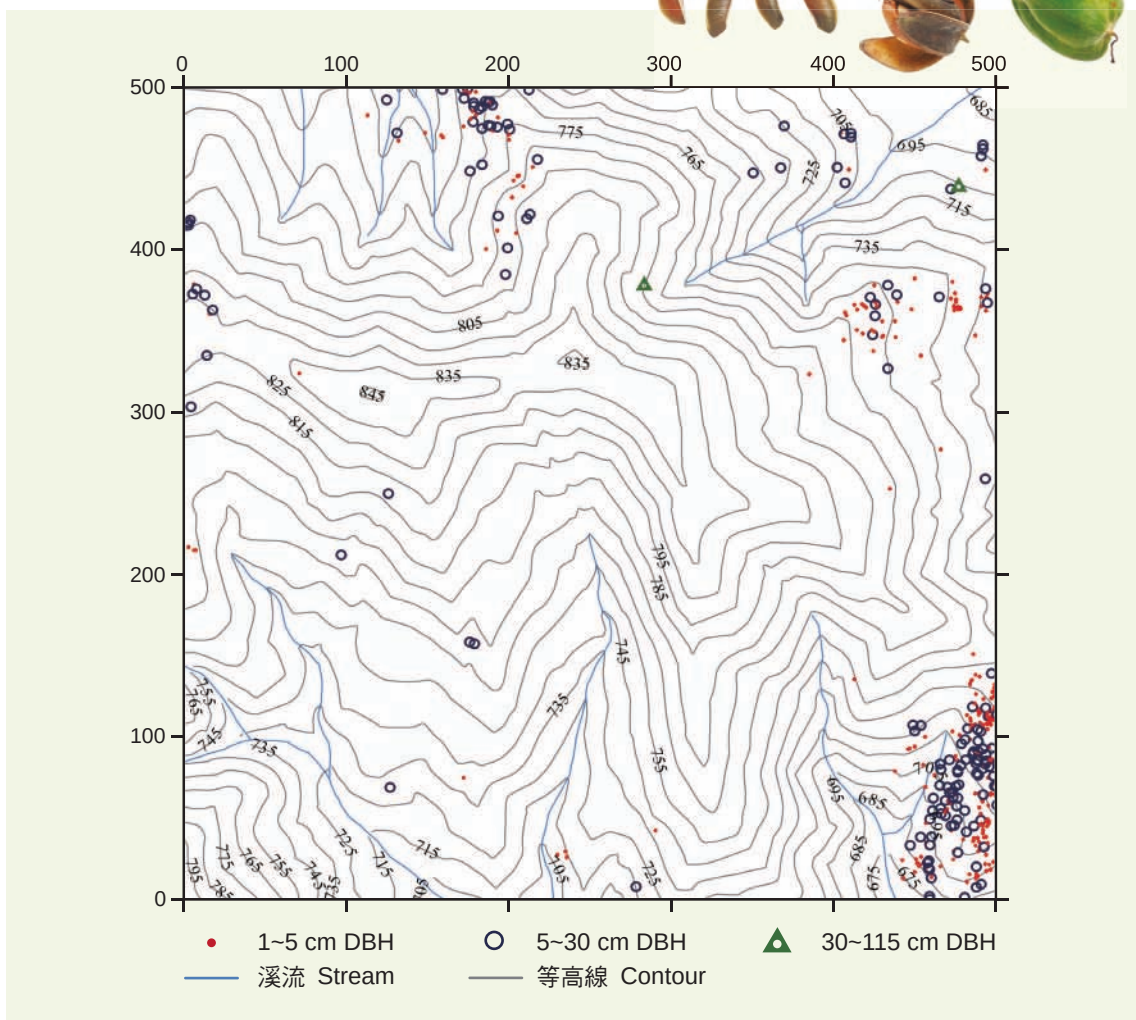
茶科 特有種

樹冠層級

冠層

描述

幼枝被毛。葉互生，薄革質，長橢圓形，倒卵形或倒披針形，長8~12 cm，寬3.5~4.5 cm，先端銳尖或漸尖，基部楔形，上半部細鋸齒緣，下半部近全緣；葉柄長6~8 mm。花兩性；單生於葉腋；花梗長3~4 mm，疏被長毛；花白色；花萼5，早落，不等大，外側密被絹毛；花瓣5，不等大，圓形或闊圓形，先端微凹，基部合生。蒴果，球形或橢圓形，3裂，長1.2~1.8 cm，被絹毛。種子長橢圓形，多角稜。



Pyrenaria shinkoensis (Hayata) H. Keng

Theaceae

Endemic

Stratum

Canopy

Description

Branches pubescent when young. Leaves alternate, thin-coriaceous, oblong, obovate, or oblanceolate, 8~12 cm long, 3.5~4.5 cm wide, apex acute or acuminate, base cuneate, margins serrulate toward apex, nearly entire underneath; petioles 6~8 mm long. Bisexual; solitary, axillary; pedicels 3~4 mm long, sparsely pilose; flowers white; sepals 5, deciduous, unequal, densely sericeous outside; petals 5, unequal, rounded or broadly rounded, emarginate at apex, connate at

base. Capsule spherical or ellipsoid, 3-lobed, 1.2~1.8 cm long, sericeous. Seeds oblong, ridges many.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flower

林炎慶 Huan-Ching Lin/攝



蒴果(未熟) Immature capsule

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	115	28.97
2~5	128	32.24
5~10	68	17.13
10~20	65	16.37
20~30	19	4.79
30~60	2	0.50
60~115	0	0.00

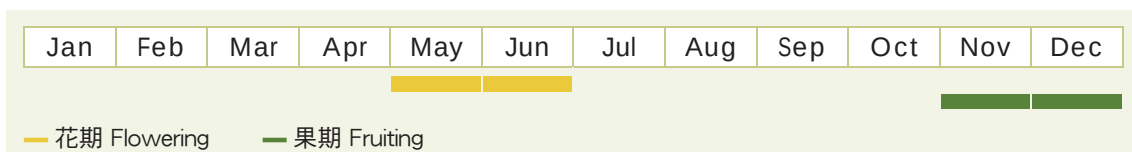
Total basal area= 23972.06 cm²/25 ha

Number of trees/25 ha = 397



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





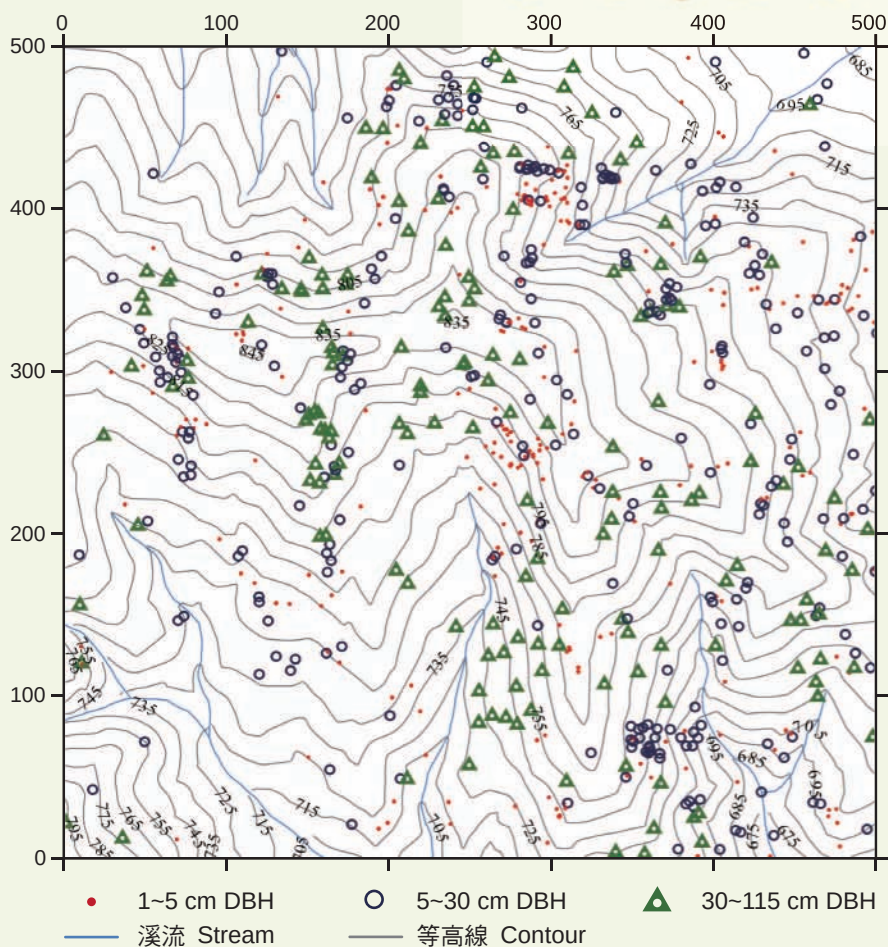
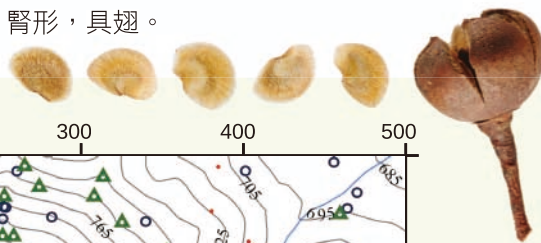
茶科

樹冠層級

冠層

描述

枝條幼時被曲絨毛，後漸無毛。葉互生，革質，長橢圓形，長7~10 cm，寬2.5~4 cm，先端銳尖或短漸尖，基部鈍，細鋸齒緣至近全緣，兩面光滑；葉柄長1.5~2 cm。花兩性；單生於葉腋或頂生短總狀花序；花梗粗短，長1~1.5 cm；花萼5裂，裂片近相等，具緣毛；花瓣片5，倒卵形，長1.2~1.8 cm；雄蕊多數；子房5室。蒴果，球形至扁球形，木質，徑1~1.4 cm，被毛，成熟時5裂。種子扁平，腎形，具翅。



Schima superba Gard. & Champ.

Theaceae

Stratum

Canopy

Description

Branches villous when young, gradually glabrescent. Leaves alternate, coriaceous, oblong, 7~10 cm long, 2.5~4 cm wide, apex acute or shortly acuminate, base obtuse, margins serrulate to nearly entire, glabrous on both surfaces; petioles 1.5~2 cm long. Bisexual; flowers solitary axillary or on short terminal raceme; pedicels stout, 1~1.5 cm long; calyx 5-lobed, lobes subequal, margins ciliate; petals 5, obovate, 1.2~1.8 cm long; stamens numerous; ovary 5-celled. Capsule globose to

depressed-globose, woody, 1~1.4 cm across, pubescent, dehiscing 5-valved when mature. Seeds flat, reniform, winged.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



蒴果 Capsules

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	118	15.86
2~5	158	21.24
5~10	129	17.34
10~20	102	13.71
20~30	65	8.74
30~60	130	17.47
60~115	42	5.64

Total basal area= 448572.24 cm²/25 ha

Number of trees/25 ha = 744



樹皮 Bark

林炎慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

— 花期 Flowering

— 果期 Fruiting



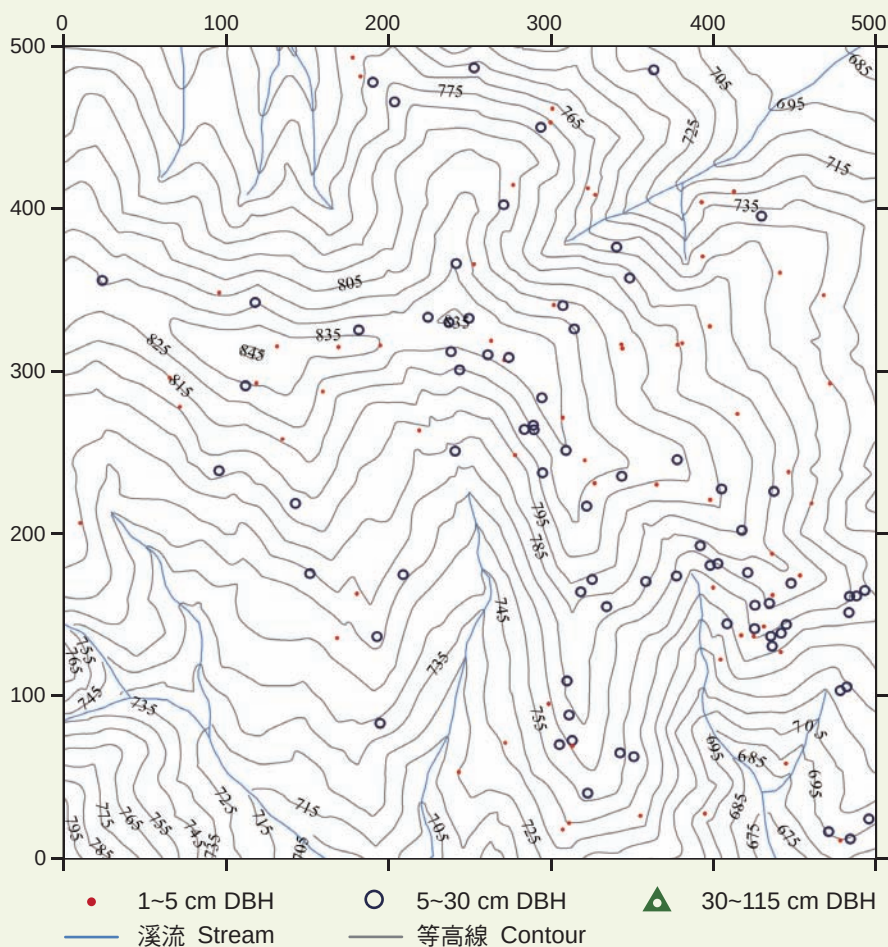
茶科

樹冠層級

次冠層

描述

全株光滑；枝條及小枝紅褐色。葉互生，叢生枝端，厚革質，長橢圓形或倒披針形，長4~7 cm，寬1.5~3 cm，全緣，先端鈍或圓，基部漸狹或楔形，兩面側脈不明顯；葉柄長5~8 mm。隱性雌雄異株；花淡黃色，腋生，下垂；花梗長1~2 cm；小苞片2，三角形，宿存；花萼5，卵形或圓形，長3~4 mm；花瓣5，倒卵形，長4~4.5 mm；雄蕊多數。漿果，卵球形或球形，徑1~1.5 cm，紅褐色。種子3~4。



Ternstroemia gymnanthera (Wight & Arn.) Sprague

Theaceace

Stratum

Sub-canopy

Description

Entire plant glabrous; branches and branchlets reddish-brown. Leaves alternate, rather crowded at ends of branchlets, thick-coriateous, oblong or oblanceolate, 4~7 cm long, 1.5~3 cm wide, apex obtuse or rounded, base attenuate or cuneate, margins entire, lateral veins indistinct on both surfaces; petioles 5~8 mm long. Cryptically dioecious; flowers pale-yellow, axillary, pendulous; pedicels 1~2 cm long; bracteoles 2, triangular, persistent; sepals 5, ovate or rounded, 3~4 mm long;

petals 5, obovate, 4~4.5 mm long; stamens numerous. Berry ovoid or globose, 1~1.5 cm in diameter, reddish-brown. Seeds 3 or 4.



新葉 New leaves

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



漿果 Berries

翁明毅 Ming-I Weng/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	18	12.95
2~5	45	32.37
5~10	43	30.94
10~20	31	22.30
20~30	2	1.44
30~60	0	0.00
60~115	0	0.00

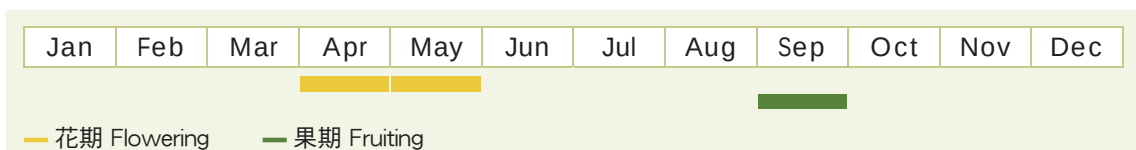
Total basal area= 7453.68 cm²/25 ha

Number of trees/25 ha = 139



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





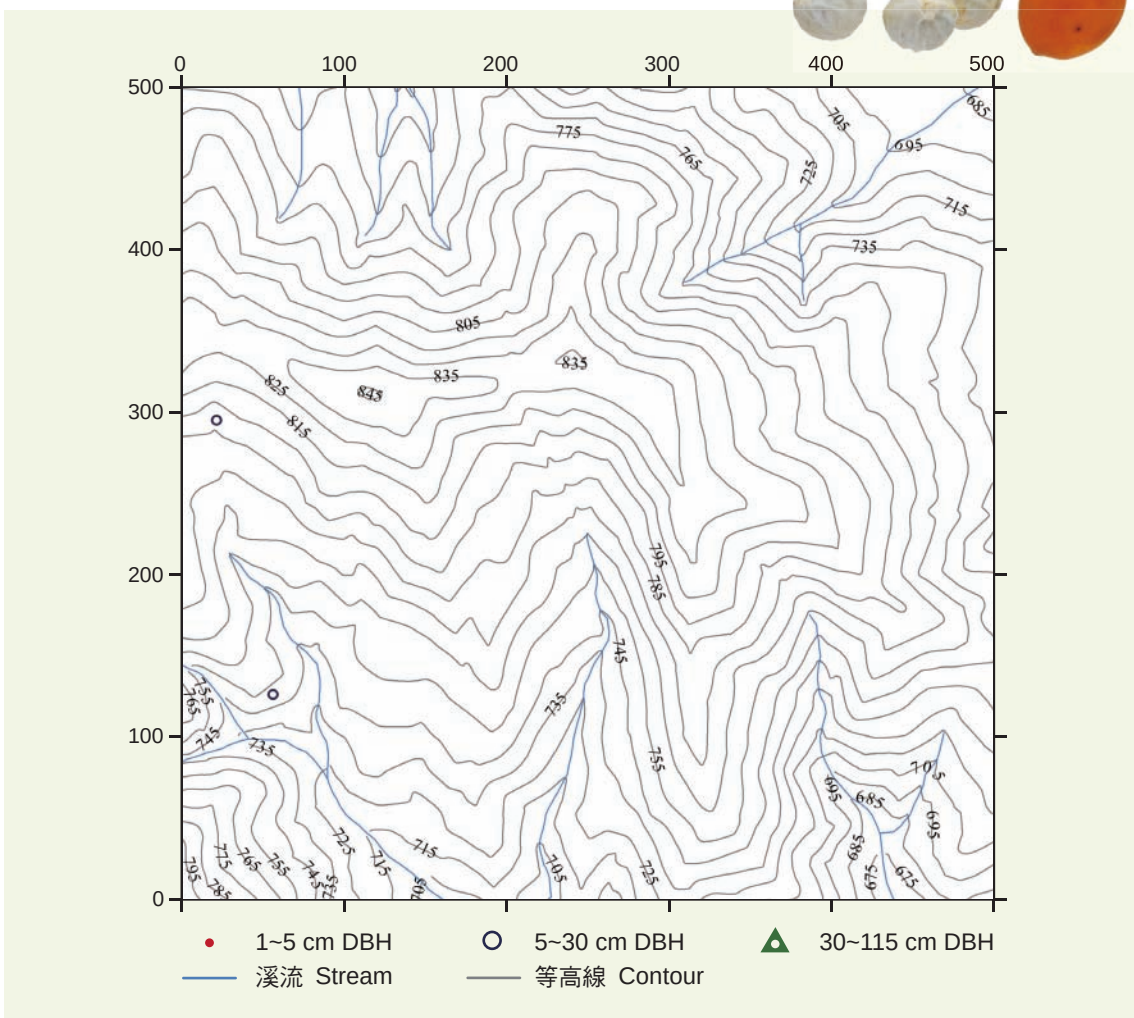
榆科 特有種

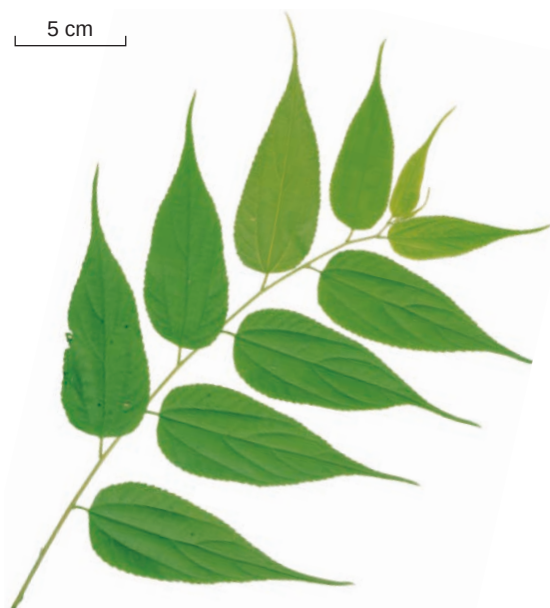
樹冠層級

次冠層

描述

小枝條細長，初被毛，後漸無毛；芽鱗褐色，被毛。葉互生，紙質，卵形、橢圓狀卵形或橢圓形，長7~15 cm，寬2.5~5 cm，先端漸尖至尾狀漸尖，基部圓形至鈍形，葉基歪斜，三主脈，上半部鋸齒緣而下半部全緣；葉柄長6~8 mm，光滑。雌雄同株，雜性花；花1~3朵叢生於葉腋；花淡黃色；花萼深4裂，具緣毛；雄蕊4；花柱短，柱頭深2裂。核果，卵球形，徑4~6 mm，果柄長1~1.2 cm，光滑，熟時橙黃色。





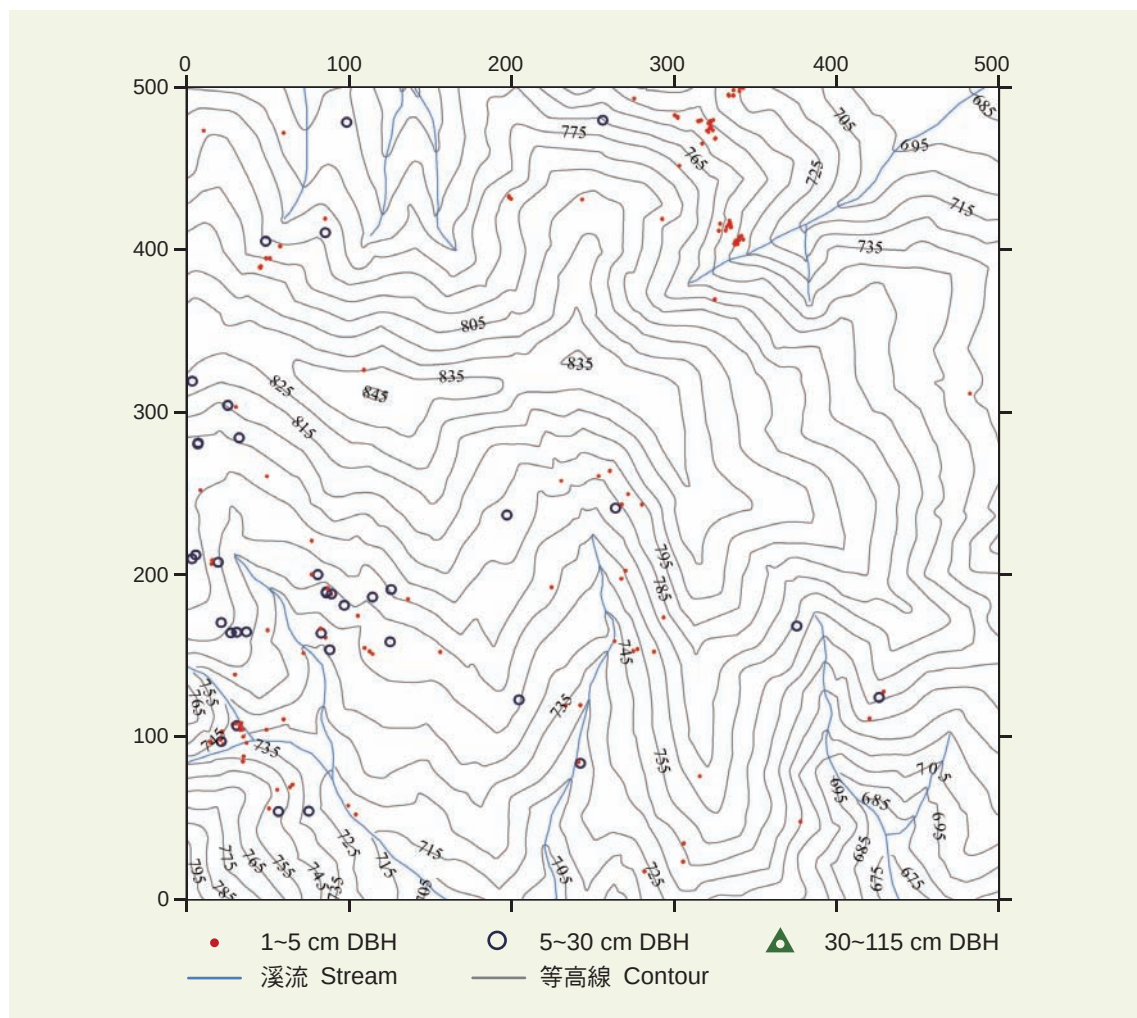
榆科

樹冠層級

次冠層

描述

小枝條纖細，幼時疏被平貼之粗毛。葉互生，膜質，卵狀披針形或卵狀長橢圓形，長7~8 cm，寬2.5~3.5 cm，先端長漸尖，基部心形或截形，鈍狀細鋸齒緣，上表面光滑，下表面光滑或疏被毛，三出脈；葉柄長5~10 mm，被毛。雌雄同株，雜性花；腋生，聚繖花序；花黃綠色；花萼裂片4或5，膜質；無花瓣；雄蕊4~5；柱頭2，毛刷狀。核果，徑約2 mm，光滑無毛。



Ulmaceae

Stratum

Sub-canopy

Description

Branchlets slender, sparsely appressed hirsute when young. Leaves alternate, membranous, ovate-oblong to ovate-lanceolate, 7~8 cm long, 2.5~3.5 cm wide, apex long-acuminate, base cordate or truncate, margins crenate-serrulate, glabrous above, glabrous or slightly hairy below, trinerved; petioles 5~10 mm long, pubescent. Monoecious, polygamous; flowers in axillary cymes; flowers yellowish-green; calyx lobes 4 or 5, membranous; apetalous; stamens 4 or 5; stigmas 2, brush-like. Drupe ca. 2 mm across, glabrous.



枝條 Branches

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



核果 Drupes

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	45	24.86
2~5	98	54.14
5~10	34	18.79
10~20	4	2.21
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

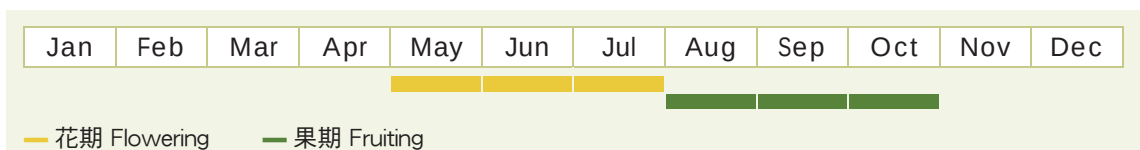
Total basal area= 2986.14 cm²/25 ha

Number of trees/25 ha = 181



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





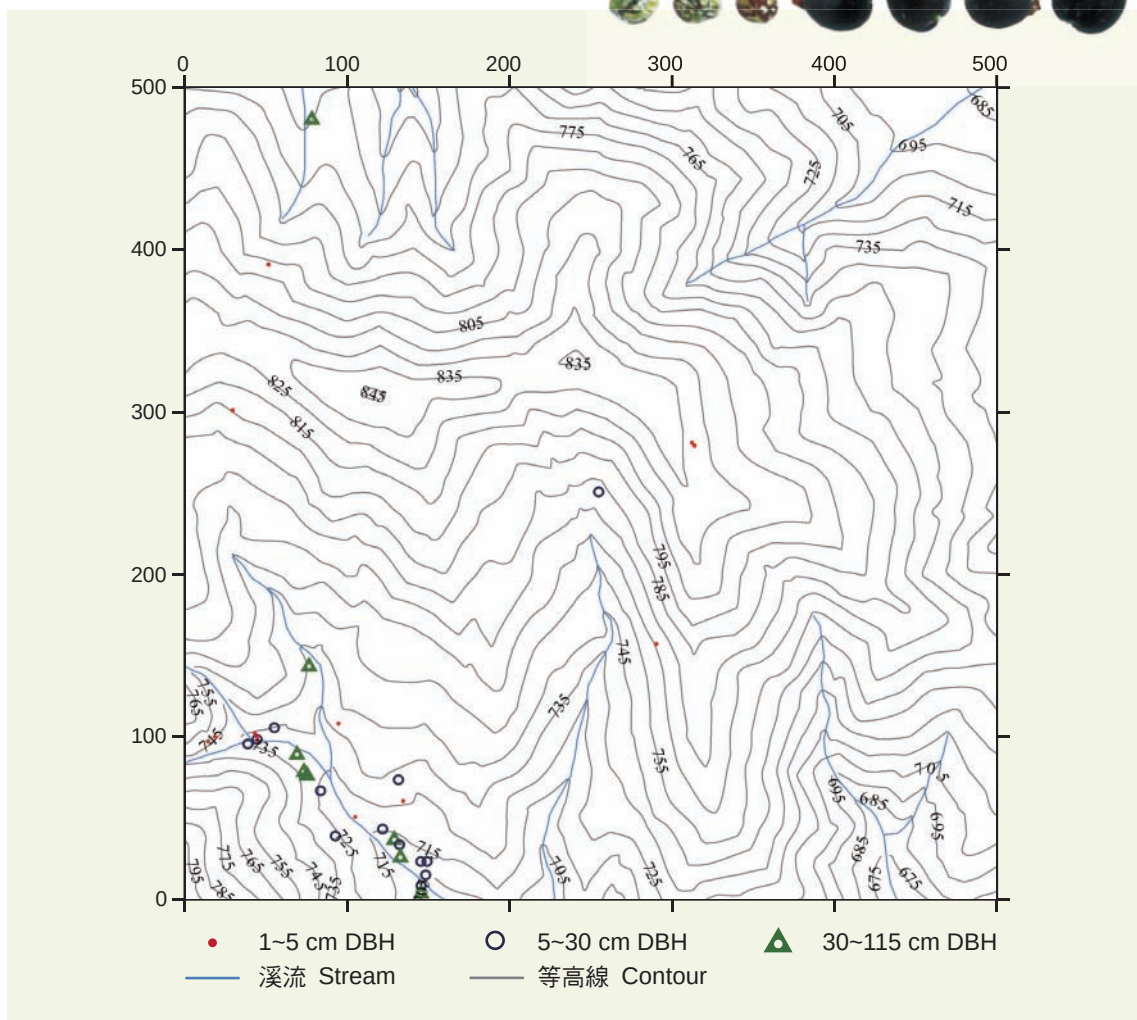
榆科

樹冠層級

冠層

描述

小枝被短柔毛。葉互生，紙質，平展二列狀排列，卵狀長橢圓形或長橢圓狀披針形，長6~15 cm，寬2~6 cm，先端銳尖或漸尖，基部為歪斜的心形或鈍形，鈍狀細鋸齒緣，上表面略粗糙，下表面密被毛，側脈4~6對；葉柄長8~15 mm。雌雄同株，雜性花；腋生，短聚繖花序；花黃綠色；花萼裂片5，被毛；無花瓣；雄蕊5；花柱極短，柱頭2裂，毛刷狀。核果，卵圓形，徑約3 mm，黑色，光滑。



Trema orientalis (L.) Blume

Ulmaceae

Stratum

Canopy

Description

Branchlets puberulous. Leaves alternate, chartaceous, spreading to distichous, ovate-oblong to oblong-lanceolate, 6~15 cm long, 2~6 cm broad, apex acute to acuminate, base obliquely cordate or obtuse, margins crenate-serrulate, densely scabrid above, densely tomentose below, lateral veins 4~6 pairs; petioles 8~15 mm long. Monoecious, polygamous; flowers in short axillary cymes; flowers yellowish-green; calyx lobes 5, pubescent; apetalous; stamens 5; style extremely short, stigma 2-lobed, brush-like. Drupe ovoid, ca. 3 mm across, black, glabrous.



植株 Entire tree

林炎慶 Huan-Ching Lin/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



核果 Drupes

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	1	2.86
2~5	11	31.43
5~10	8	22.86
10~20	5	14.29
20~30	2	5.71
30~60	6	17.14
60~115	2	5.71

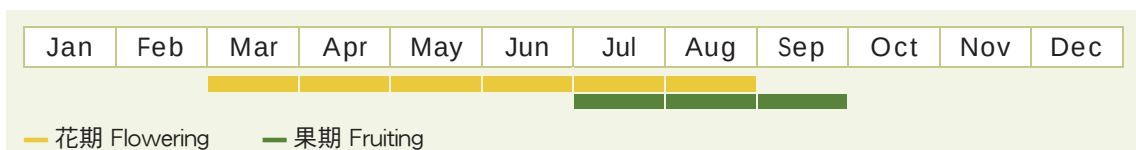
Total basal area= 18528.04 cm²/25 ha

Number of trees/25 ha = 35



樹皮 Bark

林炎慶 Huan-Ching Lin/攝





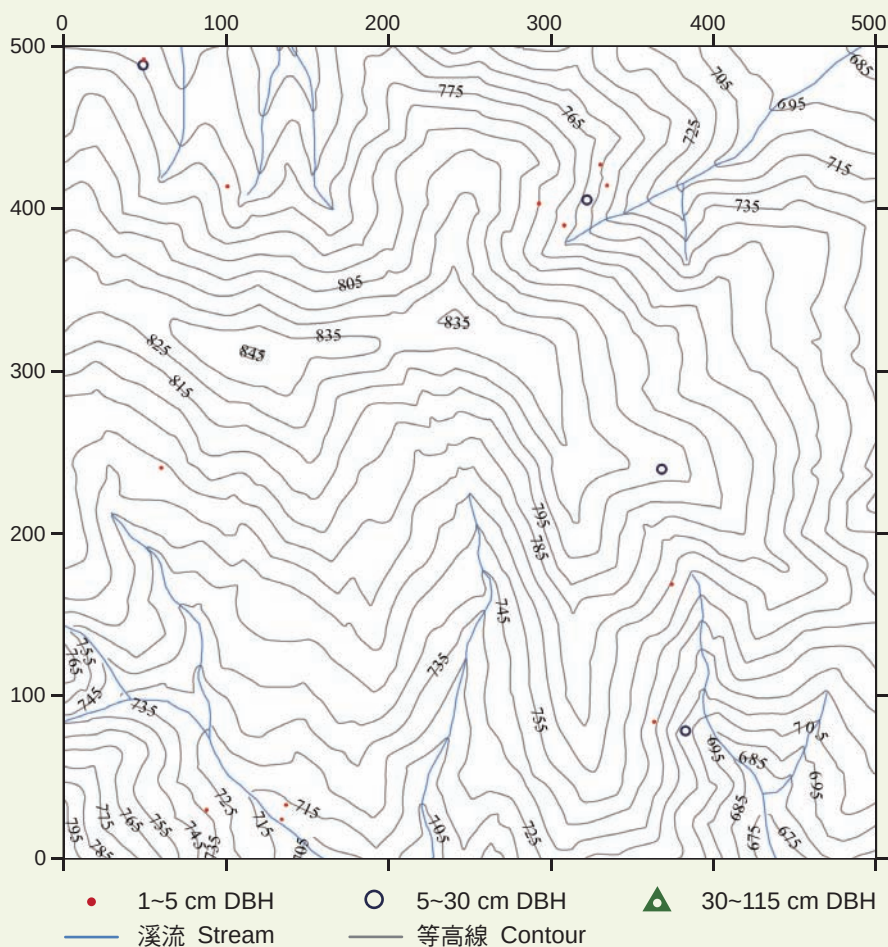
馬鞭草科

樹冠層級

次冠層

描述

小枝密被星狀毛。葉對生，紙質，葉形變異大，多為卵形、倒卵形或橢圓形，長7~18 cm，寬3~11 cm，先端銳尖至漸尖，基部楔形、鈍形或圓形，細鋸齒緣，兩面皆被星狀毛；側脈6~13對；葉柄長1~2 cm，密被毛。花兩性；腋生，密集聚繖花序，6~10分枝，長2~4 cm，被星狀毛；花萼4淺裂；花冠漏斗狀，長約2 mm，粉紅至紫紅色，裂片4；雄蕊4，伸出冠筒外。核果，球形，徑2~4 mm，紫色，光滑。



Stratum

Description



葉秋好 Chiou-Yu Yeh/攝



林煥慶 Huan-Ching Lin/攝



林煥慶 Huan-Ching Lin/攝

林煥慶 Huan-Ching Lin/攝

Number of trees/25 ha = 16

[illegible]

— 果期 Fruiting



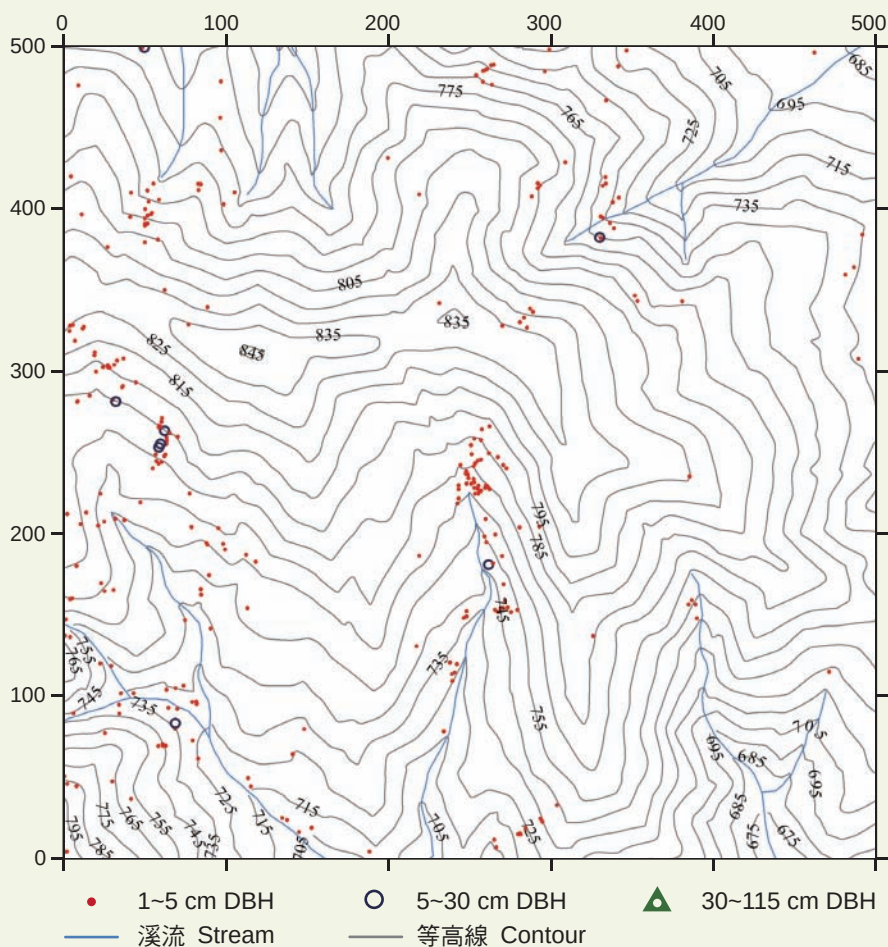
馬鞭草科

樹冠層級

次冠層

描述

植株密被長軟毛。葉對生，紙質，狹橢圓形或倒卵形至倒披針形，長15~35 cm，寬6~10 cm，先端漸尖至尾狀，基部楔形至漸狹，細鋸齒緣，兩面皆被長軟毛；側脈13~17對；葉柄長1~3 cm，密被長毛。花兩性；腋生，緊密聚繖花序，密被長軟毛；花近無柄；花萼4深裂，裂片狹三角形，密被長毛；花冠漏斗狀，紫紅色，裂片4；雄蕊4，伸出冠筒外；雌蕊與雄蕊等長。核果，圓球形，徑可達3 mm，白色。



Stratum

Description

5 mm



枝條 Branch

葉秋好 Chiou-Yu Yeh/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	177	62.55
2~5	96	33.92
5~10	10	3.53
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

Number of trees/25 ha = 283



樹皮 Bark

林煥慶 Huan-Ching Lin/攝

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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— 花期 Flowering — 果期 Fruiting



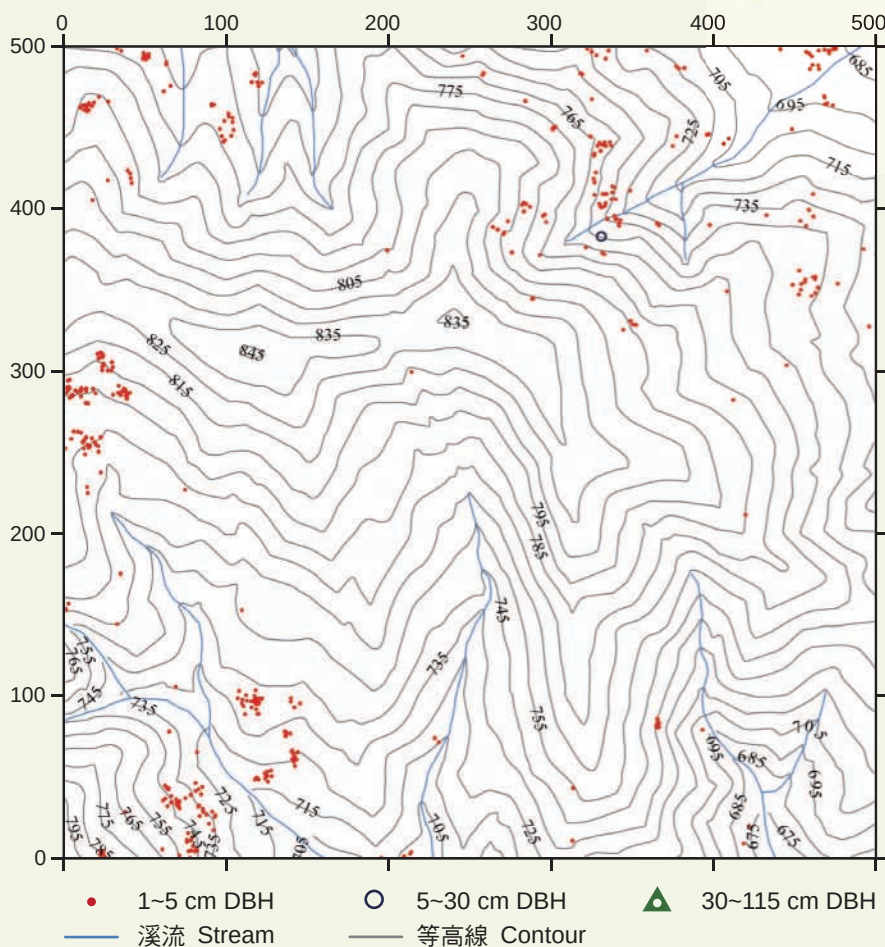
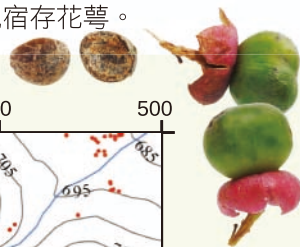
馬鞭草科

樹冠層級

灌木層

描述

小枝被毛。葉對生，紙質，長橢圓狀卵形、橢圓狀卵形、長橢圓形或橢圓狀披針形，長5~16 cm，寬2.3~6.5 cm，先端銳尖至漸尖，基部銳尖至鈍或圓，全緣或疏鋸齒緣，側脈5~8對；葉柄長2~5 cm，略被毛。花兩性；頂生或腋生，複聚繖花序，花序鬆散，被短毛；苞片線形，被毛；花萼先端5齒裂；花冠白色，冠筒長1~1.5 cm，先端5裂，裂片長橢圓形；雄蕊4，挺出冠筒外；花柱細長。核果，球形，藍紫色，具紅色宿存花萼。



Clerodendrum cyrtophyllum Turcz.

Verbenaceae

Stratum
Shrub

Description

Branchlets pubescent. Leaves opposite, chartaceous, oblong-ovate, elliptical-ovate, oblong, or elliptical-lanceolate, 5~16 cm long, 2.3~6.5 cm wide, apex acute to acuminate, base acute to obtuse or rounded, margins entire or remotely dentate, lateral veins 5~8 pairs; petioles 2~5 cm long, sparsely pubescent. Bisexual; inflorescence a terminal or axillary, compound cymes, loosely flowered, with short hairs; bracts linear, pubescent; sepals 5-tooth-lobed at apex; corolla white, tube 1~1.5 cm long, 5-lobed at apex, lobes

oblong; stamens 4, extending from tube; style slender. Drupe globose, bluish-purple, with persistent red calyx.



植株 Entire plant

李碧鳳 Bi-Fong Lee/攝



花 Flowers

林炎慶 Huan-Ching Lin/攝



核果 Drupes

林炎慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	333	76.03
2~5	104	23.74
5~10	1	0.23
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

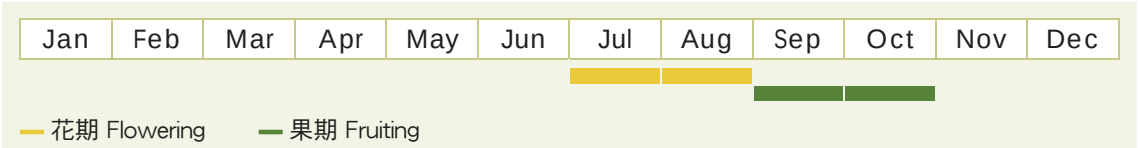
Total basal area= 1307.50 cm²/25 ha

Number of trees/25 ha = 438



枝條 Branches

李碧鳳 Bi-Fong Lee/攝





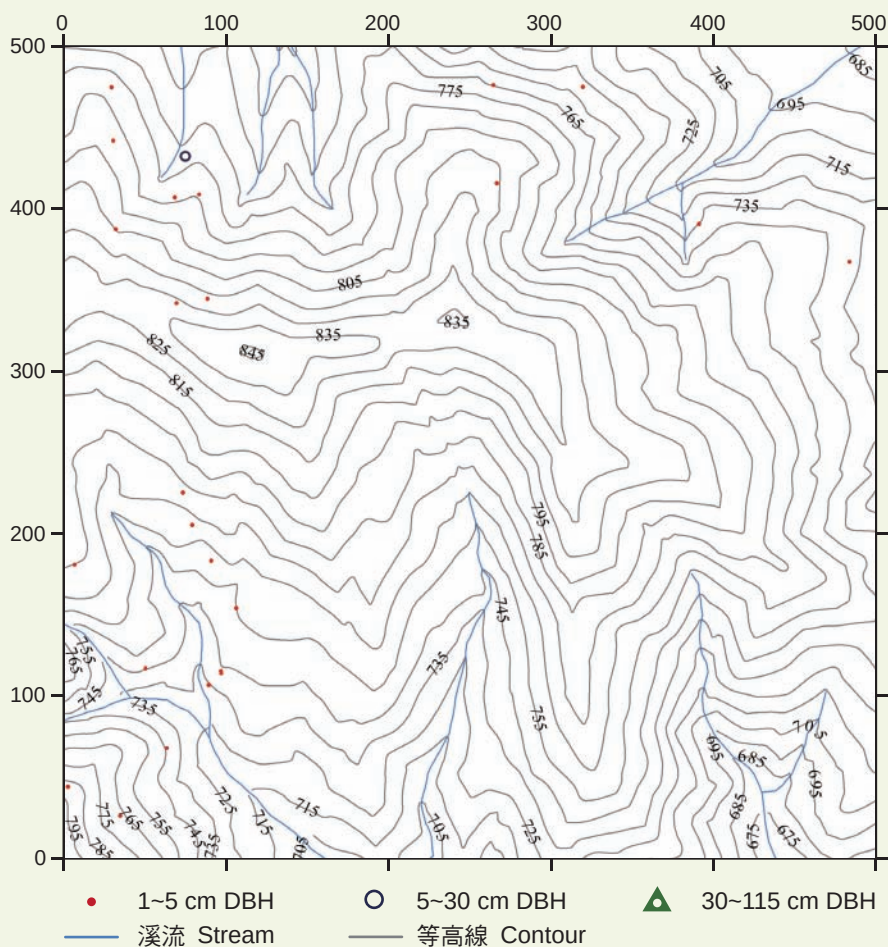
馬鞭草科

樹冠層級

灌木層

描述

小枝被白色或淡褐色絨毛。葉對生，紙質，卵形至三角狀卵形，長6~20 cm，寬3.5~12 cm，先端銳尖、漸尖或短尾狀，基部截形、淺心形或銳尖，全緣或疏鋸齒緣，上表面光滑，下表面被絨毛；葉柄長1.5~10 cm，被毛。花兩性；腋生或近頂生，複聚繖花序，花序約1~3次分枝；花萼5裂，被毛；花冠白色，冠筒長2.5~3 cm，5裂，裂片長橢圓形；雄蕊4，挺出冠筒外；花柱細長。核果，球形，藍黑色，包於紅色宿存萼片中。



Stratum

Description

5-lobed, lobes oblong; stamens 4, extending from tube; style slender. Drupe globose, bluish-black, subtended by reddish persistent calyx.



葉秋妤 Chiou-Yu Yeh/攝



林煥慶 Huan-Ching Lin/攝



葉秋好 Chiou-Yu Yeh/攝

林煥慶 Huan-Ching Lin/攝

$$\text{Number of trees/25 ha} = 25$$

Category	Item	Value
A	Item 1	10
	Item 2	20
	Item 3	30
	Item 4	40
B	Item 5	50
	Item 6	60

— 花期 Flowering — 果期 Fruiting

5 cm



棕櫚科

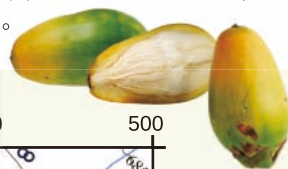
栽培種

樹冠層級

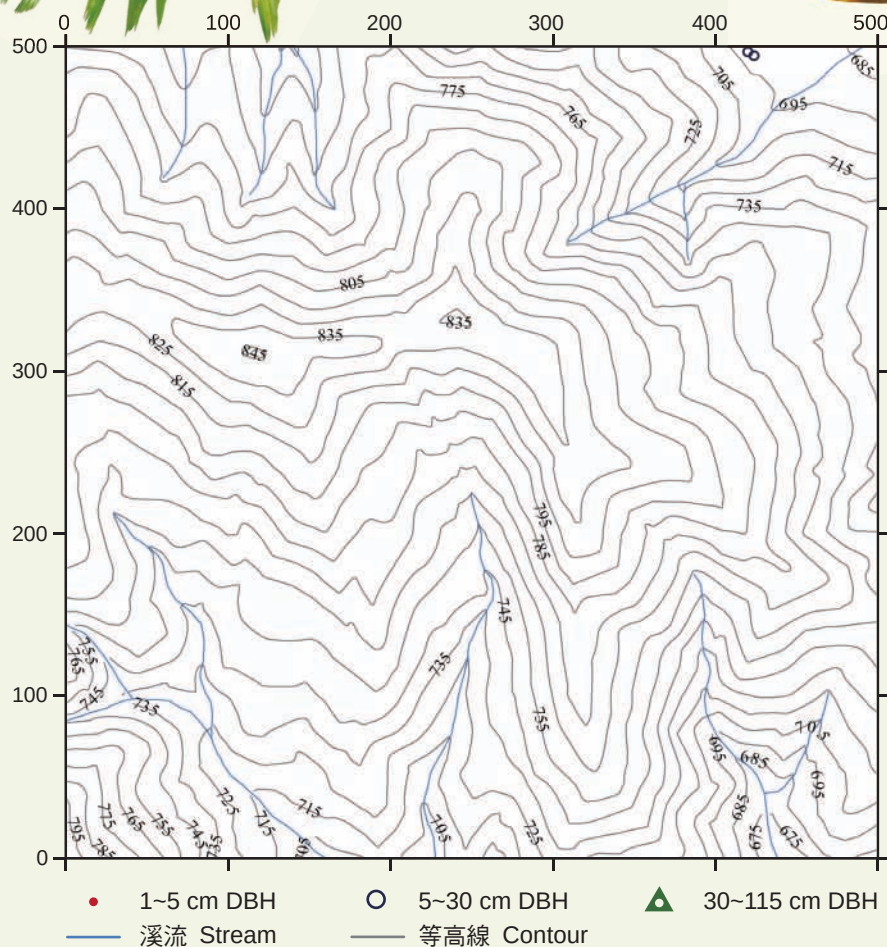
次冠層

描述

單幹筆直。羽狀複葉，叢生幹頂，脫落後在幹上形成明顯環痕，葉軸切面呈三角形，葉長100~200 cm，小葉長30~70 cm，披針形，葉鞘長約60 cm，圓筒形。雌雄同株，單性花；頂生，圓錐花序，花序多分枝；上部著生雄花，下部著生雌花；雄花長約6 mm，具雄蕊6枚及退化雌蕊3枚；雌花長1.2~1.5 cm，具退化雄蕊6枚。具香氣核果，橢圓形，長3.5~4 cm，幼時青白色，熟時黃色至橙黃色，基部具宿存萼片。



5 cm



Palmae=Arecaceae

Cultivated

Stratum

Sub-canopy

Description

Stem non-branched and straight. Leaves pinnately compound on top of stem, conspicuous ring-shaped scars left on stem after shedding, cross-section of leaf axes triangular, leaves 100~200 cm long, leaflets 30~70 cm long, lanceolate, leaf sheaths ca. 60 cm long, cylindrical. Monoecious; inflorescence a multi-branched panicle, terminal; staminate flowers on upper part, pistillate flowers on lower part; staminate flowers ca. 6 mm long, with 6 stamens and 3 pistillodes; pistillate flowers 1.2~1.5 cm long, with 6 staminodes. Drupe ellipsoid, fragrant, 3.5~4 cm long, greenish-white when young, yellow to orangish-yellow when mature, calyx persistent at base.



植株 Entire plant

陳意婷 Yi-Ting Chen/攝



花 Flowers

林奐慶 Huan-Ching Lin/攝



核果 Drupes

林奐慶 Huan-Ching Lin/攝

胸徑區間 (Diameter class) (cm)	個體數 (No. of individuals in the plot)	比例 (Proportion)
1~2	0	0.00
2~5	0	0.00
5~10	2	100.00
10~20	0	0.00
20~30	0	0.00
30~60	0	0.00
60~115	0	0.00

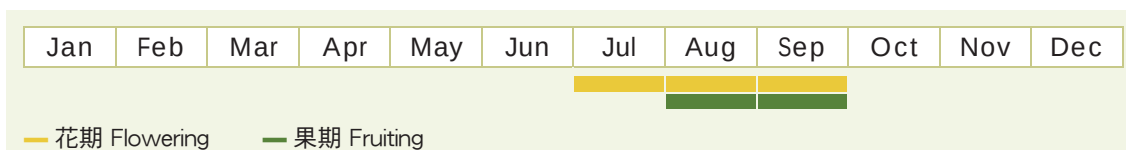
Total basal area= 110.92 cm²/25 ha

Number of trees/25 ha = 2



樹皮 Bark

林奐慶 Huan-Ching Lin/攝



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附錄 1：蓮華池森林動態樣區維管束植物名錄

Appendix 1. Checklist of the Vascular Plants in the Lienhuachih FDP

PTERIDOPHYTA 蕨類植物

Adiantaceae 鐵線蕨科

1. *Adiantum flabellulatum* L.
扇葉鐵線蕨

Aspidiaceae 三叉蕨科

2. *Hemigramma decurrens* (Hook.) Copel.
沙皮蕨
3. *Pleocnemia rufinervis* (Hayata) Nakai
網脈突齒蕨
4. *Tectaria phaeocaulis* (Rosenst.) C. Chr.
蛇脈三叉蕨
5. *Tectaria polymorpha* (Wall. ex Hook.) Copel.
南投三叉蕨
6. *Tectaria subtriphylla* (Hook. & Arn.) Copel.
var. *ebenosa* (Nakai) Nemoto
紫柄三叉蕨

Aspleniaceae 鐵角蕨科

7. *Asplenium apogamum* N. Murak. & Hatan.
無配鐵角蕨
8. *Asplenium cheilosorum* Kunze ex Mett.
薄葉孔雀鐵角蕨
9. *Asplenium excisum* C. Presl
剪葉鐵角蕨
10. *Asplenium neolaserpitiifolium* Tardieu & Ching
大黑柄鐵角蕨
11. *Asplenium nidus* L.
台灣山蘇花
12. *Asplenium normale* Don
生芽鐵角蕨
13. *Asplenium wrightii* Eaton ex Hook.
萊氏鐵角蕨

Athyriaceae 蹄蓋蕨科

14. *Athyriopsis japonicum* (Thunb.) Copel.
假蹄蓋蕨 (東洋蹄蓋蕨)

15. *Diplazium dilatatum* Blume

廣葉鋸齒雙蓋蕨

16. *Diplazium doederleinii* (Lueress.) Makino
德氏雙蓋蕨

17. *Diplazium donianum* (Mett.) Tard.-Blot
細柄雙蓋蕨

18. *Diplazium donianum* (Mett.) Tard.-Blot var.
aphanoneuron (Ohwi) Tagawa
隱脈細柄雙蓋蕨

19. *Diplazium mettenianum* (Miq.) C. Chr.
深山雙蓋蕨

20. *Diplazium subsinuatatum* (Wall. ex Hook. & Grev.) Tagawa
單葉雙蓋蕨

Blechnaceae 烏毛蕨科

21. *Blechnum orientale* L.
烏毛蕨

22. *Woodwardia japonica* (L.f.) Sm.
日本狗脊蕨

Cyatheaceae 桫欏科

23. *Cyathea lepifera* (J. Sm.) Copel.
筆筒樹

24. *Cyathea metteniana* (Hance) C. Chr. & Tardieu
台灣樹蕨

25. *Cyathea podophylla* (Hook.) Copel.
鬼桫欏

26. *Cyathea spinulosa* Wall. ex Hook.
台灣桫欏

Davalliaceae 骨碎補科

27. *Davallia formosana* Hayata
大葉骨碎補

28. *Humata chrysanthemifolia* Hayata
阿里山陰石蕨

29. *Humata griffithiana* (Hook.) C. Chr.
杯狀蓋陰石蕨 (杯狀蓋骨碎補)

Dennstaedtiaceae 碗蕨科

30. *Histiopteris incisa* (Thunb.) J. Sm.

栗蕨

31. *Microlepia calvescens* (Wall. ex Hook.) C. Presl

光葉鱗蓋蕨

32. *Microlepia hookeriana* (Wall. ex Hook.) C. Presl

虎克氏鱗蓋蕨

33. *Microlepia marginata* (Houtt.) C. Chr.

邊緣鱗蓋蕨

34. *Microlepia obtusiloba* Hayata

團羽鱗蓋蕨

35. *Microlepia speluncae* (L.) Moore

熱帶鱗蓋蕨

Dicksoniaceae 蚌殼蕨科

36. *Cibotium barometz* (L.) J. Sm.

金狗毛蕨

Dryopteridaceae 鱗毛蕨科

37. *Arachniodes pseudoaristata* (Tagawa) Ohwi

小葉複葉耳蕨

38. *Arachniodes rhomboides* (Wall. ex Mett.) Ching

斜方複葉耳蕨

39. *Dryopteris labordei* (H. Christ) C. Chr.

疏葉鱗毛蕨

40. *Dryopteris polita* Rosenst.

台東鱗毛蕨

41. *Dryopteris sordidipes* Tagawa

落鱗鱗毛蕨

42. *Dryopteris sparsa* (D. Don) Kuntze

長葉鱗毛蕨

Gleicheniaceae 裏白科

43. *Dicranopteris linearis* (Burm. f.) Underw.
var. *tetraphylla* (Rosenst.) Nakai

蔓芒萁

44. *Diplopterygium blotianum* (C. Chr.) Nakai

逆羽裏白

45. *Diplopterygium chinensis* (Rosenst.) DeVol

中華裏白

Hymenophyllaceae 膜蕨科

46. *Vandenboschia auriculata* (Blume) Copel.

瓶蕨

Lindsaeaceae 陵齒蕨科

47. *Lindsaea orbiculata* (Lam.) Mett. ex Kuhn

圓葉陵齒蕨

48. *Lindsaea orbiculata* (Lam.) Mett. ex Kuhn
var. *deltoidea* Y. C. Wu

三角葉陵齒蕨

49. *Sphenomeris chusana* (L.) Copel.

烏蕨

Lomariopsidaceae 羅蔓藤蕨科

50. *Bolbitis contaminans* (Wall.) Ching

細葉實蕨

51. *Bolbitis sculpturata* (Fee) Ching

紅柄實蕨

52. *Bolbitis subcordata* (Copel.) Ching

海南實蕨

53. *Egenolfia appendiculata* (Willd.) J. Sm.

刺蕨

54. *Lomariopsis spectabilis* (Kunze) Mett.

羅蔓藤蕨

Lycopodiaceae 石松科

55. *Lycopodium cernuum* L.

過山龍

Marattiaceae 觀音座蓮科

56. *Angiopteris lygodiiifolia* Rosenst.

觀音座蓮

57. *Archangiopteris somae* Hayata

台灣原始觀音座蓮

Oleandraceae 藤蕨科

58. *Arthropteris palisotii* (Desv.) Alston

藤蕨

59. *Nephrolepis auriculata* (L.) Trimen

腎蕨

附錄 1：蓮華池森林動態樣區維管束植物名錄（續）

Appendix 1. Checklist of the Vascular Plants in the Lienhuachih FDP (Continued)

Polypodiaceae 水龍骨科

60. *Colysis hemionitidea* (Wall.) C. Presl
斷線蕨
61. *Colysis pothifolia* (Buch.-Ham ex D. Don) C. Presl
大線蕨（橢圓線蕨）
62. *Colysis wrightii* (Hook.) Ching
萊氏線蕨
63. *Lepisorus thunbergianus* (Kaulf.) Ching
瓦葦
64. *Microsorium buergerianum* (Miq.) Ching
波氏星蕨
65. *Pseudodrynaria coronans* (Wall. ex Mett.) Ching
崖薑蕨
66. *Pyrrosia lingua* (Thunb.) Farw.
石葦

Psilotaceae 松葉蕨科

67. *Psilotum nudum* (L.) Beauv.
松葉蕨

Pteridaceae 鳳尾蕨科

68. *Pteris cadieri* H. Christ
二形鳳尾蕨
69. *Pteris grevilleana* Wall.
翅柄鳳尾蕨
70. *Pteris linearis* Poir.
三角脈鳳尾蕨
71. *Pteris longipes* D. Don
蓬萊鳳尾蕨
72. *Pteris multifida* Poir.
鳳尾蕨
73. *Pteris plumbea* Christ
廣東鳳尾蕨
74. *Pteris semipinnata* L.
半邊羽裂鳳尾蕨
75. *Pteris setulosocostulata* Hayata
有刺鳳尾蕨

Schizaeaceae 海金沙科

76. *Lygodium japonicum* (Thunb.) Sw.
海金沙

Selaginellaceae 卷柏科

77. *Selaginella delicatula* (Desv.) Alston
全緣卷柏
78. *Selaginella doederleinii* Hieron.
生根卷柏

Thelypteridaceae 金星蕨科

79. *Cyclosorus papilio* (Hope) Ching
薄葉梳毛蕨（縮羽毛蕨）
80. *Cyclosorus parasiticus* (L.) Farw.
密毛毛蕨
81. *Cyclosorus taiwanensis* (C. Chr.) H. Ito
台灣毛蕨（台灣圓腺蕨）
82. *Cyclosorus truncatus* (Poir.) Farw.
大葉毛蕨（稀毛蕨）
83. *Dictyocline griffithii* T. Moore
聖蕨
84. *Phegopteris decursive-pinnata* (H. C. Hall) Fee
翅軸假金星蕨（短柄卵果蕨）
85. *Pronephrium triphyllum* (Sw.) Holtt.
新月蕨

Vittariaceae 書帶蕨科

86. *Vittaria anguste-elongata* Hayata
姬書帶蕨
87. *Vittaria zosterifolia* Willd.
垂葉書帶蕨

GYMNOSPERMAE 裸子植物

Pinaceae 松科

88. *Pinus morrisonicola* Hayata
台灣五葉松

Podocarpaceae 羅漢松科

89. *Podocarpus nakaii* Hayata
桃實百日青

ANGIOSPERMAE 被子植物

DICOTYLEDON 雙子葉植物

Actinidiaceae 獼猴桃科

90. *Actinidia latifolia* (Gardn. & Champ.) Merr.
闊葉獼猴桃
91. *Saurauia tristyla* DC. var. *oldhamii* (Hemsl.)
Finet & Gagnep.
水冬瓜

Anacardiaceae 漆樹科

92. *Rhus javanica* L. var. *roxburghiana* (DC.)
Rehder & E. H. Wils.
羅氏鹽膚木
93. *Rhus succedanea* L.
木蠟樹 (山漆)

Annonaceae 番荔枝科

94. *Fissistigma glaucescens* (Hance) Merr.
裏白瓜馥木
95. *Fissistigma oldhamii* (Hemsl.) Merr.
毛瓜馥木

Apocynaceae 夾竹桃科

96. *Anodendron affine* (Hook. & Arn.) Druce
小錦蘭
97. *Ecdysanthera rosea* Hook. & Arn.
酸藤
98. *Ecdysanthera utilis* Hayata & Kawakami
乳藤
99. *Trachelospermum jasminoides* (Lindl.)
Lemaire
絡石

Aquifoliaceae 冬青科

100. *Ilex asprella* (Hook. & Arn.) Champ.
燈稱花
101. *Ilex ficoidea* Hemsl.
台灣糊櫨
102. *Ilex formosana* Maxim.
糊櫨

103. *Ilex goshiensis* Hayata

圓葉冬青

104. *Ilex lonicerifolia* Hayata

忍冬葉冬青

105. *Ilex micrococca* Maxim.

朱紅水木

106. *Ilex pubescens* Hook. & Arn.

密毛假黃楊

Araliaceae 五加科

107. *Schefflera octophylla* (Lour.) Harms

鵝掌柴 (江某)

108. *Schefflera odorata* (Blanco) Merr. & Rolfe

鵝掌藤

Asclepiadaceae 蘿藦科

109. *Heterostemma brownii* Hayata

布朗藤

110. *Marsdenia formosana* Masamune

台灣牛欄菜

Asteraceae 菊科

111. *Blumea aromatica* DC.

薄葉艾納香

112. *Blumea lanceolaria* (Roxb.) Druce

走馬胎

113. *Blumea riparia* (Blume) DC. var.

megacephala Randeria

大頭艾納香

114. *Crassocephalum crepidioides* (Benth.) S.
Moore

昭和草

115. *Mikania micrantha* Kunth

小花蔓澤蘭

116. *Vernonia gratiosa* Hance

過山龍

Begoniaceae 秋海棠科

117. *Begonia aptera* Blume

圓果秋海棠

附錄 1：蓮華池森林動態樣區維管束植物名錄（續）

Appendix 1. Checklist of the Vascular Plants in the Lienhuachih FDP (Continued)

118. *Begonia laciniata* Roxb.

巒大秋海棠

Bignoniaceae 紫葳科

119. *Radermachia sinica* (Hance) Hemsl.

山菜豆

Boraginaceae 紫草科

120. *Ehretia longiflora* Champ. ex Benth.

長花厚殼樹

Campanulaceae 桔梗科

121. *Lobelia nummularia* Lam.

普刺特草

122. *Lobelia zeylanica* L.

圓葉山梗菜

Capparaceae 山柑科

123. *Capparis sabinifolia* Hook. f. et Thoms.

毛瓣蝴蝶木

Caprifoliaceae 忍冬科

124. *Viburnum luzonicum* Rolfe

呂宋莢蒾

Celastraceae 衛矛科

125. *Euonymus laxiflorus* Champ. ex Benth.

大丁黃

126. *Euonymus tashiroi* Maxim.

菱葉衛矛

127. *Microtropis fokiensis* Dunn

福建賽衛矛

Chloranthaceae 金粟蘭科

128. *Sarcandra glabra* (Thunb.) Nakai

紅果金粟蘭（草珊瑚）

Convolvulaceae 旋花科

129. *Erycibe henryi* Prain

亨利氏伊立基藤

Cornaceae 山茱萸科

130. *Aucuba chinensis* Benth.

桃葉珊瑚

Cucurbitaceae 瓜科

131. *Gynostemma pentaphyllum* (Thunb.) Makino

絞股藍

132. *Zehneria japonica* (Thunb.) H. Y. Liu

馬兜兒

Daphniphyllaceae 虎皮楠科

133. *Daphniphyllum glaucescens* Blume subsp. *oldhamii* (Hemsl.) T. C. Huang var. *oldhamii* (Hemsl.) T. C. Huang

奧氏虎皮楠

Ebenaceae 柿樹科

134. *Diospyros eriantha* Champ. ex Benth.

軟毛柿

135. *Diospyros morrisiana* Hance

山紅柿

Elaeocarpaceae 杜英科

136. *Elaeocarpus japonicus* Siebold & Zucc.

薯豆

137. *Elaeocarpus sylvestris* (Lour.) Poir.

杜英

Ericaceae 杜鵑花科

138. *Rhododendron leptosantherum* Hayata

西施花

139. *Rhododendron mariesii* Hemsl. & E. H. Wils.

守城滿山紅

140. *Vaccinium randaiense* Hayata

巒大越橘

Euphorbiaceae 大戟科

141. *Aleurites montana* E. H. Wilson

廣東油桐

142. *Antidesma japonicum* Siebold & Zucc. var. *acutisepalum* (Hayata) Hurus.

南投五月茶

143. *Bischofia javanica* Blume

茄冬

144. *Bridelia tomentosa* Blume

- 土密樹
145. *Glochidion acuminatum* Müll. Arg.
裏白饅頭果
146. *Mallotus paniculatus* (Lam.) Müll. Arg.
白匏子
147. *Mallotus philippensis* (Lam.) Müll. Arg.
粗糠柴
148. *Sapium discolor* Müll. Arg.
白白
- Fagaceae 殼斗科
149. *Castanopsis cuspidata* (Thunb.) Schottky
var. *carlesii* (Hemsl.) Yamaz.
長尾尖葉櫟
150. *Castanopsis fargesii* Franch.
火燒柯
151. *Castanopsis kawakamii* Hayata
大葉苦櫟
152. *Cyclobalanopsis pachyloma* (Seemen)
Schottky
捲斗櫟
153. *Limlia uraiana* (Hayata) Masam. & Tomiya
烏來柯
154. *Lithocarpus amygdalifolius* (Skan ex Forbes
& Hemsl.) Hayata
杏葉石櫟
155. *Pasania hancei* (Benth.) Schottky var.
ternaticupula (Hayata) J. C. Liao
三斗石櫟
156. *Pasania harlandii* (Hance) Oerst.
短尾葉石櫟
157. *Pasania konishii* (Hayata) Schottky
油葉石櫟 (小西氏石櫟)
158. *Pasania nantoensis* (Hayata) Schottky
南投石櫟
159. *Pasania synbalanos* (Hance) Schottky
菱果石櫟
- Flacourtiaceae 大風子科

160. *Casearia membranacea* Hance
薄葉嘉賜木
161. *Homalium cochinchinensis* (Lour.) Druce
天料木
- Gesneriaceae 苦苣苔科
162. *Aeschynanthus acuminatus* Wall. ex A. DC.
長果藤 (芒毛苣苔)
163. *Hemiboea bicornuta* (Hayata) Ohwi
角桐草 (台灣半蒴苣苔)
164. *Rhynchotechum discolor* (Maxim.) B. L. Burt
同蕊草 (異色線柱苣苔)
- Hamamelidaceae 金縷梅科
165. *Distyliopsis dunii* (Hemsl.) Endress
尖葉水絲梨
166. *Eustigma oblongifolium* Gardn. & Champ.
秀柱花
- Illiciaceae 八角科
167. *Illicium arborescens* Hayata
台灣八角 (紅花八角)
- Juglandaceae 胡桃科
168. *Engelhardia roxburghiana* Wall.
黃杞
- Lamiaceae 唇形花科
169. *Paraphlomis javanica* (Blume) Prain
假糙蘇
- Lardizabalaceae 木通科
170. *Stauntonia obovata* Hemsl.
鈍藥野木瓜
171. *Stauntonia obovatifoliola* Hayata
石月
- Lauraceae 樟科
172. *Beilschmiedia erythrophloia* Hayata
瓊楠
173. *Cinnamomum camphora* (L.) J. Presl
樟樹

附錄 1：蓮華池森林動態樣區維管束植物名錄（續）

Appendix 1. Checklist of the Vascular Plants in the Lienhuachih FDP (Continued)

174. *Cinnamomum micranthum* (Hayata) Hayata
冇樟
175. *Cinnamomum osmophloeum* Kaneh.
土肉桂
176. *Cinnamomum subavenium* Miq.
香桂
177. *Cryptocarya chinensis* (Hance) Hemsl.
厚殼桂
178. *Lindera communis* Hemsl.
香葉樹
179. *Litsea acuminata* (Blume) Kurata
長葉木薑子
180. *Litsea cubeba* (Lour.) Pers.
山胡椒
181. *Litsea hypophaea* Hayata
黃肉樹（小梗木薑子）
182. *Litsea rotundifolia* Hemsl. var. *oblongifolia* (Nees) Allen
橢圓葉木薑子
183. *Machilus japonica* Siebold & Zucc. var. *kusanoi* (Hayata) J. C. Liao
大葉楠
184. *Machilus thunbergii* Siebold & Zucc.
豬腳楠（紅楠）
185. *Machilus zuihoensis* Hayata
香楠
186. *Neolitsea aciculata* (Blume) Koidz. var. *variabilissima* (Hayata) J. C. Liao
變葉新木薑子
187. *Neolitsea konishii* (Hayata) Kaneh. & Sasaki
五掌楠
188. *Phoebe formosana* (Hayata) Hayata
台灣雅楠
- Leguminosae 豆科
189. *Acacia caesia* (L.) Willd.
藤相思樹
190. *Archidendron lucidum* (Benth.) I. Nielsen
頷垂豆
191. *Bauhinia championii* (Benth.) Benth.
菊花木
192. *Dalbergia benthamii* Prain
藤黃檀
193. *Millettia nitida* Benth.
光葉魚藤
194. *Millettia reticulata* Benth.
老荊藤
195. *Mucuna macrocarpa* Wall.
血藤
196. *Ormosia formosana* Kaneh.
台灣紅豆樹
197. *Pueraria lobata* (Willd.) Ohwi subsp. *thomsonii* (Benth.) Ohashi & Tateishi
大葛藤
- Loranthaceae 桑寄生科
198. *Korthalsella japonica* (Thunb.) Engler
檜葉寄生
- Lythraceae 千屈菜科
199. *Lagerstroemia subcostata* Koehne
九芎
- Magnoliaceae 木蘭科
200. *Michelia compressa* (Maxim.) Sargent
烏心石
- Malpighiaceae 黃櫨花科
201. *Hiptage benghalensis* (L.) Kurz.
猿尾藤
- Melastomataceae 野牡丹科
202. *Blastus cochinchinensis* Lour.
柏拉木
203. *Melastoma candidum* D. Don
野牡丹
- Menispermaceae 防己科
204. *Pericampylus formosanus* Diels
蓬萊藤

205. *Stephania japonica* (Thunb.) Miers

千金藤

Moraceae 桑科

206. *Ficus ampelas* Burm. f.

菲律賓榕

207. *Ficus fistulosa* Reinw. ex Blume

豬母乳 (水同木)

208. *Ficus formosana* Maxim.

天仙果

209. *Ficus nervosa* Heyne ex Roth

九重吹 (九丁榕)

210. *Ficus sarmentosa* Buch.-Ham. ex J. E. Sm.
var. *nipponica* (Franch. & Sav.) Corner

珍珠蓮

211. *Ficus superba* (Miq.) Miq. var. *japonica* Miq.

雀榕 (鳥榕)

Myriaceae 楊梅科

212. *Myrica rubra* (Lour.) Siebold & Zucc.

楊梅

Myrsinaceae 紫金牛科

213. *Ardisia chinensis* Benth.

華紫金牛

214. *Ardisia cornudentata* Mez subsp.
morrisonensis (Hayata) Yuen P. Yang

玉山紫金牛 (雨傘仔)

215. *Ardisia quinqueгона* Blume

小葉樹杞

216. *Ardisia sieboldii* Miq.

樹杞

217. *Ardisia virens* Kurz

黑星紫金牛

218. *Embelia rudis* Hand.-Mazz.

野山椒

219. *Maesa perlaria* (Lour.) Merr. var.
formosana (Mez) Yuen P. Yang

台灣山桂花

Myrtaceae 桃金娘科

220. *Syzygium buxifolium* Hook. & Arn.

小葉赤楠

221. *Syzygium formosanum* (Hayata) Mori

台灣赤楠

Oleaceae 木犀科

222. *Osmanthus matsumuranus* Hayata

大葉木犀

Passifloraceae 西番蓮科

223. *Passiflora edulis* Sims.

西番蓮 (百香果)

224. *Passiflora suberosa* L.

三角葉西番蓮

Piperaceae 胡椒科

225. *Piper kadsura* (Choisy) Ohwi

風藤

226. *Piper sintenense* Hatusima

薄葉風藤

Polygonaceae 蓼科

227. *Polygonum chinense* L.

火炭母草

Proteaceae 山龍眼科

228. *Helicia cochinchinensis* Lour.

紅葉樹

229. *Helicia formosana* Hemsl.

山龍眼

230. *Helicia rengetiensis* Masam.

蓮華池山龍眼 (蓮花池山龍眼)

Ranunculaceae 毛茛科

231. *Clematis crassifolia* Benth.

厚葉鐵線蓮

Rhamnaceae 鼠李科

232. *Ventilago leiocarpa* Benth.

光果翼核木

Rosaceae 薔薇科

附錄 1：蓮華池森林動態樣區維管束植物名錄（續）

Appendix 1. Checklist of the Vascular Plants in the Lienhuachih FDP (Continued)

233. *Pourthiaea lucida* Decne.

台灣石楠

234. *Prunus mume* (Siebold) Siebold & Zucc.

梅

235. *Prunus phaeosticta* (Hance) Maxim.

墨點櫻桃（黑星櫻）

236. *Rhaphiolepis indica* (L.) Lindl. ex Ker var.
tashiroi Hayata ex Matsum. & Hayata

石斑木

237. *Rubus alceifolius* Poiret

羽萼懸鉤子

238. *Rubus pyrifolius* J. E. Sm.

梨葉懸鉤子

239. *Rubus rosifolius* J. E. Smith

刺莓

240. *Rubus trianthus* Focke

苦懸鉤子

Rubiaceae 茜草科

241. *Coptosapelta diffusa* (Champ. ex Benth.)
Steenis

瓢簞藤

242. *Gardenia jasminoides* Ellis

山黃梔

243. *Hedyotis hedyotideia* (DC.) Merr.

南投涼喉茶

244. *Lasianthus bunzanensis* Simizu

文山雞屎樹

245. *Lasianthus curtisii* King & Gamble

柯氏雞屎樹

246. *Lasianthus cyanocarpus* Jack

毛雞屎樹

247. *Lasianthus fordii* Hance

琉球雞屎樹

248. *Lasianthus microstachys* Hayata

薄葉雞屎樹

249. *Lasianthus obliquinervis* Merr.

雞屎樹

250. *Lasianthus wallichii* Wight

圓葉雞屎樹

251. *Litosanthes biflora* Blume

壺冠木

252. *Morinda umbellata* L.

羊角藤

253. *Mussaenda pubescens* W. T. Aiton

毛玉葉金花

254. *Ophiorrhiza pumila* Champ. ex Benth.

白花蛇根草

255. *Psychotria rubra* (Lour.) Poir.

九節木

256. *Psychotria serpens* L.

拎壁龍

257. *Randia cochinchinensis* (Lour.) Merr.

茜草樹

258. *Tricalysia dubia* (Lindl.) Ohwi

狗骨仔

259. *Uncaria hirsuta* Haviland

台灣鉤藤

260. *Wendlandia formosana* Cowan

水金京

261. *Wendlandia uvariifolia* Hance

水錦樹

Rutaceae 芸香科

262. *Glycosmis citrifolia* (Willd.) Lindl.

石苓舅

263. *Melicope pteleifolia* (Champ. ex Benth.) T.
Hartley

三腳龜

264. *Tetradium glabrifolium* (Champ. ex Benth.)
T. Hartley

賊仔樹

265. *Zanthoxylum ailanthoides* Siebold & Zucc.

食茱萸

266. *Zanthoxylum nitidum* (Roxb.) DC.

雙面刺

267. *Zanthoxylum scandens* Blume

藤花椒

Sabiaceae 清風藤科

268. *Meliosma rhoifolia* Maxim.

山豬肉

269. *Meliosma squamulata* Hance

綠樟

Sapindaceae 無患子科

270. *Sapindus mukorossii* Gaertn.

無患子

Scrophulariaceae 玄參科

271. *Torenia concolor* Lindley

倒地蜈蚣

Solanaceae 茄科

272. *Lycianthes biflora* (Lour.) Bitter

雙花龍葵

Staphyleaceae 省沽油科

273. *Turpinia formosana* Nakai

山香圓

Sterculiaceae 梧桐科

274. *Reevesia formosana* Sprague

台灣梭羅樹 (台灣梭羅木)

Styracaceae 安息香科

275. *Styrax formosana* Matsum.

烏皮九芎

276. *Styrax suberifolia* Hook. & Arn.

紅皮

Symplocaceae 灰木科

277. *Symplocos adinandrifolia* Hayata var. *theifolia* Hayata

茶葉灰木

278. *Symplocos glauca* (Thunb.) Koidz.

山羊耳

279. *Symplocos morrisonicola* Hayata

玉山灰木

280. *Symplocos setchuensis* Brand

四川灰木

281. *Symplocos theophrastifolia* Siebold & Zucc.

山豬肝

Theaceae 茶科

282. *Adinandra formosana* Hayata

台灣楊桐

283. *Camellia furfuracea* (Merr.) Cohen-Stuart

垢果山茶

284. *Camellia nokoensis* Hayata

能高山茶

285. *Camellia salicifolia* Champ.

柳葉山茶

286. *Eurya loquaiana* Dunn

細枝柃木

287. *Eurya regechiensis* Yamamoto

蓮華池柃木

288. *Gordonia axillaris* (Roxb.) Dietr.

大頭茶

289. *Pyrenaria shinkoensis* (Hayata) H. Keng

烏皮茶

290. *Schima superba* Gard. & Champ.

木荷

291. *Ternstroemia gymnanthera* (Wight & Arn.) Sprague

厚皮香

Ulmaceae 榆科

292. *Celtis formosana* Hayata

石朴

293. *Trema cannabina* Lour.

銳葉山黃麻

294. *Trema orientalis* (L.) Blume

山黃麻

Urticaceae 蕁麻科

295. *Boehmeria pilosiuscula* (Blume) Hassk.

華南芋麻

附錄 1：蓮華池森林動態樣區維管束植物名錄（續）

Appendix 1. Checklist of the Vascular Plants in the Lienhuachih FDP (Continued)

296. *Elatostema lineolatum* Wight var. *majus* Wedd.

冷清草

Verbenaceae 馬鞭草科

297. *Callicarpa formosana* Rolfe

杜虹花（台灣紫珠）

298. *Callicarpa kochiana* Makino

鬼紫珠

299. *Clerodendrum canescens* Wall. ex Walpers

白毛臭牡丹

300. *Clerodendrum cyrtophyllum* Turcz.

大青

301. *Clerodendrum trichotomum* Thunb.

海州常山

Vitaceae 葡萄科

302. *Ampelopsis cantoniensis* (Hook. & Arn.) Planch.

廣東山葡萄

303. *Cayratia japonica* (Thunb.) Gagnep.

虎葛（烏斂莓）

304. *Cissus pteroclada* Hayata

翼莖粉藤

305. *Tetrastigma dentatum* (Hayata) H. L. Li

三腳鼈草

306. *Tetrastigma umbellatum* (Hemsl.) Nakai

台灣崖爬藤

MONOCOTYLEDON 單子葉植物

Araceae 天南星科

307. *Alocasia odora* (Lodd.) Spach.

姑婆芋

308. *Colocasia formosana* Hayata

台灣青芋（山芋）

309. *Epipremnum pinnatum* (L.) Engl. ex Engl. & Kraus

鈴樹藤

310. *Pothos chinensis* (Raf.) Merr.

柚葉藤

Commelinaceae 鴨跖草科

311. *Amischotolype hispida* (Less. & A. Rich.) D. Y. Hong

穿鞘花

312. *Polia miranda* (H. Lév.) H. Hara

小杜若

313. *Zebrina pendula* Schnizl.

吊竹草

Cyperaceae 莎草科

314. *Carex cruciata* Wahl.

煙火藁

315. *Carex gracilispica* Hayata

細穗宿柱藁

316. *Carex hoozanensis* Hayata

鳳凰宿柱藁

317. *Carex rhynchachaenium* C. B. Clarke ex Merrill

初島氏宿柱藁

318. *Scleria terrestris* (L.) Fassett

陸生珍珠茅

Dioscoreaceae 薯蕷科

319. *Dioscorea japonica* Thunb.

日本薯蕷（薄葉野山藥）

320. *Dioscorea matsudae* Hayata

裏白葉薯榔

Hypoxidaceae 仙茅科

321. *Curculigo capitulata* (Lour.) Kuntze

船仔草

Orchidaceae 蘭科

322. *Anoetochilus formosanus* Hayata

台灣金線蓮

323. *Arachnis labrosa* (Lindl. & Paxt.) Rchb. f.

龍爪蘭

324. *Bulbophyllum affine* Lindl.

紋星蘭（高士佛豆蘭）

325. *Cephalantheropsis gracilis* (Lindl.) S. Y. Hu
綠花肖頭蕊蘭

326. *Chrysoglossum ornatum* Blume
黃唇蘭 (金蟬蘭)

327. *Cymbidium dayanum* Rchb. f.
鳳蘭

328. *Epipogium roseum* (D. Don) Lindl.
高士佛上鬚蘭 (泛亞上鬚蘭)

329. *Eria ovata* Lindl.
大腳筒蘭

330. *Erythroides blumei* (Lindl.) Schltr.
小唇蘭

331. *Gastrochilus japonicus* (Makino) Schltr.
黃松蘭

332. *Goodyera fumata* Thwaites
尾唇斑葉蘭

333. *Liparis nigra* Seidenf.
大花羊耳蒜

334. *Odontochilus brevistylus* Hook. f.
短柱齒唇蘭

335. *Zeuxine tenuifolia* Tuyama
毛鞘線柱蘭

Palmae 棕櫚科

336. *Areca catechu* L.
檳榔

337. *Arenga tremula* (Blanco) Becc.
山棕

338. *Calamus quiquetnerivius* Burret.
黃藤

Poaceae 禾本科

339. *Dendrocalamus latiflorus* Munro
麻竹

340. *Ichnanthus vicinus* (F. M. Bailey) Merr.
距花黍

341. *Lophatherum gracile* Brongn.
淡竹葉

342. *Miscanthus floridulus* (Labill.) Warb. ex
Schum. & Laut.

五節芒

343. *Oplismenus compositus* (L.) P. Beauv.
竹葉草

344. *Panicum sarmentosum* Roxb.
藤竹草

345. *Paspalum conjugatum* Bergius
兩耳草

346. *Setaria palmifolia* (J. König) Stapf
棕葉狗尾草

347. *Thysanolaena latifolia* (Roxb. ex Hornem.)
Honda
棕葉蘆

Smilacaceae 菝契科

348. *Heterosmilax japonica* Kunth
平柄菝契

349. *Smilax bracteata* C. Presl var. *verruculosa*
(Merr.) T. Koyama
糙莖菝契

350. *Smilax glabra* Wright
光滑菝契 (禹餘糧 · 光葉菝契)

351. *Smilax lanceifolia* Roxburgh
台灣菝契 (台灣土茯苓)

352. *Smilax luei* T. Koyama
呂氏菝契

353. *Smilax nantoensis* T. Koyama
南投菝契

Zingiberaceae 薑科

354. *Alpinia intermedia* Gagn.
山月桃

355. *Alpinia shimadae* Hayata var. *kawakamii*
(Hayata) J. J. Yang & J. C. Wang
川上氏月桃

356. *Zingiber kawagooii* Hayata
三奈

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Appendix 3. Index of Scientific Names

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<i>Syzygium formosanum</i>	197		
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<i>Tetradium glabrifolium</i>	245		
<i>Trema cannabina</i>	293		
<i>Trema orientalis</i>	295		
<i>Tricalysia dubia</i>	235		
<i>Turpinia formosana</i>	255		
<i>Vaccinium randaiense</i>	75		

Appendix 4. Wildlife Investigations

為了初步了解樣區中有哪些哺乳動物出現與分布位置。從2008年9月至2010年2月，共架設13台自動照相機（圖4.1）。其中7台監測6-8個月，另外6台監測1年以上，總計監測92871.82工作時，共拍攝1077張有效相片。哺乳動物有效照片820張，共6目10科13種，保育類5種（表4.1）；其餘有效照片為鳥類257張，共4目7科15種，保育類3種（表4.2）。

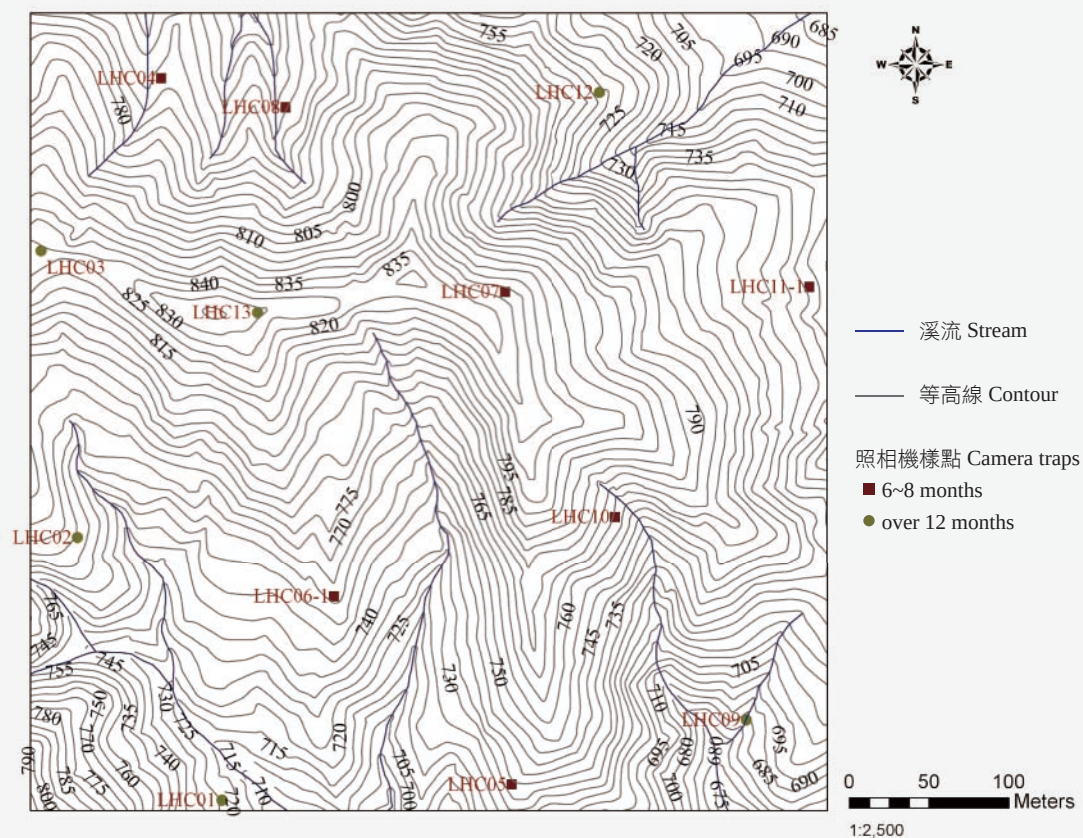
各物種在樣區的分布狀況，普遍分布的包括：鼬獾、白鼻心、台灣獼猴、赤腹松鼠和刺鼠。台灣野豬常出現於樣區西邊稜線的兩側，樣區東邊未曾拍攝過；山羌也常出現在西邊，但以西南邊坡和溪谷較常拍攝到，而靠近樣區東邊和東南方則未曾拍到；穿山甲在樣區中，幾乎都可拍攝到，但較常出現在東北地區平緩的邊坡；台灣野兔和石虎則是在樣區靠西邊的主要稜線上拍攝到，但不常出現。家犬則是常出現在西邊的主稜上，並且零星出現在北面邊坡；家貓只在東南方的一個樣點拍攝過一次。

另外，根據周邊住戶以及其他研究人員表示，在蓮華池區域裡，尚可能有食蟹獾、麝香貓、條紋松鼠和小鼯鼠存在，甚至有中心人員曾在這片闊葉森林中發現過水鹿的腳痕，因此顯示此一樣區是個物種豐富的地區。

In order to obtain a preliminary understanding of the mammalian appearance and distributions, we set up 13 far-infrared automatic cameras from September 2008 to February 2010 (Fig. 4.1). Among them, 7 cameras were monitored for 6~8 months and the other 6 cameras for more than 1 year. They were operated for 92,871.82 working hours and took 1077 effective pictures. There were 820 effective mammal pictures (Table 4.1: 6 orders, 10 families, 13 species, and 5 protected species), while other effective pictures are of birds (Table 4.2: 4 orders, 7 families, 15 species, and 3 protected species).

Formosan ferret-badgers, Formosan gem-faced civets, Formosan macaques, red-bellied tree squirrels, and spinous country-rats were common in all plots. Formosan wild boars were more common on the lateral slope of the western crest line but were never photographed in the east. Formosan Reeve's muntjacs were common in the west but more often photographed on the southwestern slope and valley. They were never photographed in the east or southeast. Chinese pangolins were photographed almost everywhere but more often on the northeastern gentle slope. Formosan hares and Chinese leopard cats were principally photographed on the western main crest line but were not common. Domestic dogs were common on the western main crest line and were accidental on the northern slope. Domestic cats were photographed only once in the southeastern plot.

In addition, according to nearby residents and other researchers, there might be crab-eating mongooses, Chinese lesser civets, Formosan striped squirrels, and Formosan hairy-footed flying squirrels in the Lienhuachih area. There are even footprints of Formosan sambars found in the nearby broadleaf forest, which shows that this plot area is rich in biodiversity.



附錄4：動物資源調查（續）

Appendix 4. Wildlife Investigations (Continued)

表 4.1 蓮華池森林動態樣區野生哺乳動物名錄

Table 4.1. Checklist of wild mammals photographed in the Lienhuachih FDP.

目 Order	科 Family	中文名 Chinese Name	英文名 English Name	學名 Scientific Name	特 ^a /稀 ^b 有性 Endemism ^a / Rarity ^b	保育 ^c 等級 Conservation Grade ^c
靈長目 Primates	獼猴科 Cercopithecidae	台灣獼猴	Formosan macaque	<i>Macaca cyclopis</i>	特/普 ES/G	III
食肉目 Carnivora	貂科 Family Mustelidae	鼬獾	Formosan ferret-badger	<i>Melogale moschata</i>	特亞/普 ESS/G	
	靈貓科 Viverridae	白鼻心	Formosan gem-faced civet	<i>Paguma larvata taivana</i>	特亞/普 ESS/G	III
	貓科 Felidae	石虎	Chinese leopard cat	<i>Prionailurus bengalensis</i>	稀 R	I
偶蹄目 Artiodactyla	豬科 Suidae	台灣野豬	Formosan wild boar	<i>Sus scrofa taivanus</i>	特亞/不普 ESS/NG	
	鹿科 Cervidae	山羌	Formosan Reeve's muntjac	<i>Muntiacus reevesi</i>	特亞/不普 ESS/NG	II
穿山甲目 Pholidota	鱗鯉科 Manidae	穿山甲	Chinese pangolin	<i>Manis pentadactyla</i>	特亞/不普 ESS/NG	II
兔形目 Lagomorpha	兔科 Leporidae	台灣野兔	Formosan hare	<i>Lepus sinensis</i>	特亞/稀 ESS/R	
啮齒目 Rodentia	鼠科 Muridae	刺鼠	Spinous country-rat	<i>Rattus coxinga</i>	特/普 ES/G	
	松鼠科 Sciuridae	大赤鼯鼠	Formosan giant flying squirrel	<i>Petaurista petaurista</i>	特亞 ESS	
	松鼠科 Sciuridae	赤腹松鼠	Red-bellied tree squirrel	<i>Callosciurus erythraeus</i>	普 G	

a 特有性

特：台灣特有種；
特亞：台灣特有亞種。

b 樣區稀有性

普：樣區普遍分布；
不普：樣區不普遍分布；
稀：樣區稀有種。

c 保育等級

I - 瀕臨絕種保育類野生動物；
II - 珍貴稀有保育類野生動物；
III - 其他應予保育類野生動物。

a Endemism

ES, Taiwan endemic species;
ESS, Taiwan endemic subspecies.

b Rarity

G, generally distributed in the sample plot;
NG, not commonly distributed in the sample plot;
R, Rare species.

c Conservation grade

I, Protected endangered wild animal;
II, Protected precious and rare wild animal;
III, Other protected wild animal

表 4.2 蓮華池森林動態樣區鳥類名錄

Table 4.2. Checklist of birds photographed in the Lienhuachih FDP.

目 Order	科 Family	中文名 Chinese Name	英文名 English Name	學名 Scientific Name	特 ^a /稀 ^b 有性 Endemism ^a / Rarity ^b	保育 ^c 等級 Conservation Grade ^c
鸛鷺目 Ciconiiformes	鷺科 Ardeidae	黑冠麻鷺	Malaysian Night heron	<i>Gorsachius melanolophus</i>	稀 R	
雞鶩目 Galliformes	雉科 Phasianidae	藍腹鵲	Swinhoe's Pheasant	<i>Lophura swinhoii</i>	特/稀 ES/R	II
		竹雞	Bamboo Partridge	<i>Bambusicola thoracica</i>	特亞/普 ESS/G	
		台灣山鵲	White-throated Hill Partridge	<i>Arborophila crudigularis</i>	特/不普 ES/NG	III
鳩形目 Columbiformes	鳩鵲科 Columbidae	金背鳩	Oriental Turtle Dove	<i>Streptopelia orientalis</i>	特亞/普 ESS/G	
		翠翼鳩	Emerald Dove	<i>Chalcophaps indica</i>	不普 NG	
燕雀目 Passeriformes	鶇科 Turdidae	台灣紫嘯鶇	Taiwan Whistling Thrush	<i>Myophonus insularis</i>	特/普 ES/G	
		白腹鶇	Pale Thrush	<i>Turdus pallidus</i>	普 G	
		虎鶇	White's Thrush	<i>Zoothera aurea</i>	不普 NG	
	鶇科 Muscicapidae	藍磯鶇	Blue Rock Thrush	<i>Monticola solitarius</i>	普 G	
		白尾鶇	White-tailed Blue Robin	<i>Cinclidium leucura</i>	特亞/普 ESS/G	III
	鶇亞科 Muscicapinae	黑枕藍鶇	Black-naped Monarch	<i>Hypothymis azurea</i>	特亞/普 ESS/G	
		頭屋線	Dusky Fulvetta	<i>Alcippe brunnea</i>	特亞/普 ESS/G	
	畫眉科 Timaliidae	繡眼畫眉	Grey-cheeked Fulvetta	<i>Alcippe morrisonia</i>	普 G	
	鴉科 Corvidae	灰樹鵲	Gray Treepie	<i>Dendrocitta formosae</i>	特亞/普 ESS/G	

a 特有性

特：台灣特有種；

特亞：台灣特有亞種。

b 樣區稀有性

普：樣區普遍分布；

不普：樣區不普遍分布；

稀：樣區稀有種。

c 保育等級

I -瀕臨絕種保育類野生動物；

II -珍貴稀有保育類野生動物；

III -其他應予保育類野生動物。

a Endemism

ES, Taiwan endemic species;

ESS, Taiwan endemic subspecies.

b Rarity

G, generally distributed in the sample plot;

NG, not commonly distributed in the sample plot;

R, Rare species.

c Conservation grade

I, Protected endangered wild animal;

II, Protected precious and rare wild animal;

III, Other protected wild animal

附錄4：動物資源調查（續）

Appendix 4. Wildlife Investigations (Continued)



大赤鼯鼠
Formosan giant flying squirrel (*Petaurista petaurista*)



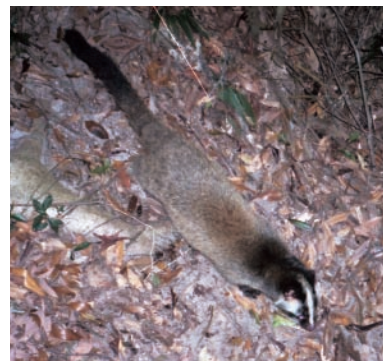
山羌，圖片右是幼羌，左邊個體是母山羌
Formosan barking deer (*Muntiacus reevesi*)
The mother is on the left, and the young is on the right



台灣野豬（成體 adult）
Formosan wild boar (*Sus scrofa taiwanus*)



台灣野豬（幼體 young）
Formosan wild boar (*Sus scrofa taiwanus*)



白鼻心
Gem-faced civet (*Paguma larvata taiwana*)



鼬獾
Formosan ferret-badger (*Melogale moschata*)



石虎
Chinese leopard cat (*Prionailurus bengalensis*)



赤腹松鼠
Red-bellied tree squirrel (*Callosciurus erythraeus*)



穿山甲
Chinese pangolin (*Manis pentadactyla*)



台灣野兔
Formosan hare (*Lepus sinensis*)



台灣獼猴
Formosan macaques (*Macaca cyclopis*)



藍腹鵓（雄性 male）
Swinhoe's pheasant (*Lophura swinhoii*)



藍腹鵓（雌性 female）
Swinhoe's pheasant (*Lophura swinhoii*)

Appendix 5. Soil Survey

土壤採樣與分析方法

將25 ha蓮華池樣區分為64個次樣方進行土壤採樣。其中編號10號以及28到31號的次樣方因崩塌而未採樣（圖5.1）。每個次樣方長、寬各60 m。在每個次樣方中我們採四個不同位置的表土進行混合，做為此次樣方的代表性土壤樣品。土壤分為0-5 cm及5-15 cm進行採樣。土樣在進行約兩週的風乾後，以木槌敲打研磨並通過10 mesh的篩網（使樣本顆粒直徑小於2 mm），之後進行pH、電導度、土壤總有機碳含量、有效氮、可礦化氮、有效磷、有效鉀、可交換性鉀、鈉、鈣、鎂之分析。

土壤pH值分別在土加水（重量比 1:1）以及土加1 M KCl溶液（重量比 1:2.5）的情況下，以pH儀測定（McLean, 1982）。以電導度計（Basic DCM-3 type）測定土壤飽和抽出液之電導度（Rhoades, 1996）。總有機碳含量以Walkley-Black 溼式氧化法測定（Walkley and Black, 1934）。有效氮為4 M KCl溶液萃取出之氮含量，以凱式氮蒸餾裝置測定（Keeney, 1982）。可礦化氮為將土壤在40°C厭氧條件下孵育一週後以4 M KCl溶液萃取測定之氮含量減去未孵育前之有效氮而得。有效磷以Bray No.1法萃取並在波長882 nm的條件下以光譜儀測定（Olsen and Sommer, 1982）。有效鉀以Mehlich法萃取（Helmke and Spark, 1996）並以火焰原子吸收光譜儀測定。可交換性鉀、鈉、鈣、鎂以1 N醋酸鉍萃取後以火焰原子吸收光譜儀測定（Hitachi 180-30 type）。

Soil sampling method

The 25-ha plot at Lienhuachih was divided into 64 subplots for soil sampling. Plots 10 and 28~31 were not sampled because of a debris landscape (Fig. 5.1). The dimensions of each subplot were 60 × 60 m. Within each subplot, we collected 4 soil surface samples which were mixed together to form 1 representative soil sample for each subplot. Soil depth was divided into 2 levels of surface to 5 cm and 5~15 cm depth. The soil samples were air-dried for about 2 wks ground up with a wooden to hammer, and passed through a 10-mesh sieve (soil particle size < 2 mm) for the determination of soil pH, electrical conductivity (EC), total soil organic carbon content (OC), available nitrogen, mineralizable nitrogen, available phosphorus, available potassium, and exchangeable K, Na, Ca, and Mg.

Soil pH was measured with a pH meter by adding distilled water (soil/water = 1:1) and 1 M KCl (soil/KCl = 1:2.5) (McLean, 1982). EC was determined with a EC meter (Basic DCM-3 type) using a saturated extraction soil solution (Rhoades 1996). OC was measured by the Walkley-Black wet digestion method (Walkley and Black 1934). Available nitrogen was extracted by 4 M KCl and measured with a Kjeldahl distillation apparatus (Keeney 1982). Mineralizable nitrogen was determined by subtracting Available nitrogen from 4 M-KCl extractable ammonium-N contained in the soil after 1 week in an incubation at 40°C in anaerobic condition. Available phosphorus was extracted by the Bray No.1 method and determined by a spectrophotometer at 882 nm (Olsen and Sommer 1982). Available potassium was extracted by the Mehlich method (Helmke and Spark 1996) and determined by flame atomic absorption. Exchangeable K, Na, Ca, and Mg were extracted by 1 N ammonium acetate and determined by flame atomic absorption spectrometry (Hitachi 180-30 type).

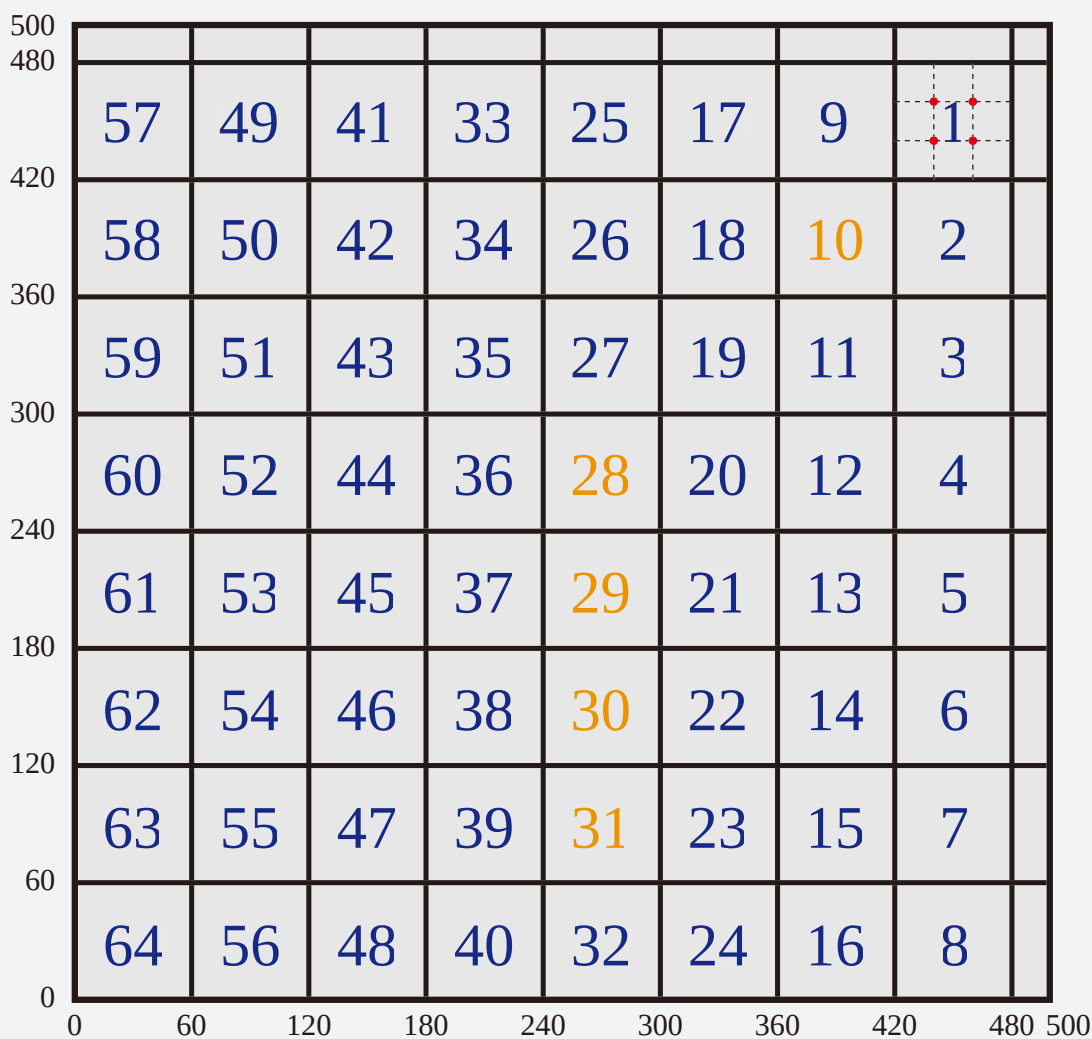


圖 5.1 土壤採樣位置圖：25 ha樣區共64個次樣方(60 m×60 m)，編號如圖所示，編號：10、28、29、30、31因為崩塌地，未進行取樣，每個次樣方共取樣4個位置（紅點），混合後作為該次樣方之土樣取樣。

Fig. 5.1. Soil Sampling map: The identify number of soil sampling subplots (60 × 60 m) located at the Lienhuachih 25-ha dynamics plot. Numbers 10 and 28~31 were not sampled because of the debris landscape. We collected samples at the red points and mixed 4 composite soil samples.

Appendix 5. Soil Survey (Continued)

結果

分析結果顯示大多數地區的表土（0~15cm）pH值為3~4之間，屬於極酸性的土壤（extremely acid）。而使土壤酸化的原因部分來自於降雨所造成的淋洗作用，使得鹽基離子流失。觀察樣區中不同地形位置的土壤性質，可發現受雨水淋洗最為強烈的稜線區其可交換性鹽基（鉀、鈣、鎂）之含量最低，pH值亦最低。而這些可交換性的鹽基離子被淋洗後隨水分進行再分布作用，在地形的影響下隨重力方向往溪溝移動，導致溪溝有最多的鹽類累積，也使溪溝土壤有較高的pH值。坡地的鹽離子含量及pH則介於稜線與溪溝之間。另外發現有坡度越陡pH越低的現象，顯示在越陡的地區土壤所受的淋洗可能越嚴重。

在有機碳的分布上，0~5 cm表土的有機碳含量在2~15%，5~15cm則在1~11%。平均來說，稜線上的土壤有機碳含量較高，而溪溝附近則較低。觀察現地可發現由於在溪溝處表土的沖蝕較強烈，因而覆蓋的有機物大多少於擾動較少的稜線；但在海拔較低或較平緩處因沖積物累積的關係，其有機碳含量可能高於一些稜線區域。由於整個森林生態系植被所需的養分如有效性氮、磷、鉀以及鹽基等有很大一部分必須靠枯落物的分解來提供，因此有機物的分布亦是判斷養分分布的重要一環，特別是在氮和磷的提供上。在試驗區的土壤有機碳與土壤中的有效性氮（KCl extractable NH_4^+ ）、可礦化性氮、有效磷（Bray No. 1 P）、有效鉀（Mehlich K）、可交換性鉀都呈顯著的線性正相關，顯示土壤中有機碳含量越多的地區通常有較多上述的養

Results

We took 59 samples with a grid (60 × 60 m) sampling method, and the 12 soil chemical properties at 0~15 cm in depth were analyzed and are shown in Table 5.1 Most soil pH values ranged from 3~4, and were extremely acid soils. Part of the reason for the soil acidification was the leaching of base-forming cations. By examining different landscape positions in the plot, we found that the soil located on the ridges (which usually had the strongest leaching effect) had the lowest pH. The leached cations (K^+ , Na^+ , Ca^{2+}) and Mg^{2+} were redistributed by rain water and concentrated in gullies, where the highest soil pH values were recorded. Slopes had pH value between those of the ridges and gullies. When the slope was steeper, the pH decreased, which indicated that steeper sites received more-intense leaching effects.

Soil at 0~5 cm in depth had 2~15% and 5~15 cm soil had 1~11% organic carbon contents. Organic carbon was higher on the ridge on average, and lower in the gullies. In situ, we could see that gullies experienced more-serious soil erosion than other landscape positions, and they had less organic matter coverage. Conversely, most ridge locations had light disturbance and were usually covered with litter and fine plant roots. However, because of the processes of transportation and deposition, some gullies with gentle slopes would concentrated more organic carbon than in other places. For plants, abundant nutrient elements(nitrogen, phosphorous, potassium, etc.) were supplied from the degradation of litter and other debris, which also affected the soil physical properties and the growth of soil organisms. So it is important to know the spatial distribution of organic matter. After analysis, we found that KCl-extractable NH_4^+ , mineralizable N, Bray No. 1 P, and Mehlich K had significant linear correlations with organic carbon in this plot. KCl-extractable NH_4^+ , mineralizable N, and Bray No. 1 P exhibited no significant differences among the ridge, slope, and gully, but Mehlich K was higher in gullies on average.

分。在本試驗區中，並未發現稜線、坡地、溪溝的有效氮及有效磷有顯著的差異，但是土壤中有效鉀的分布則在溪溝附近平均濃度較高。

表 5.1 不同深度之土壤性質

Table 5.1. Soil properties at different depths of soil.

Soil property	Soil depth			
	n	0~5 cm mean $\pm$ SE	n	5~15 cm mean $\pm$ SE
pH (H ₂ O)	59	3.7 $\pm$ 0.05	59	3.8 $\pm$ 0.05
pH (KCl)	59	3.0 $\pm$ 0.05	59	3.2 $\pm$ 0.04
EC (dS m ⁻¹)	59	0.41 $\pm$ 0.02	59	0.29 $\pm$ 0.01
OC (%)	59	6.70 $\pm$ 0.35	59	3.32 $\pm$ 0.23
Available Nutrient (mg/kg)				
Nitrogen (N)	59	29.4 $\pm$ 2.44	59	17.8 $\pm$ 1.35
Mineralizable nitrogen (MN)	59	77.0 $\pm$ 4.62	59	47.9 $\pm$ 3.15
Phosphorus (P)	59	9.59 $\pm$ 0.53	59	4.71 $\pm$ 0.37
Potassium (K)	59	97.1 $\pm$ 4.60	59	58.8 $\pm$ 3.37
Exchangeable Nutrient (cmol(+)/kg)				
Potassium (K)	59	0.33 $\pm$ 0.01	59	0.22 $\pm$ 0.01
Sodium (Na)	59	0.01 $\pm$ 0.00	59	0.005 $\pm$ 0.00
Calcium (Ca)	59	0.48 $\pm$ 0.13	59	0.11 $\pm$ 0.09
Magnesium (Mg)	59	0.61 $\pm$ 0.10	59	0.27 $\pm$ 0.06

EC, electron conductivity, 導電度；

OC, organic carbon, 有機碳；

Available Nutrient, 有效性養分；

Exchangeable Nutrient, 可交換性養分。

附錄5：土壤調查（續）

Appendix 5. Soil Survey (Continued)

表 5.2 蓮華池森林動態樣區各採樣點0~5 cm 之土壤性質

Table 5.2. Soil properties of the surface to 5 cm depth in the Lienhuachih FDP.

					Available Nutrient				Exchangeable Nutrient			
Subplot	pH	pH	E.C.	O.C.	N	MN	P	K	K	Na	Ca	Mg
No.	(water)	(KC1)	dS/m	%	mg/kg				cmol(+)/kg soil			
1	3.8	3.3	0.14	2.0	7.8	45	4.4	55	0.22	0.003	0.16	0.39
2	3.5	3.1	0.28	3.0	12	50	5.3	39	0.16	0.001	0.01	0.2
3	3.7	3.4	0.18	3.2	9.0	70	8.8	55	0.23	0.003	0.18	0.39
4	3.5	2.7	0.39	4.7	15	38	8.3	53	0.22	0.006	0.15	0.31
5	3.9	2.9	0.27	3.3	10	34	7.3	37	0.2	0.004	0.14	0.23
6	3.6	2.7	0.30	5.0	13	46	6.3	34	0.21	0.003	0.08	0.18
7	3.8	2.9	0.25	8.7	33	80	10	41	0.44	0.006	0.48	0.66
8	4.3	3.2	0.22	3.8	12	34	4.3	57	0.27	0.009	0.39	0.32
9	3.8	3.3	0.22	3.5	6.9	55	5.3	75	0.24	0.006	0.63	0.59
11	3.2	2.9	0.35	5.1	9.4	70	5.1	66	0.25	0.004	0.01	0.24
12	3.8	2.7	0.38	6.1	21	51	6.8	43	0.2	0.009	0.33	0.39
13	3.7	2.7	0.27	4.4	13	38	5.6	44	0.22	0.004	0.24	0.35
14	3.9	3.0	0.25	4.4	16	54	15	86	0.4	0.007	0.37	0.59
15	4.1	3.1	0.37	4.9	21	69	15	102	0.42	0.006	0.55	1.22
16	4.1	3.0	0.19	4.4	14	42	6.4	49	0.28	0.003	0.47	0.61
17	3.2	2.8	0.23	5.7	13	51	6.9	52	0.23	0.003	0.26	0.32
18	3.6	3.1	0.26	4.6	12	62	10	96	0.32	0.002	0.75	0.79
19	3.2	2.8	0.40	11	24	143	14	87	0.31	0.009	0.16	0.65
20	3.2	2.9	0.33	7.0	10	77	8.8	66	0.27	0.008	0.01	0.34
21	3.3	2.5	0.35	7.9	24	54	12	59	0.36	0.007	0.30	0.41
22	3.7	2.7	0.30	7.3	21	65	8.4	65	0.26	0.005	0.22	0.32
23	3.8	2.8	0.28	6.7	18	67	8.3	73	0.25	0.006	0.45	0.4
24	3.6	2.5	0.24	15	93	85	19	97	0.32	0.005	0.91	0.65
25	3.5	2.8	0.52	13	62	125	14	100	0.28	0.02	0.28	0.64
26	3.3	2.9	0.50	2.8	44	66	7.3	92	0.28	0.008	0.25	0.35
27	3.2	2.4	0.35	10	27	83	17	111	0.37	0.009	0.25	0.62
32	3.6	3.1	0.42	8.1	42	86	13	123	0.38	0.009	0.77	0.58
33	3.5	2.9	0.52	10	57	116	15	108	0.26	0.017	0.21	0.46
34	3.6	3.2	0.46	6.8	32	79	9.1	75	0.23	0.015	0.2	0.29
35	3.4	2.8	0.48	9.5	43	103	12	93	0.31	0.015	0.25	0.5
36	3.4	2.8	0.58	8.0	44	122	16	130	0.4	0.007	0.77	0.7
37	3.4	2.9	0.57	9.5	43	117	16	125	0.43	0.009	18	1.1

表 5.2 蓮華池森林動態樣區各採樣點0~5 cm 之土壤性質 (續)

Table 5.2. Soil properties of the surface to 5 cm depth in the Lienhuachih FDP. (Continued)

					Available Nutrient				Exchangeable Nutrient			
Subplot	pH	pH	EC	O.C.	N	MN	P	K	K	Na	Ca	Mg
No.	(water)	(KC1)	dS/m	%	mg/kg				cmol(+)/kg soil			
38	3.4	2.8	0.56	8.7	60	99	14	115	0.33	0.008	1.2	0.53
39	3.6	3.0	0.58	8.0	34	130	16	144	0.36	0.01	1.7	0.91
40	3.6	3.0	0.46	6.3	47	91	13	93	0.26	0.034	1.2	1.0
41	4.0	3.4	0.41	4.6	34	67	6.7	95	0.3	0.042	1.8	0.85
42	3.6	3.2	0.50	6.9	43	71	10	107	0.36	0.032	1.0	0.60
43	3.2	2.6	0.62	10	47	69	18	109	0.35	0.042	0.4	0.63
44	3.4	2.6	0.55	12	84	101	15	134	0.44	0.038	1.2	1.06
45	3.3	2.8	0.48	9.1	34	62	9.5	109	0.45	0.034	0.3	0.31
46	3.7	3.1	0.42	6.7	46	77	6.6	102	0.37	0.037	1.2	0.93
47	4.1	3.5	0.44	4.9	29	97	8.9	116	0.38	0.036	2.1	0.92
48	4.6	3.8	0.35	3.6	24	118	7.2	114	0.33	0.029	2.7	1.87
49	4.0	3.4	0.98	8.3	61	134	13	177	0.58	0.039	3.5	1.61
50	3.8	3.3	0.52	7.6	40	92	10	131	0.48	0.041	2.0	1.22
51	3.5	3.0	0.44	7.5	38	61	7.5	84	0.32	0.034	0.3	0.56
52	3.6	3.0	0.24	7.0	38	59	11	115	0.4	0.036	0.3	0.69
53	3.7	3.2	0.62	7.7	45	89	12	138	0.47	0.033	2.7	1.44
54	4.3	3.6	0.54	4.9	29	93	9.6	120	0.35	0.029	3.2	2.75
55	4.4	3.7	0.24	4.2	28	138	8.5	118	0.37	0.034	2.3	1.44
56	4.7	3.8	0.26	3.0	13	116	7.1	138	0.45	0.029	3.0	1.97
57	3.7	3.1	0.68	8.3	47	94	12	141	0.49	0.035	2.6	1.66
58	3.8	3.3	0.61	6.5	23	109	7.1	150	0.52	0.038	2.6	1.53
59	3.8	3.2	0.32	5.6	42	52	6.7	89	0.27	0.031	0.3	0.53
60	4.8	4.1	0.54	7.2	53	240	12	167	0.57	0.036	4.2	4.85
61	4.0	3.6	0.60	3.8	19	62	13	103	0.35	0.03	1.5	0.61
62	3.9	3.5	0.79	6.4	32	115	18	142	0.41	0.033	1.9	0.85
63	3.5	2.7	0.58	11	46	114	20	148	0.51	0.049	1.0	1.18
64	3.9	3.5	0.46	3.3	12	57	7.5	75	0.25	0.014	0.9	0.56

附錄5：土壤調查（續）

Appendix 5. Soil Survey (Continued)

表 5.3 蓮華池森林動態樣區各採樣點5~15 cm 之土壤性質

Table 5.3. Soil properties of the 5~15 cm depth in the Lienhuachih FDP.

					Available Nutrient				Exchangeable Nutrient			
Subplot	pH	pH	E.C.	O.C.	N	MN	P	K	K	Na	Ca	Mg
No.	(water)	(KC1)	dS/m	%	mg/kg				cmol(+)/kg soil			
1	3.8	3.4	0.13	2.2	7.2	78	2.6	35	0.18	0.004	0.05	0.28
2	3.4	3.0	0.21	3.4	6.1	44	3.4	33	0.15	0.001	0.01	0.20
3	3.6	3.5	0.19	2.5	7.9	64	6.3	41	0.21	0.005	0.07	0.27
4	3.7	2.9	0.30	2.7	10	30	8.2	27	0.16	0.004	0.03	0.16
5	4.0	3.2	0.28	1.6	5.7	19	5.9	25	0.16	0.005	0.07	0.17
6	3.9	2.9	0.20	1.8	8.4	21	2.7	22	0.15	0.005	0.01	0.10
7	4.0	3.3	0.16	2.9	9.1	36	3.4	114	0.22	0.002	0.10	0.17
8	4.3	3.3	0.16	2.4	12	31	3.3	42	0.22	0.005	0.25	0.20
9	3.8	3.4	0.20	3.1	6.3	51	3.5	53	0.19	0.001	0.40	0.39
11	3.4	3.3	0.24	3.1	5.6	49	3.9	41	0.20	0.001	0.01	0.12
12	4.1	2.9	0.21	1.9	12	22	2.6	23	0.14	0.001	0.04	0.14
13	4.0	3.1	0.19	1.1	7.8	15	2.7	19	0.14	0.004	0.04	0.15
14	3.9	3.1	0.24	2.2	8.4	30	8.7	56	0.29	0.002	0.11	0.24
15	4.2	3.2	0.25	2.9	10	32	13	52	0.29	0.001	0.47	0.33
16	4.1	3.1	0.19	3.4	14	52	7.0	55	0.24	0.003	0.26	0.34
17	3.3	3.1	0.24	3.1	5.8	44	4.6	37	0.18	0.002	0.05	0.16
18	3.4	3.1	0.32	6.4	14	77	11	85	0.30	0.004	0.85	0.57
19	3.1	2.9	0.40	6.9	13	87	7.4	51	0.18	0.002	0.00	0.36
20	3.3	3.1	0.30	4.7	9.5	64	5.2	50	0.22	0.002	0.01	0.22
21	3.6	2.8	0.31	5.4	13	34	5.2	40	0.21	0.003	0.03	0.25
22	3.8	3.0	0.20	3.0	9.9	27	3.2	32	0.16	0.001	0.02	0.11
23	3.9	2.9	0.18	2.3	9.0	24	2.7	27	0.11	0.002	0.12	0.17
24	3.3	2.5	0.36	11.5	23	47	8.6	59	0.24	0.011	0.07	0.25
25	3.7	3.2	0.31	3.7	30	45	3.7	35	0.12	0.002	0.01	0.11
26	3.7	3.1	0.31	3.4	26	48	4.7	59	0.20	0.003	0.06	0.17
27	3.2	2.8	0.30	4.3	9.9	34	5.5	43	0.18	0.003	0.01	0.16
32	3.5	3.1	0.32	6.0	43	58	8.6	83	0.25	0.011	0.06	0.27
33	3.6	3.2	0.35	3.8	27	48	4.2	45	0.15	0.003	0.13	0.12
34	3.4	2.9	0.29	3.0	18	36	2.6	39	0.14	0.003	0.02	0.07
35	3.4	2.9	0.40	5.3	25	42	4.9	48	0.15	0.008	0.02	0.14
36	3.5	3.0	0.37	5.2	26	62	7.8	73	0.26	0.005	0.09	0.24
37	3.4	3.0	0.41	5.8	25	59	12	75	0.27	0.003	0.30	0.43

表 5.3 蓮華池森林動態樣區各採樣點5~15 cm 之土壤性質（續）

Table 5.3. Soil properties of the 5~15 cm depth in the Lienhuachih FDP. (Continued)

					Available Nutrient				Exchangeable Nutrient			
Subplot	pH	pH	EC	O.C.	N	MN	P	K	K	Na	Ca	Mg
No.	(water)	(KC1)	dS/m	%	mg/kg				cmol(+)/kg soil			
38	3.4	2.9	0.40	6.1	30	80	10	71	0.24	0.008	0.23	0.27
39	3.6	3.1	0.45	5.8	30	91	11	99	0.25	0.005	0.70	0.49
40	3.7	3.1	0.29	4.6	24	63	8.2	59	0.19	0.025	0.32	0.46
41	4.3	3.6	0.23	2.3	30	39	2.5	59	0.18	0.037	0.78	0.48
42	3.8	3.4	0.31	4.0	32	37	3.3	73	0.24	0.025	0.21	0.29
43	3.4	2.8	0.42	6.0	29	48	8.0	65	0.21	0.044	0.14	0.33
44	3.3	2.7	0.36	6.8	31	38	5.5	71	0.26	0.033	0.11	0.32
45	3.5	3.1	0.32	4.2	22	106	4.3	67	0.44	0.030	0.04	0.18
46	3.9	3.4	0.23	4.1	32	40	3.7	71	0.26	0.034	0.26	0.45
47	4.1	3.6	0.26	3.0	32	55	3.5	77	0.28	0.027	0.80	0.32
48	4.6	3.8	0.24	2.7	25	106	4.5	89	0.28	0.033	2.13	1.57
49	4.0	3.5	0.41	3.3	30	54	5.0	100	0.31	0.029	1.46	0.56
50	4.0	3.5	0.24	3.3	43	60	2.9	86	0.3	0.028	0.35	0.39
51	3.7	3.3	0.24	3.6	17	19	2.5	42	0.18	0.026	0.01	0.12
52	3.8	3.3	0.24	3.0	18	11	3.7	61	0.23	0.028	0.04	0.16
53	3.8	3.4	0.35	3.6	16	47	7.9	84	0.3	0.027	0.79	0.48
54	4.2	3.6	0.25	2.8	17	58	3.1	78	0.27	0.026	1.47	0.84
55	4.4	3.7	0.16	2.8	24	96	5.8	98	0.31	0.026	1.19	0.66
56	4.5	3.7	0.14	2.9	11	56	4.5	109	0.36	0.033	1.76	1.01
57	3.8	3.3	0.29	4.3	36	44	3.4	84	0.3	0.029	0.77	0.48
58	4.1	3.5	0.20	3.3	27	51	1.3	108	0.38	0.031	1.03	0.62
59	4.0	3.4	0.15	3.3	23	23	1.9	53	0.19	0.026	0.11	0.29
60	4.7	3.9	0.32	4.1	43	128	7.5	121	0.42	0.028	4.00	3.09
61	4.0	3.7	0.50	3.0	14	56	6.8	79	0.26	0.028	1.10	0.38
62	3.9	3.5	0.59	4.9	19	82	12	112	0.33	0.034	1.80	0.83
63	3.5	3.0	0.37	7.0	21	72	9.7	73	0.25	0.007	0.09	0.37
64	3.9	3.6	0.36	2.4	14	59	5.7	63	0.2	0.004	0.17	0.26

附錄5：土壤調查（續）

Appendix 5. Soil Survey (Continued)



雨鞋及手套為必備裝備，每組兩人進行採樣

Rubber boots and gloves are necessary. Each sampling team included 2 persons.



以土鑽進行土壤採樣

Soil sampling in the field using a soil auger.



0-20 cm土壤樣本

Soil sample at 0~20 cm in depth.



土壤深度測量
Depth measurement.



天然土壤剖面
Natural soil profile.



有些區域非常陡且有崩塌。在這些區域採樣具危險性且因大部分為岩石及碎屑，幾乎無土層因此採樣困難。
Some area were very steep and had a debris landscape. It was too hard to take soil samples in these areas because there was almost had no soil. There were only rock fragments and debris.

附錄5：土壤調查（續）

Appendix 5. Soil Survey (Continued)



一些採樣區為裸露母岩且為陡坡

Some sampling areas were located in parent material and had very steep slopes.

Selected Images

調查野外工作

Field work



調查照片選集（續）

Selected Images (Continued)

調查室內工作

Indoor work



様区内陡峭崩場地

Landslide survey



調查照片選集（續）

Selected Images (Continued)

辛苦的工作人員

Hard workers

