Distribution of Plant Species on Three Lithologic Units in Taungnitaung Area, Kyaukpadaung Township, Mandalay Region

Sanda

Abstract

In the study area, 62 plant species canbe identified by using key of respective floral and references. Plant samples were counted by belt transect method applying to calculate relative density of study area. This area consisted of three lithologic units. Most plants are dominantly grown on Porous argillised rocks. *Tectona hamiltoniana* Wall (dahat) and *Pavonia glechomifolia* A. Rich (sokese) were found on three lithologic units. *Tephrosia villosa* pers (meyaingkalay) and *Bambusa spp Wa)* are grown only on Silica rocks. *Millettia bardisiana* kur (thinwinsat) and *Hyptis suaveolens* (tawpinsain) are grown on two lithologic units except Porous argillised rocks.

Keywords: belt transect method, plant species, lithologic units.

Introduction

A geobotanical study of the Taungni Taung area is situated near Kaing village, Kyauk Pa Daung Towhship, Mandalay Division. This area is within the boundary of vertical grids 61 to 62 and horizontal grids 23 to 25 and is included partly in the following one-inch topographics map No 84, P-5.The study area lies within latitude N 20° 47' 9"and N 20° 48' 12" and longitudes E 95° 15' 54" and E 95° 16' 48".

The present study area of Taungni Taung are found copper mining area in east of Kyauk Pa Daung Town. The area can access from Yangon via Magwe or Meiktila by all weather motor roads. The natural vegetation of Myanmar are growing on different lithologic units, different elevation and different climate. Geobotanical prospects relies in the recognition of indicator plant species or plant growth abnormalities that can be correlated with soil chemistry, rock chemistry and chemical properties of mineralization. In this studies distribution of plant species with three lithologic units are grouped. The aim and objectives are to study the nature and distribution of plant species of these area .To correlate plant species with lithologic units.

Materials and Methods

Orientation survey had been carried out by using a Brunton compass, measuring tape, transverse satellite images and one inch topographic map. In the field area, belt transect method are using measuring tape and Brunton compass to carry out transect survey line which is perpendicular to the regional strike of lithologic units of study area. In belt transects consist of a continuous series of quadrats running across the profile of the area. Although the use of quadrats is most usual approach in indicator plants. Another different approach needed for studying plants growing over narrow ore bodies. (Santra, Chatterjee, Jas, 1993).

And the present study are selected by 23 quadrats for this research. Belt transect lines are measured and marked 345 meter long. Each quadrat is 15m x 15 m marked. Soil samples were collected from 15m interval (distance) sample collection point along mineralized veins and country rocks. In each quadrat, all plants samples are counted and marked. Plants samples were taken in plastic bags for identification and preparing of herbarium specimens. Collected plant samples were carried out for relative density of plants species calculated.

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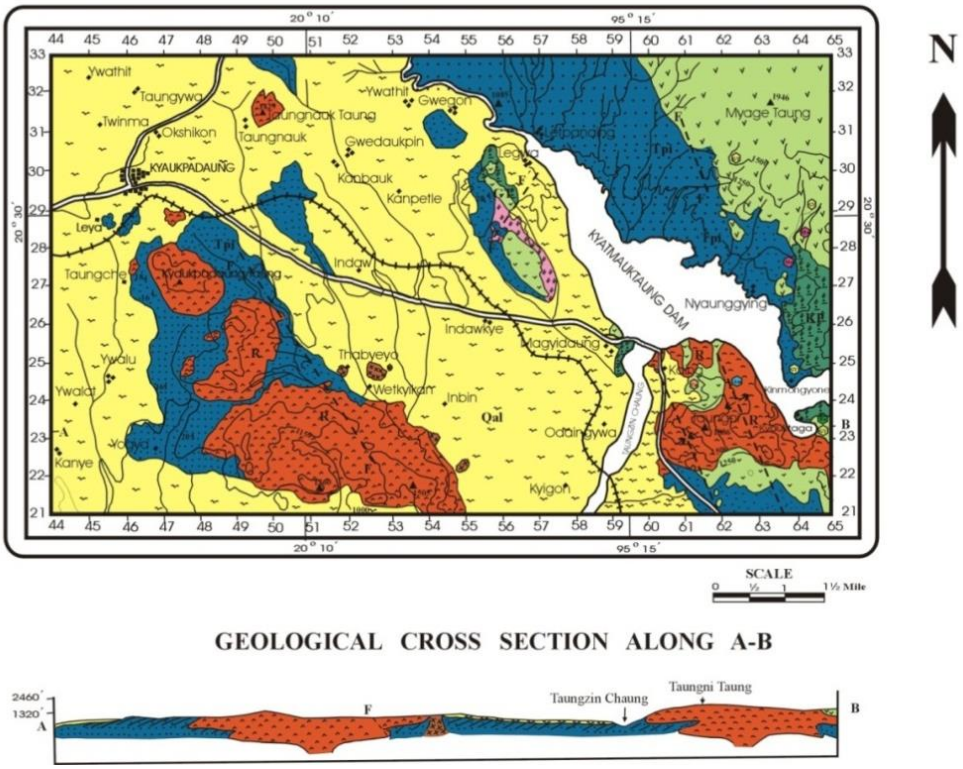

Figure (1). Geological Map of Taungni Taung and Environs, Popa Area

Figure (2). Topographic view of Taungni Taung Area

Figure (3). Satellite map (Google Earth) of Taungni Taung Area

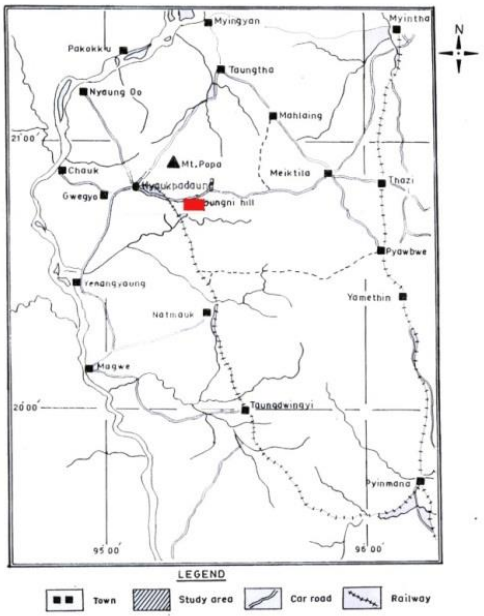

Figure (4). Location map of Taungni Taung Area.

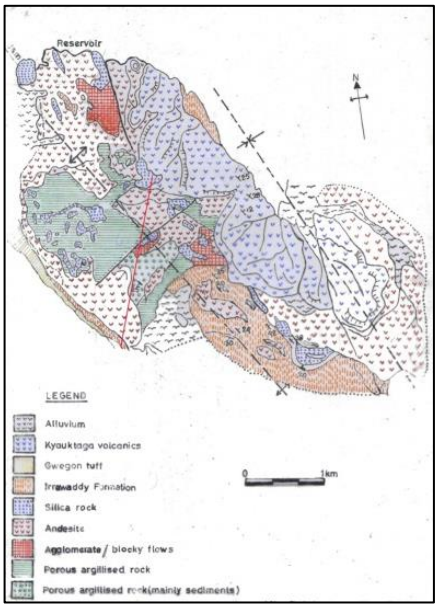

Figure (5). Belt transects survey lines in Geological Map of Taungni Taung Area.

Results

All 62 plant species in the study area, are identified and shown in table (1). The result of relative density of plant species correlated to lithologic units are shown in tables (2, 3, 4 & 5) The summarized relationship between lithologic units and plant distribution results are shown in table (5).

Table (1). Plant species studied on belt transect survey line

No.	Botanical Name	Family	Type	Myanmar Name
1	*Blepharis boerhauiera.*	Acanthaceae	Herbs	လိပ်ပြာတောင်ပံ
2	*Lannea coromandelica (Houtt) Merr.*	Anacardiaceae	Trees	နဘဲ့
3	*Annona squamosa L.*	Annonaceae	Trees	သြဇာ
4	*Amorphophallus campanulatus (Roxb) Blume.*	Araceae	Herbs	ဝဥပင်
5	*Marsdenia tenacissima wight & Arm.*	Asclepiadaceae	Shrubs	တောငွေးခေါက်
6	*Streptocaulon tomemtosum witht & arm.*	Asclepiadaceae	Climbers	မြင်းစခုံနီ
7	*Eupatorium odoratum L.*	Asteraceae	Shrubs	ဘီးစပ်
8	*Cassia bicapsularis L.*	Caesalpinaceae	Herbs	ဒန်ကျဲ
9	*Crateva magna (Lour) DC.*	Cappridaceae	Trees	ကတက်
10	*Capparis glauca wall.*	Cappridaceae	Shrubs	ကောက်ကွေး
11	*Boscia variabilis collett and Hensl.*	Cappridaceae	Shrubs	သမုန်း
12	*Capparis zeylanica L.*	Cappridaceae	Climber	မနီသံလျက်
13	*Combretum apetalum wall.*	Cmbretaceae	Shrubs/Climbers	နဘူးနွယ်
14	*Terminalia oliveri Brands.*	Combretaceae	Trees	သန်းပင်
15	*Commelina benghalensis L.*	Commeliaceae	Herbs	ဝက်ကြွပ်
16	*Ipomea batatas (L) lam.*	Convolvulaceae	Climbers	တောကန်စွန်း
17	*Merremia emarginata (Burm).f. Hallier.F.*	Convolvulaceae	Creeper	မြင်းခွာ
18	*Ipomea quamoclit L.*	Convovulaceae	Creeper	မြတ်လေးနီ
19	*Kalanchoe laciniata (L) D.C.*	Crassulaceae	Herbs	မီးမလောင်ပန်း
20	*Capparis flavicans Wall .*	Cappariadaceae	Climber	စောင်းဂျမ်း
21	*Vatica lanceaefoila (Korth) Blame.*	Dipterocerpaceae	Trees	ဥက်ထုတ်
22	*Gloriosa spp.*	Discorcaceae	Shrubs	ဆီမီးတောက်
23	*Fluggia leucopyrus willd.*	Euphorbiaceae	Shrubs	ရေဂျင်ဂါ
24	*Croton joufra Roxb.*	Euphorbiaceae	Shrubs	သက်ရင်းကလေး
25	*Bridelia burmanice Hook. F.*	Euphorbiaceae	Small trees	ဆိတ်ချီး
26	*Phyllanthus maderaspatensis L.*	Euphorbiaceae	Shrubs	တောဇီးဖြူ
27	*Euphorbia hyperici folia L .*	Euphorbiaceae	Herbs	နှင်းသတ်ပင်
28	*Clitoria ternatea. L.*	Fabaceae	Climbers	အောင်မဲညို
29	*Millettia brandisiana kur.*	Fabaceae	Trees	သစ်ပင်ဆပ်
30	*Desmodium diffusum D.C.*	Fabaceae	Shrubs	ဂျပ်
31	*Dalbergia oliveri Gamble.*	Fabaceae	Trees	သဘောက်
32	*Atylosia villosa.*	Fabaceae	Trees	တယ်
33	*Gentiana kurro Royle.*	Gentianaceae	Herbs	ဆေးခါးကြီး
34	*Hyptis suaveolens (L) pilot.*	Limiaceae	Herbs	ပင်စိမ်းရိုင်း
35	*Lagerstroemia villosa wall.ex.Kurz.*	Lythraceae	Trees	ဧောင်ပလွေ
36	*Hiptage benghalensis (L.)Kurz.*	Malpighiaceae	Climber/Creeper	ပိန္နယ်
37	*Pavonia glechomifolia A.Rich.*	Malvaceae	Herbs	စုတ်ဆဲ
38	*Abutilon indicum (L.) sweet.*	Malvaceae	Herbs	ဘောက်ပင်
39	*Azadirachta indica A.Juss.*	Meliaceae	Trees	တမာ
40	*Cocculus hirsutus (L) Diels.*	Menispermaceae	Climber	ကြွက်နဘောင်
41	*Albizia chinensis (Osbeck)Merr.*	Mimosaceae	Trees	ဘုန်းမဲဇာ
42	*Acacia catchu willd.*	Mimosaceae	Trees	ရှား
43	*Acacia pennata (L.) Willd.*	Mimosaceae	Climber/Creeper	ဆူးရစ်
44	*Albizia lebbek (L.)Benth.*	Mimosaceae	Trees	ကုက္ကို
45	*Olax scandens Roxb.*	Olacaceae	Shrubs	လယ်လူ
46	*Biophytum sensitivum (L) D.C.*	Oxalidaceae	Herbs	ရွံ့ဖွက်ထိကရုံး
47	*Millettia peguensis Ali .*	Papilioaceae	Trees	သင်ဒုံ
48	*Uvaria dulcis dun.*	Papilionaceae	Climbers	တောပဲပင်
49	*Galactia tenuifolora W & A .*	Papilionaceae	Shrubs	ဟင်းပိစပ်
50	*Desmodium comfertum .*	Papilionaceae	Climbers	တောပန်း

51	*Tephorsia villosa Pers.*	Papilionaceae	Herbs	မဲရိုင်းကလေး
52	*Bambusa spp.*	Poaceae	Shrubs	ဝါး
53	*Zizyphus oenoplia Mill.*	Rhamanaceae	Shrubs/Climbers	ဘောင်ဘဲ့
54	*Hesperethupa crenulate (Roxb)Roem.*	Rutaceae	Small trees	သနပ်ခါး
55	*Cardiospermum cancescens wall.*	Sapindaceae	Climber/Creeper	ကုလားမျက်စိကြီး
56	*Xerospermum noronbianum Blume.*	Sapindaceae	Trees	သစ်ညို
57	*Harrisonia perforata Merr.*	Simaroubaceae	Small trees	ဆူးချဉ်
58	*Sterculia villosa Roxb.*	Sterculiaceae	Trees	တယောမွဲ
59	*Grewia hirsuta (Korth) Vahl .*	Tiliaceae	Shrubs	တယောမွဲ
60	*Crochorus olitorius.*	Tiliaceae	Herbs	ဝီလော
61	*Tectona hamitoniana wall.*	Verbenaceae	Trees	ဒဟတ်
62	*Tectona grandis L.*	Verbenaceae	Trees	ကျွန်း

Table (2). Relative density of plant species on Silica rich rocks

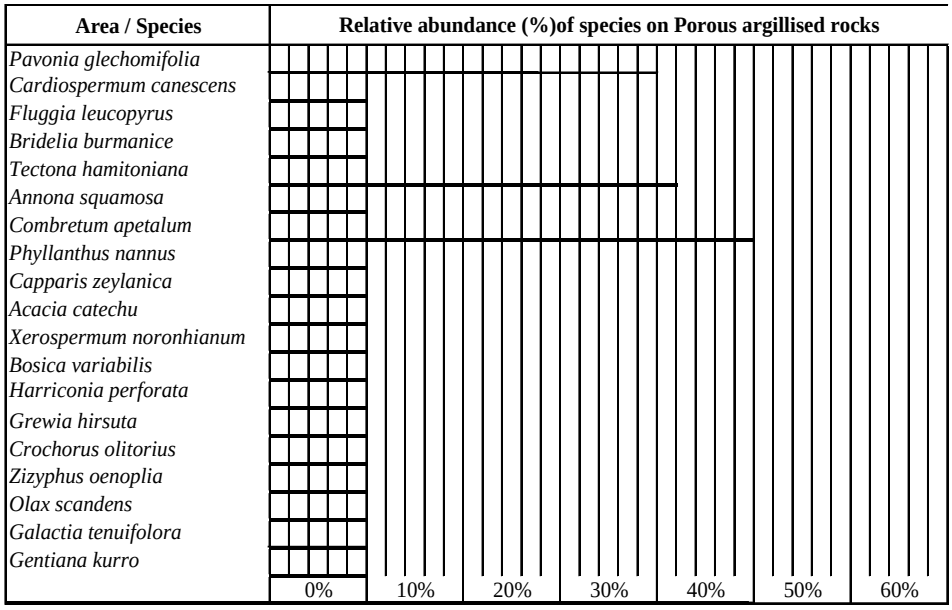

Table (3). Relative density of plant species on Silica rich rocks

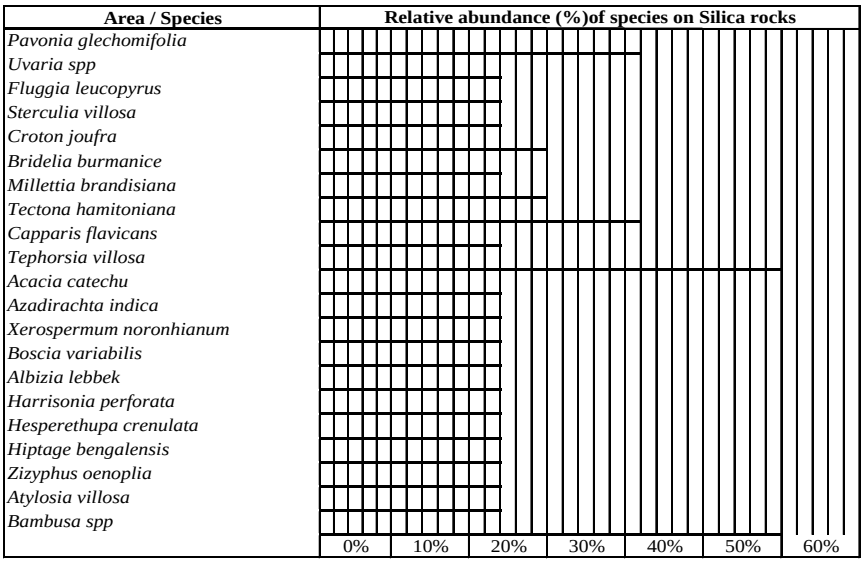

Table (4). Relative density of plant species on Andesite

Area / Species	Relative abundance (%)of species on Andesite
Pavonia glechomifolia	
Cardiospermum canescens	
Uvaria spp	
Crochorus olitorius	
Blepharis boerhavieria	
Fluggia leucopyrus	
Sterculia spp	
Marsdenia spp	
Croton joufra	
Bridelia burmanice	
Clitoria ternatea	
Hyptis saeveolens	
Millettia brandisiana	
Tectona hamitoniana	
Eupatorium odoratum	
Annona squamosa	
Streptocaulon tomentosum	
Abutilon indicum	
Desmodium spp	
Dalbergia oliveri	
Millettia peguensis	
Capparis zeylanica	
Lagerstroemia villosa	
Hiptage bengalensis	
	0% 10% 20% 30% 40% 50% 60%

Table (5). Abundance plant species of study area with lithologic units

Very abundant species	***Tectona hamiltoniana* Wall *Pavonia glechomifolia* A.Rich**		
Restricted Species	*Combretum apetalum*	*Milletina brandsiana* Kur *Croton joufra* Roxb	
		*Tephorsia villosa*Pers. *Bambusa spp*	*Hyptis suaveolens* L
Lithologic Units	Porous argillised rocks	Silaca rich rocks	Andesite rocks

Figure (6). Plant collection and marking station for belt transect study area

Figure (7). *Combretum apetalum wall*

Figure (8). *Pavonia glechomifolia A.Rich.*

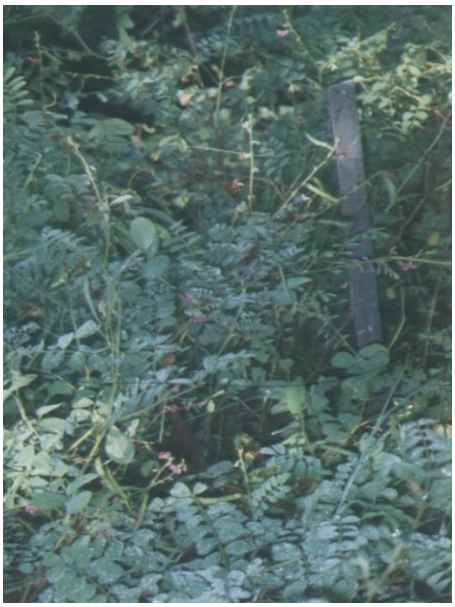

Figure (9). *Tephorsia villosa*Pers

Figure (10). *Croton joufra* Roxb.

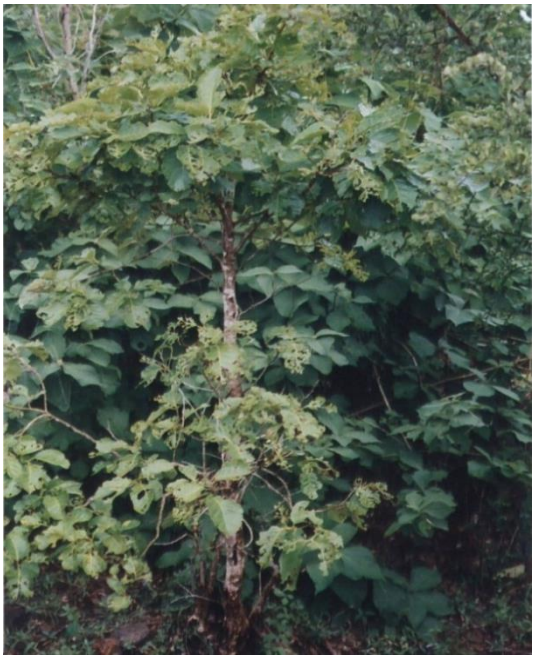

Figure (11)..*Millettia brandisianaKurs*

Figure (12). *Hyptis suaveolens L.*

Figure (13). *Bambusa spp*

Figure (14). *Tectona hamiltoniana wall.*

Discussion and Conclusion

The present presentation contains 23 quadrats, and the different lithologic units have been observed. These three geological units are namely Porous argillised rocks, Silica rich rocks and Andesite rock. The size of the quadrat used in the present study is 15 m x 15 m wide.Quadrat numbers 1, 3, 4, 5, 6, 7 to 14 are on andesite rock unit. Quadrat 2 is on Porous argillised rocks and quardrats numbers 16 to 23 are on Silica rich rocks.

In present study, 62 plants species can be identified. In the study area many species are widely distributed on three lithologic units. *Combretum apetalum* are grown only on Porous argillised rocks. C*roton joufra* Roxb and *Milletina brandisiana* Kur are dominantly grown on silica rich rocks and andesite rocks.The present study area consists of three lithologic units namely Porous argillised, Andesite and Silica rich rock units.The lithologic units have very similar soil color. The dominant vegetation *Tectona hamitoniana* lush on these lithologic units. *Tectona hamitoniana* and *Pavonia glechomifola* are found as very abundant plant species. *Millettia bardisiana* and *Croton joufra* are seen as second abundant plant species*Tephrosia villosa* and *bambusa spp* are found as a few plant species.Seven plant species can be correlated with three lithologic units (Table 5).

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