BIBLIOGRAPHY

AGAPITO, FELINA G. OCTOBER 2009. Collection and Characterization of Ende-mic Orchids in Bakun, Benguet. Benguet State University, La Trinidad, Benguet.

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ABSTRACT

The study was conducted in seven barangays of Bakun, Benguet from March 2009 to August 2009 to collect, identify and characterize the different endemic orchids growing in these barangays; and to determine the common orchids found in every barangays.

Results showed that majority of the orchids and characterized collected were found in barangay Poblacion, Bakun. This is due to its existing vegetation which provided a favorable environmental condition for the abundant growth of different orchid species and because mostly people in this barangay` collect and domesticate orchids. On the other hand, barangay Gambang showed the least number of orchid species collected due to the use of large areas for Agricultural purposes and forest fires that destroyed the habitat of some orchid species.

The most common orchids collected in most barangays in Bakun was *Dendrobium species*; while the rare ones such as *Liparis parviflora andTrichoglottis braciata* were only found in barangay Bagu, Sinakbat, Gambang and Ampusungan.

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INTRODUCTION

The orchids of the Philippines are among the most beautiful in the world. Many horticultural attractive orchid species occur within the more than 7,000 islands that make up the Philippine Archipelago (Cootes, 2001). Many endemic species of orchids are found in the Philippines, plenty of which have been recognized by orchids throughout the globe (Rimando, 2001).

According to current estimations, there are some 730 genera and 25,000 species in existence. Extremely diversified, they are to be found in virtually all regions around the world. They are most abundant in moist tropical regions, where they often cling to trees, or rocks, but some grow in temperate or cool climates, especially in forested mountains (Lecoufle, 1999).

Orchids are common names applied to perennial flowering herbs, vines, or shrublike plants that belong to family *Orchidaceae* of the order *Orchidales*. It is known for their often colorful, showy blossoms, and for their fragrances. According to Pridgeon *et. al. (1992),* orchid's area among the most passionately cultivated flowers worldwide and for centuries, it has been a symbol for the exotic and mysterious aspect of the human imagination and they are widely thought as being special. It has a reputation for glamour and sometimes people even need to be reminded that orchids are in the end, only plants.

Our rainforests are being destroyed in an alarming rate. The slash and burn practices of our subsistence farmers, destroy our endangered species or orchids. Thus, we will have the opportunity to assist in the conservation of some of these species in hope that someday, it may be possible to re-establish them in their natural habitat or environment.

Although some of these orchids species may be relatively common to plants (not all orchids have spectacular flowers), many people are unaware of the native orchid population in the Cordillera Administrative Region. The species lacking current horticultural appeal or significance are often the most endangered because few people care about them. Yet, who knows what these species may have to contribute in the future (Ladilad, 2001).

This study was conducted at the different barangays of Bakun, Benguet from March to August 2009 to collect and identify endemic orchids in all barangays of Bakun, Benguet; characterized orchids collected; classify them by genera and species; and document the collection in picture.

REVIEW OF LITERATURE

The Orchid Plant

In the literature of ancient Greece during the era of Aristotle and Plato, the Greek philosopher, Theopratus first called the plant "orchis" from which the word "orchids" was derived (Condrado, 1984). The Greek word "orchids" refers to the paired underground bulbs of Mediterranean orchids because of its similarity to the reproductive male anatomy (Valmayor, 1984). She was first to record the resemblance of tubernacles of certain Mediterranean species to a pair of testicles (Lecoufle, 1999).

In 1753, the name orchids was retained by Linneau's in his book, Species Plantarum,was the starting point of modern botanical nomenclature; when he proposed the botanical epithet for all scientific names of plants. Finally, John Lindley used the name for the orchid family in his book, the Genera and Species of Orchidaceous Plants in 1830. He deservedly recognized today as the father of orchids cultivation (Valmayor, 1984).

Distribution of Endemic orchids

The distribution of indigenous Philippine orchids is decidedly influenced by the mountainous topography in certain areas of the country. Extensive mountain range run through parts of Luzon, Visayas and Mindanao and has been a very important factor in the development and distribution of indigenous orchid flora (Cootes, 2001).

Habitat of Location

Orchids are found everywhere. They grow and thrive in the humid tropics of both the north and southern hemispheres, especially in forested mountains (Cootes, 2001).

They perched on trunk and branches of trees (epiphytic orchid), they lodged on rocks (lithophytes orchids), they also grow on the ground (terrestrial orchids), and they are also found growing on decaying materials (saprophytic orchids).

Cultivation of Endemic Orchids

In the 18th century, when people in Europe first became aware of the treasures of the tropical forests of Asia and America, most of the orchids grown in greenhouse were introduced to the colonies. Some of the richest land owners sent out plant collectors and among the many plants they brought back, there were often orchids. Unfortunately, a lack of knowledge of the plants native habitats and the inability to simulate the growing conditions from which they came from, led to most orchid plants surviving for only short period. However, in the 1820's, a revolutionary new method of heating greenhouses by hot water circulating through large-bore cast iron pipes provided more easily controllable and more suitable conditions for cultivating tropical orchids (Hunt, 1979).

From 1860 onwards, many authors, botanist, gardeners, horticulturists, and explorers contributed to the progressive improvements which, in gradual stages ushered in the modern era of orchid cultivation of which the following were particularly significant; the discovery of appropriate compost; cultivation in hanging baskets (Bank)

ventilation of greenhouses (Ridley); observation of rest period (Bateman); more generous lighting with suitable shading; invention of central heating (Atkinson); growing in three of greenhouse (Linden and duBuysson). This innovation made it possible in the late 19th century to grow epiphytic orchids without major problems (Lecoufle, 1999).

In the early 1970's, several commercial nurseries were established to meet the growing demand of the domestic market, the favorable orchid hobbyist and the demand

for cutflowers. Thus, nurseries meet the domestic requirements for both planting material and cutflowers (Arditti, 1992). Nowadays, many tropical endemic orchids are raised in temperate areas in indoors/inside buildings and in greenhouses.

General Characteristics of the Plant

Orchids have thick, leathery, or fleshy leaves, Number of leaves are from one to many, basal or cauline, alternate, opposite or whorled, rarely absent, occasionally alternating with flowering cycle, commonly entire in outline, very seldom delicately lobed or sagittate (Encyclopedia International, 1996). Shape of leaves are grass like, (i.e. generally linear); strap shape; penal or cigarette shaped; ovate, spoon like, hastate, plicate, lanceolate, cordale (Hunt, 1979). Stems are usually rounded or laterally compressed, auspicious, occasionally angular, commonly elongated, rarely reduced to practically nothing, and often modified into pseodobulbs, rarely cornlike. Inflorescence from one to many flowered spike, raceme or panicle, occasionally a pseododumbel. The flowers occur in most all colors and combination of colors. Orchids are known in shades of pure white, yellow: orange, pink, scarlet, pinkish-lavender, magenta, green, usually, a single shade ranging from purple to dark brown, reddish brown, white and green with silver, fascicled or scattered along rhizome or aerial stem (Encyclopedia International, 1996).

Manner of Growth

Orchids are classified according to two general growth forms (habits): monopodial and sympodial.

The monopodial (meaning one-footed) are orchids with one main stem. The stem lengthens, adding new leaves to the top, e.g. *vanilla, arachis, phalaenopsis,* etc. (Rimando, 2001). Flowers maybe borne on stalk that emerge from the base along the main stem and may occur in clusters or be solitary (Encyclopedia International, 1996).

The sympodials, (meaning foot-together) are orchids with creeping ground stem or rhizome, which sent out that eventually develops into a stem and leaves. This new growth produces its own roots and leaves and at maturity, flowers are formed at its terminals or at the side of the stem. After flowering, another shoot is formed at the base of the preceding growth to repeat the cycle. Stem are sometimes thick and fleshing forming a pseudobulb. Unlike true bulb which are made up of scale-like leaves, the pseudobulb are jointed stems as a reservoir for food and water, e.g. *dendrobium, cattlea, etc.* (Rimando, 2001)

Mode of Reproduction

There are different modes of propagating the various kinds of orchids; it may be propagated sexually by seed (through embryo culture) or asexually (meristem culture).

Vegetative propagation.

Methods using vegetative parts of orchids such as stem, leaves, pseudobulbs, etc. result as individuals similar to the parent plants. These methods include division

formation and separation of “keikis” and offshoots, top cutting, and tissue culture (micro propagation) (Rimando, 2001

Sexual propagation. Propagation of orchids is usually accomplished through embryo culture. The seed is so minute, devoid of stored food on account of the absence of an endosperm for seed germination (Rimando, 2001).

MATERIALS AND METHODS

Materials

The important materials that were used were camera with film, notebook, ball pen and reference book, collecting tools e.g. shovel, bolo, black plastic bags.

Methods

All barangays in Bakun, Benguet were used as collecting sites for the endemic orchids and were considered as the treatments of the study. Orchids collected were identified and properly documented. The collection areas were as follows:

Code	Barangay
B_1	Ampusungan
B_2	Bagu
B_3	Dalipey
B_4	Gambang
B_5	Kayapa
B_6	Poblacion
B_7	Sinakbat

The data gathered were the following:

A. Plant Characteristics

1. Growth habit. This was identified as either having monopodial or sympodial growth characteristics.

2. Plant height at flowering (cm). The height of the plant was measured from the base to the tip of the flower at flowering stage.

3. Length of aerial roots (cm). All aerial roots produced by each individual plant were counted and the longest roots were measured from the base of the roots to the tip.

4. Number and length of leaves (cm). The numbers of leaves per plant were counted and measured using a foot rule.

5. Flower color. This was observed by identifying the color of their flower.

6. Shape of the leaves. This was identified by observing the shape of their leaves

7. Botanical classification. Identification of specific orchid collection was based on genera and specific name.

B. Start a Gene bank of Orchids

Orchids were grown taking into consideration their light and temperature requirements as well as providing them with suitable growing media and adequate water and the proper methods of propagation.

C. Habitat

The endemic orchids on the site of collection were classified according to their habitat, preference: terrestrial, if they were be found on the ground, lithophytes, if they are be lodged on rocks; epiphytic, if they perched on trunks and branches of trees; and saprophytic, if they were found growing on decaying materials.

D. Documentation

The endemic orchids on the site of collection were documented through picture.

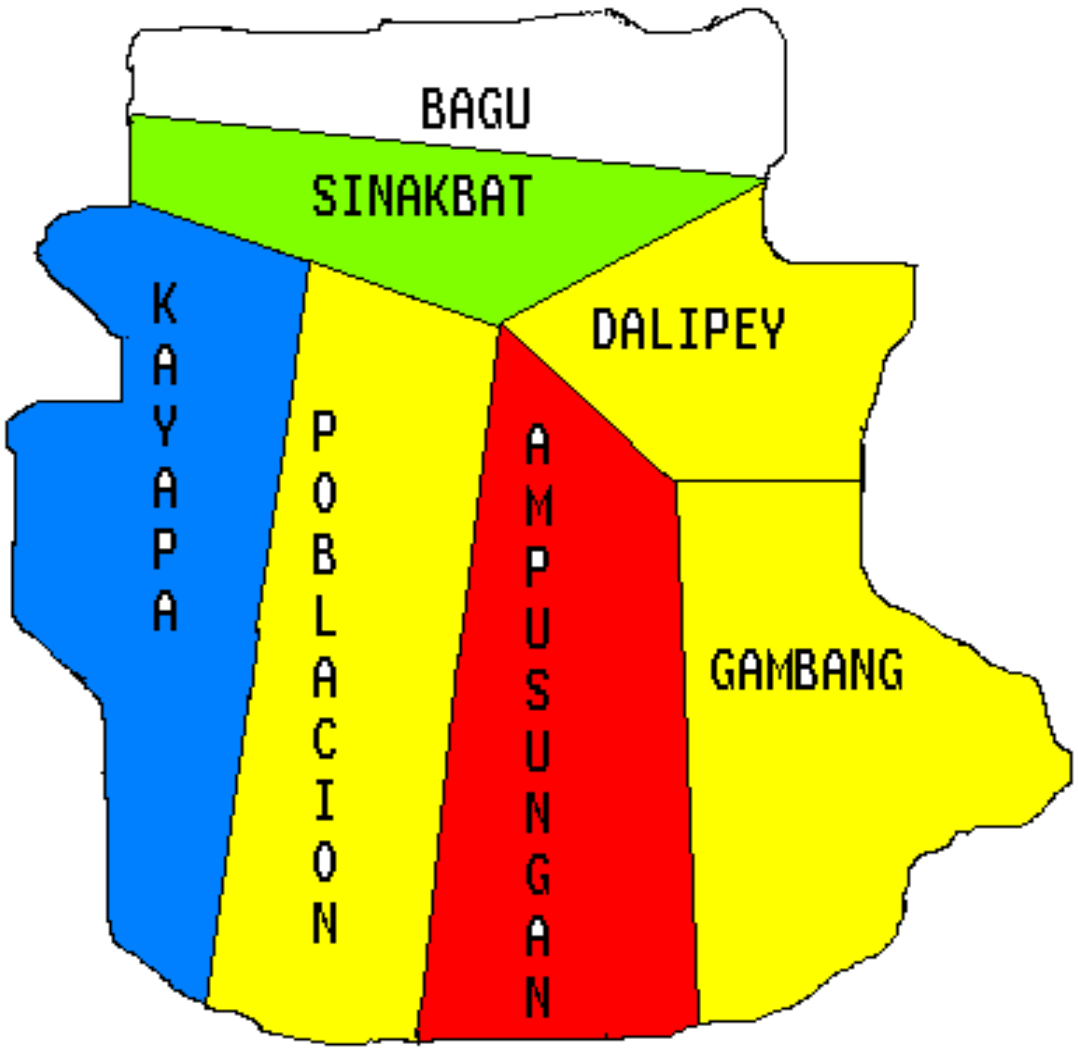

Figure 1.Overview of the seven Barangays of Bakun, Benguet

RESULTS AND DISCUSSION

Location of Identified Orchids at Bakun, Benguet

Table 1 and figure 1 showed the location of identified orchids at Bakun, Benguet.

Result obtain were signifantly different with regards to the numbers of orchids collected. From the different barangays.It was found out that barangay poblacion, Bakun had the highest number of orchids present with about 14 species among the 18 orchids collected. This was followed by barangay Kayapa with about 12 species. On the other hand, barangay Gambang had the lowest number of species collected with only 4 speceis.One reason of this is because of the prevalence of agricultural land and deforestation.

From this result, it showed that orchids are found in all barangays of Bakun. They mostly occur on high mountains, on forest or crevices of rocks. It was further observe that majority occur in an area that provide the great variety of conditions and habitats which orchid plant prefers to grow.

Observations also show that orchids found on forested areas are commonly epiphytes which perched on trunks or branches of trees and few are found growing on rocks and on the ground. According to Jones (1998) as cited by Fessel et al. (1999).Terrestrial orchids do not occur elsewhere. Because of the high levels of endemism and their sporadic and wide dispersal, many orchids' populations suffer with both loss of habitat to agricultural and logging.

Table 1. Location of identified orchids at Bakun, Benguet

ORCHIDS	LOCATION/ SITE						
SPECIES	Ampusungan	Bagu	Dalipey	Gambang	Kayapa	Poblacion	
Sinakbat							
Agrostophyllum inocephallum Ames	✓	x	x	x	✓	✓	x
Ceratostylis incognita	x	✓	x	✓	x	✓	x
Calanthe Riplicata	✓	x	✓	x	x	✓	✓
Calanthe Vestita	✓	x	x	x	✓	✓	x
Dendrobium Glumaceum	✓	x	✓	x	✓	✓	x
Dendrobium Dearei	x	✓	x	x	✓	✓	✓
Dendrobium victoria-reginae	x	✓	✓	x	✓	✓	✓
Dendrobium Heterocarpum	x	✓	✓	x	✓	x	✓
Dendrobium cobbianum	✓	x	x	✓	✓	✓	x
Dendrochillum Quadrilobum Ames	✓	✓	x	x	x	✓	x

Table 1. Continued. . …

ORCHIDS	LOCATION/ SITE						
SPECIES	Ampusungan	Bagu	Dalipey	Gambang	Kayapa	Poblacion	Sinakbat
Dendrobium Sanderae	x	x	x	x	✓	✓	x
Liparis Parviflora	x	✓	x	x	x	x	✓
Paphiopedilum Argus	✓	x	✓	✓	✓	✓	x
Spathoglottis Chrysantha Ames	x	x	✓	x	✓	✓	✓
Trichoglottis Brachiata	✓	x	✓	x	x	x	x
Lycaste virginalis Var. Alba	✓	✓	x	x	✓	✓	✓
Maxillaria Rufescens var. flavida	x	✓	x	✓	✓	✓	x
Liparis Philippinensis	✓	✓	x	x	x	✓	✓

✓ = present
x = absent

Commercial and Ethnobotanical Uses of Identified Orchids

Table 2 shows the commercial and ethnobotanical uses of the different identified orchids. Results showed that most of these orchids have several economic uses where as they can be used as ornamental plants. Orchids are grown primarily as ornamentals by hobbyist and commercial establishments. They are grown for commercial sale. As for medicine, orchids are used in some parts of the world (Arditti, 1992). Example in Malaysia and India, orchids are used to treat asthma, tuberculosis, cramps, mental disorders and kidney stones; in Mexico, *Habenaria species* is used to treat infected wounds and in Asia, tubers and rhizomes of *Habeneria* and S*pathoglottis species* are being eaten while in China, *Cymbidium spp.* have been used in coloring (Arditti, 1992)

The most common use of orchids is as ornamentals, but few orchid plants are attractive enough for direct utilization in this manner, and most are grown for their flowers. And most important-ornamental and commercial aspects of orchids have always been their use as cutflowers. For many years, the flowers are mostly made into corsages and bouquets. In addition to the obvious decorative value of the plants and flowers, orchid materials were employed in art and decoration (William, 1990).

Table 2. Commercial and ethnobotanical uses of identified orchids

ORCHIDS SPECEIS	Ornamental	Food	Medicine Flavoring
Agrostophyllum inocephallum Ames	✓		
Ceratostylis incognita	✓	✓	
Calanthe triplicata	✓		
Calanthe vestita	✓		
Dendrobium cobbianum	✓		
Dendrobium dearei	✓		
Dendrobium glumaceum	✓		
Dendrobium heterocarpum	✓		
Dendrobium sanderae	✓		
Dendrobium victoria- reginae	✓		
Dendrochillum quadrilobum Ames	✓		
Liparis parviflora	✓		
Liparis philippinensis	✓		
Lycaste virginalis var. Alba	✓		
Maxillaria rufescens var. flavida	✓		
Paphiopedilum argus	✓		
Spathoglottis chrysantha Ames	✓	✓	
Trichoglottis brachiata	✓		

Average Number and Length of Aerial roots

Table 3 shows the average number of aerial roots and their aerial growth and length. Results obtained were significantly different with regards to the average number of aerial roots and length. It was observed that *Dendrobium glumaceum* had the highest number of aerial roots produced with an average of 14. Followed by *Dendrobium sanderae* and *Dendrchillum quadrilobum Ames* having the same average number of roots of 10. Among the 18 species collected and identified *Liparis parviflora* had the less number of roots produced with an average of 5.

Results also show the average length of aerial roots. It was observed that *Agrostophyllum inocephallum Ames* had the longest roots measuring 66 cm. *Liparis philippinensis* follows with a length of 29 cm. Among these orchids collected, *Calanthe vestita* had the shortest length of roots that measured 6 cm long.

The different aerial roots of an epiphytic orchid may arise from the base of pseudobulbs, nodes of monopodial species and main stem.

Plant height at flowering

Table 4 shows the plant height of collected orchids at flowering. Based on the results it was noted that *Spathoglottis chrysantha Ames* was the tallest with plant height at flowering of 65 cm. It was followed by *Dendrobium sanderae* with 64 cm; while *Dendrobium dearei* was the smallest with only 16 cm height.

Table 3. Average number and length of aerial roots

ORCHIDS SPECIES	NUMBER	LENGTH (cm)
Agrostophyllum inocephallum Ames	9	66
Ceratostylis incognita	6	27
Calanthe triplicata	8	31
Calanthe vestita	8	6
Dendrobium cobbianum	8	21
Dendrobium dearei	7	24
Dendrobium glumaceum	4	13
Dendrobium heterocarpum	6	9
Dendrobium sanderae	10	26
Dendrobium victoria- reginae	7	15
Dendrochillum quadrilobum Ames	10	14
Liparis parviflora	5	15
Liparis philippinensis	4	29
Lycaste virginalis var. Alba	7	12
Maxillaria rufescens var. flavida	7	9
Paphiopedilum argus	6	28
Spathoglottis chrysantha Ames	5	12
Trichoglottis brachiata	6	30

Table 4. Plant height at flowering

ORCHIDS	PLANT HEIGHT AT FLOWERING
SPECEIS	HEIGHT (cm)
Agrostophyllum inocephallum Ames	24
Ceratostylis incognita	17
Calanthe triplicata	36
Calanthe vestita	31
Dendrobium cobbianum	31
Dendrobium dearei	16
Dendrobium glumaceum	32
Dendrobium heterocarpum	19
Dendrobium sanderae	64
Dendrobium victoria- reginae	29
Dendrochillum quadrilobum Ames	21
Liparis parviflora	23
Liparis philippinensis	20
Lycaste virginalis var. Alba	28
Maxillaria rufescens var. flavida	18
Paphiopedilum argus	34
Spathoglottis chrysantha Ames	65
Trichoglottis brachiata	46

Characterization of Collected Orchids at Bakun, Benguet

The collected, identified and characterized endemic orchids at Bakun, Benguet are presented in Figures 2-18.

Figure 2. *Agrostophyllum inocephallum* Ames (No information)

Growth habit : Upright, sympodial
Stem : Tufted, flattened, up to 25 cm long by 2.5 cm wide.
Leaves : Distichous, linear-oblong, 2 ranked, joined to sheathing bases, up to 15 cm long by 2.5 cm wide unequally lobed at the tip.
Inflorescence : Capitates, pluribracteate up to 3-5 cm in diameter, terminal densely clustered.
Flower color : White
Dorsal sepal : Oblong to lanceolate, about 3.5 mm long by 2 mm wide
Petals : Linear lanceolate, up to 4 mm long by 1 mm wide.
Habitat : It grows as an epiphyte.

Figure 3. *Ceratostylis incognita (no information)*

Growth habit : Sympodial
Leaves : Have semiterete dark green leaves
Flower color : Lovely of about 3/8 inch appearing in periodic flushes along the stem the widely open blooms are pure crystalline snow white.
Habitat : Mostly grow in the forest.

Figure 4. *Calanthe Triplicata Ames* (Christmas lily)

Growth Habit : Upright, sympodial
Pseudobulbs : Up to 15 cm by 5 cm, tapered with slightly thickened ovoid
Leaves : Very variable, deeply folded, ovate-lanceolate, up to 50 cm long, 20 cm wide.
Inflorescence : Upright, 60 to90 cm long, bracts lanceolate, persistent carry bloom up to 12 flowers crowded into a head like
Flower Color : white to rose purple.
Sepal and petals : oblong-ovate, outside slightly hairy, about 1.5 by 1.8 cm long by 0.8 to 1cm wid.
Lateral sepals : lanceolate, reflex towards the pedicel.
Labbelum : 3 lobed: lateral lobes ovate, larger than midlobed.

Habitat : it was an evergreen terrestrial in humid areas.

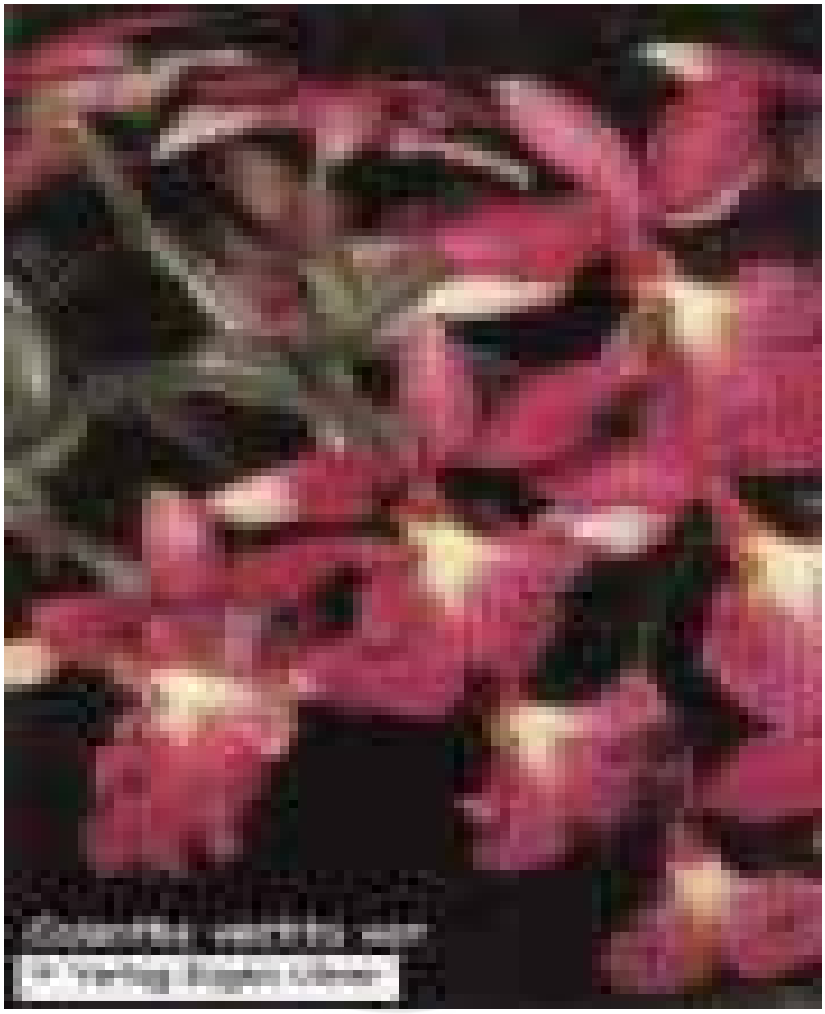

Figure 5. *Calanthe vestita*

Growth habit : sympodial
Leaves : broadly lanceolate, acuminate, an prominently ribbed underneath.
Inflorescence : 3 feet tall erect then nodding, carry a dozen or more long lasting flowers.
Flower color : white to 6.25 to 7.5 cm.
Labellum : with or without spur, 3-lobed, attached to the base of the column or more or less to its whole length.
Habitat : grows as an epiphyte mostly on trees.

Figure 6. Dendrochillum cobbiamum Riech (Golden Chain Orchid)

Growth habit : Upright, sympodial
Pseudobulbs : Mature pseudobulbs large about 4-8 cm long
Leaves : Oblong-lanceolate, 6-18 cm long, 2.5-3.5 cm wide with prominent midrib and 3 less conspicuous veins on each side.
Inflorescence : Upright, flowering portion pendulous appear with the new growth; normally longer than the foliage about 40 cm. long, naked below, elongated, drooping.
Flower color : Extremely variable, some clones color orange
Habitat : Epiphytes, abounds in mossy rain forests,

Figure 7. *Dendrobium dearei*

Growth habit : sympodial
Leaves : one too many from linear to almost round to terete, Leathery
Inflorescence : carries up to a dozen flowers.
Pseudobulbs : 60-100 cm long, fleshy or wiry.
Flower color : 7-5 cm snowhite, long lasting with a green or yellow of area at the base of the leaf lip.
Lateral sepals : joined to the column foot to form mentum.four pollinia are present in two closely apprised pairs.
Habitat : easy to grow, mostly in the mountains

Figure 8. *Dendrobium heterocarpum*

Growth Habit : sympodial
Leaves : Deciduous, ligulate or oblong, lanceolate,
acute to obtuse 7.5 -12 cm long, 1.5- 2.5 cm broad, narrowly oblong, sub-acute.
Inflorescence : Produced at the leafless nodes along most of
length of the canes.
Flower Color : 3 or 2 flowers which are a buff-yellow colour
highly fragrant.
Sepals : sub-equal, with lip yellow or white
Habitat : Growing epiphyte primarily in the forest

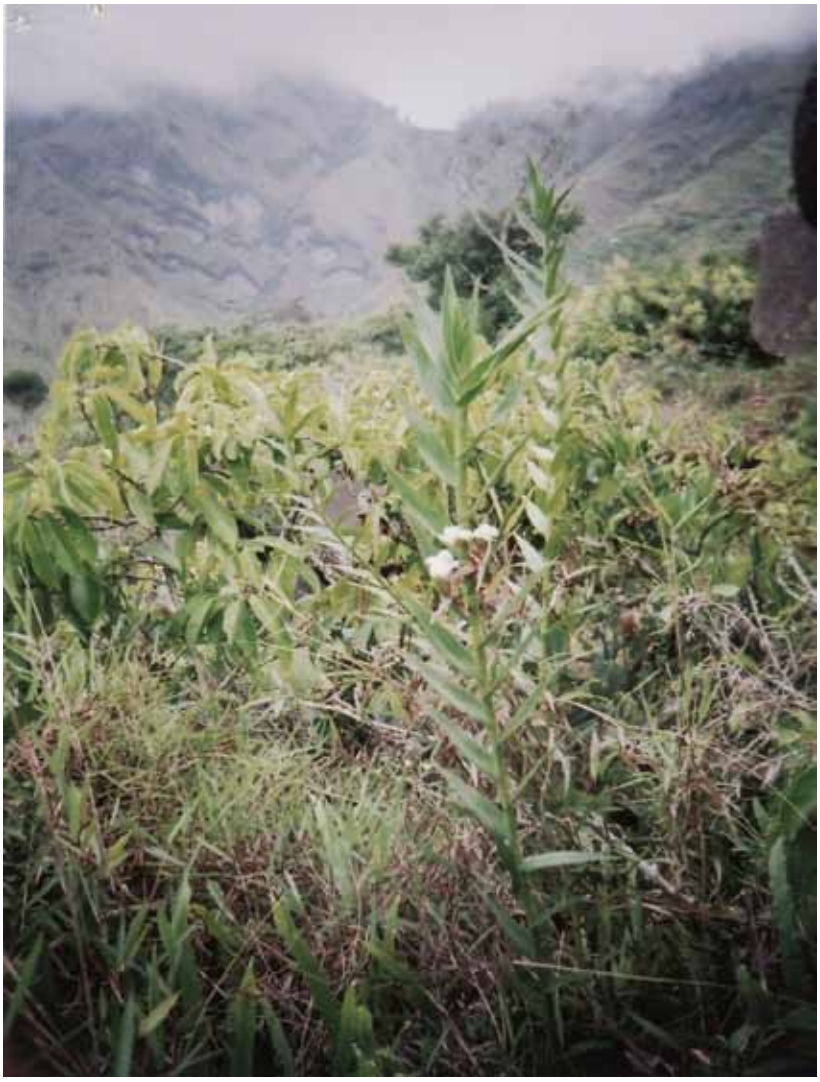

Figure 9. *Dendrobium sanderae (bamboo orchids)*

Growth habit : sympodial
Leaves : small pointed only at the apex of the growth. Have two rows measuring about 10 cm long by 1.5 cm wide.
Flower color : white brightly colored about 4cm in diameter.
Petals and Sepals : are of equal size, colors are often white suffused with pink or mauve, golden and subtle shades of pink, cream and brown. The rounded lip carries a color which contrast with the rest of the flower.
Habitat : Dangling down from the lower branches of trees and shrubs.

Figure 10. *Dendrobium Victoria-reginae*

Growth Habit : sympodial
Leaves : Oblong or lanceolate, papery, acute to acuminate.
Flower color : Short erect 1 to 3 flowered racemes with paleaceous, oblong, acute bracts and color variable. It be borne singly at the top of the flowering stem or laterally at intervals along its length.
Habitat : Mostly grow on mossy forest, it grows as an epiphyte.

Figure 11. *Dendrobium glumaceum* Lindl/*Platyclinis glumacea* Benth/ (Rice Orchids)

Growth habit : Sympodial
Leaves : Leathery, arise singly from the pseudobulbs, lanceolate, about 30 cm by 4 cm wide, thick, round and smooth.
Inflorescence : Are gracefully, appear with the new growth, thread like, bearing a pendulous racemes, flowers about 2 cm in diameter.
Flower color : pure glittering white; sepals and petals; wide color range in the labellum includes bright orange, bright yellow and brown. Lip- light-orange.
Lateral sepals : linear-oblong, tapering to a sharp point, up to 8 mm long by 2 mm wide
Habitat : it grows as an epiphyte, found in mossy forests.

Figure 13. *Lizards parviflora* (Blume) Lindl. (No information)

Growth habit : Upright, sympodial
Leaves : Elliptic, up to 28 cm long, 6 cm wide, widest near acute apex, narrowed very gradually to base.
Inflorescence : Semi-pendulous, up to 50 cm long, bear over 130 flowers; numerous bracts at the base, 3-4 mm long.
Flower color : Greenish-white with tip of all parts pink, or all parts pink at base.
Dorsal sepal : Linear, 5 mm long by 1.5 mm wide.
Petals : Linear, 5 mm long by 1 mm wide.
Lateral sepals : Linear, 5 mm long by 2 mm wide
Labellum : Oblong, 6 mm long by 5 mm wide, distinctly bent in middle, cleft at apex, minute white hairs around the edge.
Habitat : It grows as an epiphyte, found on trees in shady forest.

Figure 14. *Liparis philippinensis* (N: No information)

Growth habitat : Upright, sympodial
Leaves : Linear-oblong, acute, 20-30 cm long by 2 cm wide, narrowed below.
Inflorescence : Upright, flattened, appears from top of the pseudobulbs.
Flower color : Bright green, Column darker green, Orange-yellow borne on elongated pedicels exceeding the bracts.
Dorsal sepal : Linear, reflexes back, 10 mm long by 0.5 mm wide, acute, strongly keeled near apex, margins rolled.
Petals : Linear, 9 mm long, nearly acute, 1-veined, margins rolled.
Lateral sepals : Similar to dorsal sepal.
Habitat : Epiphyte, found in mossy forests grows on bark of trees.

Figure 15. *Lycaste virginalis*

Growth habit : sympodial
Leaves : large. Comparatively thin and folded about 25cm long and 4.5 cm wide.
Flower color : pure white, appear singly on stems of varying length with spotting and bicolor.
Labellum : often spotted with crimson.
Petals : normally stands outwards parallel with the columns.
Habitat : found mainly in the mountain.

Figure 16. *Maxillaria rufescence*

Growth habit : sympodial
Leaves : broad leaves that developed from a horizontal rhizome, the latter have very thin grass-like.
Flower color : dull yellow or yellow brown up to 3cm to4
Petals : yellow with an orange hue on the outer surface.
Labellum : presence of reddish blotches spots dense forest.

Figure 17. *Paphiopedillum Argus (Lady's slipper orchids)*

Growth habit : sympodial
Leaves : plain, green strap
Inflorescence : extremely long
Flower color : red-pouced, cleanly dark green stripe borne singly on a strong 15-25cm stem.
Dorsal sepal : dominant feature and is usually flared or spotted.
Petals : maybe short, narrow or wide. They exceptionally long, horizontal or dropping.
Lateral sepals : fused into a "synsepal" that is usually small.
Habitat : grow in quite moist environment

Figure 18. *Trichoglottis braciata*

Growth habit : upright monopodial
Leaves : very leathery and stiff, helping the plant to tolerate the full sun.
Flower color : 5cm heavy textured of red purple, flowers are produced along the stem.
Inflorescence : short axillary which developed simultaneousl
Sepals : slightly broader than the petals.
Habitat : Best grown in tropical conditions.

SUMMARY, CONCLUSION AND RECOMMENDATION

Summary

The study was conducted in seven barangays of Bakun, Benguet from March 2009 to August 2009 to collect, identify and characterize the different endemic orchids found growing in these barangays and to determine the common orchids found in every barangay.

Results showed that among the seven barangays, Poblacion had the most number of orchids collected compared to other barangays. Among the 18 species identified; 14 species were found in barangay Poblacion one reason of this is because most of the people in this barangay collect and domesticate orchids in their backyard while barangay Gambang had the least number of orchids with only 4 species found. Most of these orchids are epiphytes (they perched on trunks and branches of trees) and lithophytic (they lodge on rocks) and terrestrial (grow on the ground). Most of them are used as ornamentals. It can be purely for aesthetic purposes and or for commercial sale.

Conclusion

Based on the results of the study, orchids are widely distributed that they can be found almost everywhere especially on high elevation mountain in slopes and forested areas. They are noted for their exotic beautiful showy blossoms and for their fragrance/scent. They are cultivated as greenhouse flowers and indoor cut flowers and potted plants.

Recommendations

For the collection, identification and characterization of endemic orchids in Bakun, Benguet, the following are recommended:

1. Because of their noted beautiful and exotic showy blossoms *Dendrobium victoria-reginae, Dendrobium sanderae, Dendrobium heterocarpum* and *Paphiopedilum Argus* are recommended to be propagated for commercial cutflower production and potted plants.

2. It is further recommended that the other orchid species such as *Dendrobium sanderae*, *Liparis parviflora* and *Trichoglottis brachiata* which are found only in few barangays to be given more attention in propagation efforts to prevent their extinction.

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