

A BOTANICAL TOUR TO SUBANSIRI FRONTIER DIVISION (NEFA)

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ABSTRACT

A botanical collection tour along the 100 Km. road track passing through the Dafla hills and Apatanang valley and lying between Kimin (213 m.) and Ziro (1525 m) in the Subansiri F.D., undertaken during September 1959 yielded 383 species of angiosperms and 66 species of Pteridophytes amongst others. This paper presents the topography, climate and vegetation together with a comprehensive analysis of the floristic composition of the vegetational types and is followed by enumeration of the species in the appendix.

Vegetation in the Dafla hills area visited is ascribed to tropical evergreen forest from Kimin to Pitepool and to subtropical evergreen forest and grassland formation between Kherbari and Hapoli, the last one representing a biotic climax.

Apatanang valley is a flat alluvial plain of about 20 sq. miles representing the bed of dried up lake and is very suitable for rice and millet cultivation. *Pinus wallichiana* and *Dendrocalamus sikkimensis* are extensively planted in the surrounding hillocks.

The analysis of the distribution data shows the occurrence of a large number of species in the area as common to neighbouring region e.g. Assam sharing 260 species; Sikkim, 119 species; Western Himalayas, 107 species; Burma, 52 species; Manipur, 15 species; Bengal, 29 species; Bihar and Orissa, 13 species and Deccan Peninsula, 28 species.

Borreria ocymoides, *Torenia asiatica* and *Cyanotis papilionacea*, so far reported as restricted to Deccan Peninsula, *Impatiens porrecta*, *I. paludosa* and *Solanum khasianum*, as endemic to Khasia hills, *Argyrea wallichii* as endemic to Sikkim, *Exacum tetragonum* var. *stylosa* and *Dendrobium chrysotoxum* reported by Hooker from Burma have now been collected from Subansiri F.D.

INTRODUCTION

A botanical collection tour along the 100 km. (60 miles) road track between Kimin and Ziro in the Subansiri F. D. of NEFA was undertaken over a period of about 10 days within the last part of September 1959. Following the track on both sides of this road, representative collections of specimens comprising 615 field numbers were made from the Dafla hills as also from the Apatanang valley.

An account of the topography, soil, vegetation pattern and floristic compositions, based upon the sample collections made is presented in this paper.

TOPOGRAPHY

The area under study lies between Kameng F. D. and Siang F. D. of North East Frontier Agency and is included between 27° 15' and 27° 40' N and 93° 45' 94° E. The whole area consists of steep hills and deep gorges, and shows altitudinal variation from 233 m. at foot hills near Kimin to 1525 m. in Apatanang valley, the highest altitude covered being 1616 m. at Zorum top. To the Tribetan border in the north this area extends in succession of steadily heightening east/west ridges terminating in the snow-clad summits (6060 m.) of the main range whereas to the south the Dafla hills gradually slope and form the foot hills bordering upon North Lakhimpur district of Assam. The outer ranges comprise of "Bhabar" deposits and more matured alluvial deposits in the big river valleys supporting evergreen and semi-evergreen forests and are of late pleistocene origin—

whereas the inner ones are of schist, slates, lime stones and dolomites of considerable age. Brown lateritic soil occurs on the hills while in the Apatanang valley and in foot hills, soil is black alluvial and is very fertile. The forest floor is covered by debris of the leaf and humus often up to 60 mm. in depth arising mainly due to the shedding of leaves from year to year over centuries. Many tributaries like 'Pangeti', 'Pite' meet the main river Ranga which flows from West to East up to the foot hills and then turns southwards to meet the mighty Brahmaputra.

THE APATANANG VALLEY

This circular valley with the small hillock of Ziro at the centre and with Hapoli and a few Apatani villages in the periphery, is a remarkable feature of this division. The valley at a height of about 1525 m. is surrounded by a ring of hills and has the appearance of a Zero and thus suggesting the name of the place as "Ziro". It is a flat oval plain of about 20 sq. miles representing probably the bed of a dried-up lake, and is the only considerable area of flat land in the whole of the division. This valley is thickly populated by Apatani tribe practising permanent agriculture of an intensive type. Rest of the area is sparsely inhabited by Daflas, a primitive and less advanced tribe than the Apatanis, who depend upon hunting and shifting 'Jhum' cultivation.

CLIMATE

The Eastern Himalayan ranges rising steeply from Assam plains receive the impact of the SW monsoon

and experience a heavy rainfall in the lower ranges. The winter climate is rather severe at Ziro in the Apatanang valley where heavy mist settles each evening and does not disperse until ten o'clock the next morning. In December and January there are hard night frosts. The climate at the lower altitudes is much warmer, viz. the maximum and minimum temperatures in September were 27°C and 24°C respectively at Kimin (210 m.) whereas they were 24°C and 13.5°C respectively at Ziro (1525 m.). The percentage of relative humidity is at its maximum, i.e., nearly 90% at Pitepool (700 m.) and decreases to 80% at the lower altitudes at Kimin and up to 70% at higher altitudes at Ziro during September.

VEGETATION

The vegetation of the hills lying along the track between Kimin to Ziro may be classified into three main types such as Tropical ever-green forest, subtropical grassland formation and subtropical evergreen forest.

TROPICAL EVERGREEN FOREST

It extends from the foot hills up to the height of 1000 m. and is met with between Kimin and Kherbari



PHOTO 1: *Pandanus furcatus*, 6 m. high with dichotomous branching

(Photo 2). The upper storey comprising mainly of *Terminalia myriocarpa* (Hollock Assamese) and *Castanopsis indica* (Hingori-Ass.) and associated with *Altingia excelsa* (Jutuli-Ass.), *Amoora wallichii* (Amari-Ass.), *Artocarpus chaplasha* (Sengri-Dafila), *Bischofia javanica* (Uriam-Ass.), *Callicarpa arborea*, *Chikrassia tabularis* (Bogapoma-Ass.), *Cinnamomum cecicodaphne* (Gonsoroi-Ass.), *Dillenia indica*, *Pterospermum acerifolium*, *Quercus glauca*, *Shorea robusta*, (Sal) and *Terminalia chebula* dominate the vegetation and provide the dark humid atmosphere for the profuse development of the epiphytes. *Duabanga sonneratioides* (Khoken-Ass.) and *Salmalia malabarica* with their buttressed trunks and *Pandanus furcatus* attaining 6-7 m. in height with its dichotomous branches (Photo 1) occur near the bank of Ranga river and along the course of streams.

The second and third storeies are represented by small trees and shrubs, viz. *Abroma augusta*, *Actephila excelsa*, *Anplectrum assamicum*, *Baliospermum corymbiferum*, *Boehmeria platyphylla*, *Boeica fulva*, *Buddleia asiatica*, *Clerodendrum bracteatum*, *Ficus hispida*, *Goniolthalamus sesquipedalis*, *Grewia multiflora*, *Hyptianthera stricta* (a rare species), *Laportea crenulata*, *L. pterostigma*, *Leea robusta*, *Mussaenda roxburghii*, *Oxymitra fornicata*, *Oxyspora paniculata*, *Phlogacanthus curviflorus*, *Rhus semialata*, *Sambucus hookeri*, *Sterculia indica*, *Strobilanthes coloratus*, *Talauma hodgsoni* and *Triumfetta bartramia*, *Calamus erectus* and *C. leptospadix* occur gregariously in swampy situations and form impenetrable thickets. These canes are used in making the customary 'tail' by the Apatanis and the waist belt by the Dafilas. *Phoenix sylvestris* on the other hand attaining 6-7 m. in height grows scattered on drier aspects of the hill slopes up to Khuni pahar.

Climbers such as *Chonemorpha griffithii*, *Clematis gouriana*, *Dioscorea bulbifera*, *Gynostemma pedata*, *Jasminum subglandulosum*, *J. caudatum*, *Naravelia zeylanica*, *Pueraria phaseoloides*, *Tetrastigma bracteolatum*, *Thunbergia grandiflora*, *Vitis planicaulis*, and *Ipomoea* spp., grow on many bushes and shrubs and give a nettled appearance to the typical tropical evergreen forest. *Trichosanthes cordata* with its blood-red spindle-shaped fruits is uncommonly conspicuous round the bushes and contrasts sharply with a rare tiny creeper viz. *Sabia campanulata* possessing tiny green flowers, along the roads.

The ground layer includes numerous species such as *Achyranthes bidentata*, *Alternanthera sessilis*, *Asystasia neesiana*, *Chirita acuminata*, *Commelina obliqua*, *Deeringia amaranthoides*, *Exacum tetragonum*, *Floscopa scandens*, *Globba multiflora*, *Hydrocotyle javanica*, *Impatiens paludosa*, *I. porrecta*, *I. radiata*, *Jussiaea suffruticosa*, *Lindenbergia indica*, *Lobelia succulenta*, *Murdannia nudiflora* etc. Many species of ferns including *Asplenium finlaysonianum*, *A. borneense* and *Equisetum diffusum* together with various species of *Selaginella* grow in shady damp places or near water course. A robust species, *Selaginella inaequifolia* trails

through the bushes attaining 3 m. in length and contrasts sharply with the tiny species, *S. subdiaphana* forming a cushion on dry rock boulders. *Campanumaea parviflora* with its white star-like flowers, *Pityrogramma calomelanos* with its greyish white ceraceous covering on the undersurface of the frond and *Onychium siliculosum* with its pale yellow sori growing on the cut slopes of the hills on the road sides at Khuni-pahar, draw one's immediate attention in this season. A few plants of *Tacca integrifolia* with their showy whitish brown involucre bracts and coloured fingerlike projections representing floral bracts, stand out conspicuously against the green background of the road sides in lower altitudes. *Arundina graminifolia*, the bamboo orchid, peeps out by its lilac red flowers through the tall grasses in this sector.

Musa balbisiana, a potential source of Pearl-ash of commerce, containing high percentage of potassium, forms a natural impenetrable avenue on both sides of the road from Kimin to Pitepool. (Photo 2). A green



PHOTO 2: Evergreen forest at New Headquarters with *Musa balbisiana* in foreground

belt of herbs comprising *Cyclosorus parasiticus*, *Egenolfia appendiculata*, *Hedychium thyrsiforme*, *Polygonum barbatum*, *P. serrulatum*, and *Thelypteris setigera* flourishes up to 2m., in breadth in the sunny open situations from the edge of the forest. *Clerodendron squamatum* var. *urticifolia* with its beautiful red flowers in large terminal bunches turns up occasionally in this belt and add colour and grandeur to the edge of the forest. *Angiopteris evecta*, which produces fronds to about 6m. (Plate I) grows luxuriantly in shady moist corners before New Headquarters whereas *Cyathea* spp. occur abundantly at Pitepool.

Saccharum spontaneum with its silky white large panicles (Plate I) and *Hedychium coronarium* with its snow-white flowers (Plate I) form gregarious patches at various points along the streams.

The epiphytic flora consists mostly of orchids and ferns including a few species of *Aeschynanthus*. *Aërides fieldingii*, *Anaëctochilus pumilus*, *Coelogyne flava*, *C. cristata*, *Dendrobium acinaciforme*, *D.*

chrysotaxum, *D. lituiflorum*, *Eria pannea*, *Pholidota articulata*, *Rhyncostylis retusa*, *Saccolabium acuminatum* among the orchids, *Pyrrosia beddomiana*, *Leptochilus decurrens*, various species of *Microsorium* and *Colysis* amongst ferns and scattered patches of *Rhyncoglossum obliquum* are prolific both on moss-covered rock boulders and on trees and shrubs.

SUBTROPICAL GRASSLAND

Grassland, as a biotic climax, suddenly makes its appearance at Kherbari (1050 m.) where both subtropical evergreen forest and grassland vegetation are found to co-exist. Evidently, the grassland owes its origin to the practice of 'jhuming' cultivation by the Dafla tribes and is favoured by the shifting cultivation from generation to generation. Knee-high grass intermixed with *Pteridium aquilinum* ("Bracken" fern) forms a green carpet on the dome-shaped hills at Hapoli and adds charm and grandeur to the landscape.

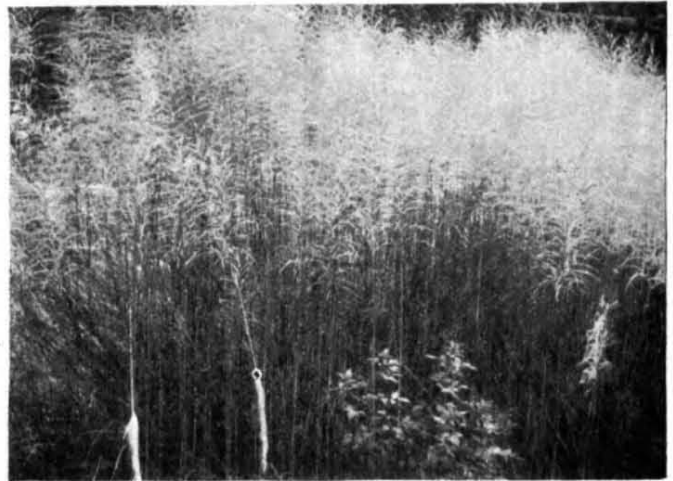
Amongst the grasses *Arundinella bengalensis*, *Saccharum spontaneum*, *Saccolipsis interrupta*, *Setaria palmifolia* etc. attaining a height of about 2m. mixed with herbaceous species of *Eragrostis unioloides*, *E. tenella*, *Hackelochloa granularis*, etc. form the more common elements. *Themeda caudata* intermixed with *Cnicus involucreatus* forms the most dominant species at Zorum top., the latter species extending up to Ziro. *T. caudata* provides the thatch for the roof of the bamboo hutments of the Daflas.

SUBTROPICAL EVERGREEN FOREST

The grassland, however, is interspersed or bordered by the subtropical evergreen forest which appears from Kherbari onwards to Ziro. It is dominated by *Actinodaphne obovata*, *Alnus nepalensis*, *Castanopsis indica*, *Dichroa febrifuga*, *Ficus gasparriniana*, *Lindera pulcherrima*, *Loropetalum chinense*, *Pourthiaea arguta*, *Snurauja punduana*, *Schima wallichii*, and *Quercus glauca* among the trees, and *Berberis wallichiana*, *Eurya acuminata*, *E. japonica*, *Hydrangea vestita*, *Lasianthus longicauda*, *Rosa indica*, *Symplocos cetaegoides*, *Viburnum coriacum*, *V. foetidum*, *V. stellulatum* etc. among the shrubs. *Combretum pilosum* (Plate I) is a straggling shrub attaining 8-10 m. in length and *Argyrea wallichii*, *Clematis gouriana*, *Clitoria mariana*, *Dioscorea pentaphylla*, *Legenaria vulgaris*, *Lygodium japonicum*, *Rubus moluccanus*, *Rubia cordifolia*, *Thunbergia coccinea*, are a few of the climbers met with in this belt. The undershrubs comprise mainly of *Artemisia vulgaris*, *Cassia mimosoides* var. *auricoma*, *Dianella encifolia*, *Hibiscus pungens*, *Plectranthus ternifolius*, *Solanum khasianum*, *S. verbascifolium*, *Vernonia saligna* etc. whereas the herbaceous flora includes *Anaphalis adnata*, *A. araneosa*, *Aneilema protensum*, *Anemone vitifolia*, *Campanula colorata*, *Cynoglossum glochidiatum*, *Exacum tetragonum*, *Inula cappa*, *Justicia khasiana*, *Leucas ciliata*, *Osbeckia stellata*, *Plantago*



Angiopteris evecta with fronds up to 6 m. height



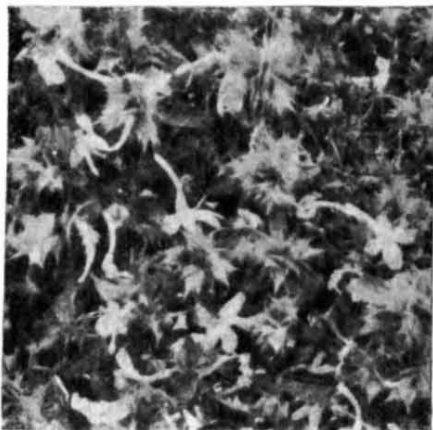
Saccharum spontaneum in the river bed at New Headquarters



Combretum pilosum with white drooping fruits



Methun , a domesticated animal



Barleria cristata with spinescent bracts



Hedychium coronarium in the edge of evergreen forest

major, *Polygonum perfoliatum*, and *Valeriana hardwickii*, *Barleria cristata* with its purple white flowers and spinescent bracts grows with spreading branches (Plate I) sending 60 cm. long tap roots through the new soil on the road sides at Pitepool. Golden-flowered *Crotalaria tetragona* stands out conspicuously as an uncommon species whereas *Anthoceros* spp, *Marchantia* and mosses form a green mat on the dripping walls and hill slopes at Zorum top.

The epiphytic flora in this forest comprises of *Agrostophyllum callosum*, *Cirrhopetalum andersonii*, *Coelogyne barbata*, *C. corymbosa*, *Cryptochilus sanguinea*, *Eria clausa*, among the orchids and *Asplenium ensiforme*, *A. rutaefolium*, *Crypsinus griffithianus*, *Drynaria propinqua*, *Lepisorus thunbergianus*, *Microsorium hymenodes*, *M. zippelii*, *Polypodium amoenum*, *Pyrrosia floccigera*, *P. heteracta*, etc. among the ferns. *Peperomia reflexa* occurs as an epiphyte on mossy trunks. *Cirrhopetalum andersonii*, a beautiful orchid with its purple-red projections of perianth subtended like the fingers on a palm by a semierect peduncle, looks most colourful and was once met with as an epiphyte on *Quercus* sp. at Yacholi. The earlier report of this species is from Darjeeling only. Again *Anthogonium gracile*, *Calanthe tricarinata*, *C. gracilis*, *Cephalanthera ensifolia* etc. represent the terrestrial orchids and *Athyrium boryanum*, *A. nigripes*, *Dryopteris atrata*, *D. odontoloma*, *D. paleacea*, *D. subarborea*, *Plagiogyria euphlebia*, *Osmunda regalis* are some of the terrestrial ferns occurring extensively at Hapoli hills.

The hydrophytic and hydrophilous communities growing in the marshes, swamps and roadside nallas and in bunds of rice fields are represented by *Alisma plantago*, *Equisetum diffusum*, *Eriocaulon luzulaefolium*, *Monocharia vaginalis*, *Polygonum alatum*, *Potamogeton nodosus*, *Sagittaria sagittifolia*, *Sanicula europaea*, *Utricularia bifida* and others.

In the Apatanang valley the fields are under rice and millet cultivation which yield a beautiful crop every year. In the surrounding hillocks *Dendrocalamus sikkimensis* is extensively planted and together with *Phyllostachys assamica*, growing indigenously is used for construction of houses and household furniture by the Apatanis. *Pinus wallichiana* (Blue pine) said to have been introduced by the forefathers of the Apatanis, is thriving luxuriantly in the villages and surrounding hills. There are, however, interesting folklores regarding source of introduction of this blue pine, some pointing to the Central Mongolia from where the forefathers of Apatanis are said to have migrated, others attributing the migration of the pine to the wind-dispersed winged pine seeds from the Rupa valley and its surroundings in the neighbouring Kameng Frontier Division. *Pyrus pashia* and *Docynia indica* are common fruit trees in the hills associated with *Pinus*.

The herbaceous species growing in and around the valley include *Anaphalis contorta*, *Ainsliaea pteropoda*, *Agrimonia eupatoria*, *Calamintha umbrosa*, *Elsholtzia blanda*, *E. incisa*, *Hypericum japonicum*, *Melasma*

avense, *Murdannia spirata*, *Oldenlandia herbacea*, *Pedicularis fragilis*, *Polygonum palmatum*, *Potentilla kleiniana* etc. *Scirpus eriophorum*, interspersed with large patches of *Primula denticulata* forms the chief component in the black soil in the valley and adds colour to the otherwise green hummocks at Hapoli. *Ageratum conyzoides*, *Carex filicina*, *Haloragis micrantha*, *Oenanthe linearis*, *O. thomsoni*, and a few grasses grow either as troublesome weeds in the rice fields or in the open ground.

The ten dominant families with the relative abundance of their species represented among the total 450 species of angiosperms and ferns enumerated are as follows:

Family	No. of species	
Orchidaceae	...	36
Gramineae	...	28
Compositae	...	26
Leguminosae	...	23
Aspidiaceae	...	19
Polypodiaceae	...	17
Rubiaceae	...	16
Labiatae	...	14
Urticaceae	...	12
Commelinaceae	...	10

Thus, 201 species are distributed in 10 families and they constitute about 42 percent of the total species collected and identified. The analysis of the distribution data in respect of species identified shows that it includes a large number of species found elsewhere in India and in the neighbouring countries. This is tabulated below:

Species common to	No. of species	
Assam	...	260
Bihar-Orissa	...	13
Bengal	...	29
Burma	...	52
Deccan Peninsula	...	28
Manipur	...	15
Sikkim	...	119
Western Himalaya	...	107

Further, it may be stated that *Desmodium triflorum*, *Oxalis corniculata*, *Portulaca oleracea*, *Sida rhombifolia*, *Triumfetta bartramia*, are a few of the 74 species occurring in Subansiri F. D., and having wider distribution throughout India.

Species such as *Spermacoce ocymoides* Benth., *Torenia asiatica* Linn., and *Cyanotis papilionacea* Schult. f., which were so far reported as restricted to Deccan Peninsula, species such as *Impatiens porrecta* Wall., *I. paludosa*, Hk. f., *Solanum khasianum* Clarke etc. reported so far as endemic to Khasi Hills, species viz. *Argyreia wallichii* Choisy, occurring as endemic in Sikkim have now their known range of distribution extended to the Subansiri F. D. of NEFA.

Some species reported by Hooker from Burma have now turned up in Subansiri Frontier Division. They

are *Exacum tetragonum* Roxb. var. *stylosa* (Wall.) Hk. f. (19311, Khuni Pahad), and *Dendrobium chrysotoxum* Lindl. (19508, 12th mile from Kimin).

Lastly, the following species need mention for the special interest they hold in the social life of the Apatanis:—

Rubia cordifolia Linn. "TAMI"—Apatani. Locally used for dyeing yarn for weaving cloth and the cane, used in making "tail", in red colour. The root, stem and leaves are cut into pieces and boiled in water with yarn for about 24 hours in this simple dyeing process.

Eurya japonica Thunb. "SANCKHE" Apatani. Locally used for dyeing yarn in yellow colour. Only leaves are boiled in water with yarn for 24 hours.

Berberis wallichiana DC. "TAHMI" Apatani. The bark is used in curing swellings on the body. Fruits are edible.

Two species locally known as Yabi, (Apatani valley) and Yakhung (Dafra Hills) are used by the Apatanis as medicine to cure body and stomach pain. But these plants were not available in August-September.

An enumeration of the species of angiosperms and ferns collected during this tour and identified to species is appended herewith. The recent nomenclature is followed as far as possible.

ACKNOWLEDGEMENTS

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*LIST OF SPECIES (SUBANSIRI FRONTIER DIVISION, NEFA)

ANGIOSPERMS

RANUNCULACEAE

1. *CLEMATIS GOURIANA* Roxb. ; FBI 1:4.
A large climber ; leaves shining ; flower-buds greenish-white.
Not rare. Pitepool, 19633.
2. *NARAVELIA ZEYLANICA* (Linn.) DC. ; FBI 1:7.
A climber 6-7 m. long. Leaves trifoliolate, terminal leaflet ending in tendril.
Rare. 9th mile from Kimin to Ziro, 19460.

*For reference as "Collector", senior author's name, viz., "PANIGRAHI" may be cited.

3. *ANEMONE VITIFOLIA* Ham. ex DC. ; FBI 1:8.
Annual, 60-80 cm. high ; flower pinkish white. Growing on rocky slope along roadsides.
Rare. Zorum top, 19764.

4. *RANUNCULUS DIFFUSUS* DC. ; FBI 1:19.
A herb with compound leaves and yellow flowers ; fruits green, echinate ; growing in wet soil.
Not common. Zorum, 19749.

MAGNOLIACEAE

5. *TALAUMA HODGSONI* Hook. f. & Thoms. ; FBI 1:40.
Tree 13-14 m. tall ; fruits compound.
Not rare. New Headquarters, 19518.

ANNONACEAE

6. *OXYMITRA FORNICATA* (Roxb.) Hook. f. & Thoms. ; FBI 1:71.
A shrub with dark green leathery leaves ; fruits dull red.
Not common. New Headquarters, 19546.
7. *GONIOTHALAMUS SESQUIPEDALIS* (Wall.) Hook. f. & Thoms. ; FBI 1:73.
Perennial shrub up to 3m. high ; stem brittle ; flowers with 3 petals, green ; cauliflorous.
Common. Pitepool, 19670.

BERBERIDACEAE

8. *BERBERIS WALLICHIANA* DC. ; FBI 1:110.
Armed shrub up to 3 m. high ; fruits turning from red to blue ; growing in swampy forest edge.
Common. Near Hapoli, 19815.

CRUCIFERAE

9. *CARDAMINE HIRSUTA* Linn. var. *SYLVATICA* Link ; FBI 1:138.
An erect herb, 15-30 cm. high ; flowers white ; siliqua about 2 cm. Growing in nallas.
Common. Pitepool. 19645.

VIOLACEAE

10. *VIOLA PATRINII* DC. ; FBI 1:183.
Small herb with all leaves radical ; flowers blue ; fruits dehiscent into 3 valves. Growing in sandy alluvium along the road-side.
Common. Kherbari, 19705.

POLYGALACEAE

11. *SALOMONIA CANTONIENSIS* Lour. ; FBI I:206.
Annual, up to 15 cm. tall. Flowers pink. Growing in open sunny places in sandy brown soil.
Common. Ziro Inspection Bungalow, 19856.

CARYOPHYLLACEAE

12. *DRYMARIA CORDATA* Willd. ex Roem & Sch. ; FBI I:244.
Suberect herb, glabrous, 20-30 cm. high ; flowers white small. Growing along the road-side.
Fairly common. 9th mile from Kimin to Ziro. 19437.

PORTULACACEAE

13. *PORTULACA OLERACEA* Linn. ; FBI I:246
Succulent herb ; flowers yellow. Growing on sandy alluvium along road-side.
Common. 9th mile from Kimin to Ziro, 19458.

HYPERICACEAE

14. *HYPERICUM ELODEOIDES* Choisy ; FBI I:255.
Annual, up to 1m. high ; flowers deep yellow, calyx glandular green. Growing in swampy places.
Rare. Hapoli, 19811.
15. *H. JAPONICUM* Thunb. ; FBI I:256.
An erect herb, 15-20 cm. high. Flowers yellow.
Growing as a weed in rice-fields or gardens.
Not common. Ziro Inspection Bungalow, 19788.

TERNSTROEMIACEAE

16. *EURYA JAPONICA* Thunb. ; FBI I:284
Shrub, 3-3½ m. high ; ripe fruits blue-black.
Fairly common near Hapoli, 19841.
17. *E. ACCUMINATA* DC. ; FBI I:285
Shrub up to 5 m. high. Flowers in buds, white.
Common. Near Hapoli, 19853.
18. *SAURAUJA PUNDUANA* Wall. ; FBI I:289
A moderate sized tree, leaves brown-white tomentose beneath ; flowers white-pink. Growing along the road-side.
Common. Zorum, 19759.
19. *SCHIMA WALLICHII* (DC.) Choisy ; FBI I:289
Tree, up to 10m. tall. Last seasons fruits dehiscent, brown-black.
Common. Zorum Basti, 19899.

MALVACEAE

20. *SIDA RHOMBIFOLIA* Linn. var. *rhomboidea* Roxb. ; FBI I:324.
Undershrub up to 1 m. high ; flowers orange-yellow.
Common along the road-side. Not common. Yacholi camp, 19677.

21. *HIBISCUS PUNGENS* Roxb. ; FBI I:341.
Annual herb, up to 2m. high ; flowers deep yellow, showy ; calyx chocolate brown.
Not common. 17th mile from Kimin to Ziro, 19604 ; Yacholi camp, 19702.

STERCULIACEAE

22. *STERCULIA INDICA* Merr.
S. coccinea Roxb. ; FBI I:357.
A shrub, 4-5 m. high, near the bank of a river rooting in rock crevices ; flowers creamy-white ; fruits edible.
Common. 8th mile on Kimin-Ziro road, 19347.
23. *ABROMA AUGUSTA* Linn. f. ; FBI I:375
A shrub about 3 m. or more high. Stem hairy. Petals dark violet.
Fairly common. Kimin, 19316.

TILIACEAE

24. *GREWIA MULTIFLORA* Juss. ; FBI I:388.
A small tree growing along the river bank ; flowers dull white.
Not rare. New headquarters, 19337.
25. *TRIUMFETTA TOMENTOSA* Boj ; FBI I:394.
A shrub with hairs all over ; flowers yellow. Growing in moist places.
Not common. Pitepool, 19634.
26. *T. RHOMBOIDEA* Jacq. ; FBI I:395.
An erect branched shrub ; lower leaves lobed white upper ones entire ; flowers yellow.
Common. 9th mile from Kimin to Ziro, 19428.

OXALIDACEAE

27. *OXALIS CORNICULATA* Linn. ; FBI I:436.
Prostrate and suberect herb growing on wet soil. Flowers yellow.
Common. Kherbari, 19751.

BALSAMINACEAE

28. *IMPATIENS PORRECTA* Wall. ; FBI I:472
A herb 15-30 cm. high. Flowers pink-violet. Growing on the steep slopes.
Not rare. 5th camp, 19621.

29. *IMPATIENS RADIATA* Hook. f. ; FBI I:476.

A herb about 60 cm. high, growing next to water course. Flowers yellow.

Not common. Litchi Pahad, 19622.

30. *I. PALIDOSA* Hook. f. ; FBI I:480.

Annual in swampy places, flowers dull yellow.

Not rare. Hapoli, 19847.

RUTACEAE

31. *MICROMELUM PUBESCENS* Bl. ; FBI I:501.

A shrub with oily green leaves. Fruits green when raw.

Not rare. New headquarters, 19553.

OLACINACEAE

32. *ERYTHROPALUM VAGUM* Mast. ; FBI I:578.

Climber up to 10 m. long ; leaves dull green. Fruits green, deciduous.

Rare. 21st mile from Kimin, 19666.

CELASTRACEAE

33. *CELASTRUS MONOSPERMA* Roxb. ; FBI I:618.

An undershrub about 2 m. high ; leaves oily green ; flower-buds green. Growing amidst *Urena lobata*, *Eupatorium* and *Cyclosorus*.

Not rare. Kimin, 19391.

VITACEAE

34. *TETRASTIGMA BRACTEOLATA* (Wall.) Planch.

Vitis bracteolata Wall. ; FBI I:654.

A climber about 5 m. long on the top of shrubs. Flower greenish white, fruits green.

Fairly common. Khuni Pahad, 19361 ; 21st mile from Kimin to Ziro, 19663.

35. *VITIS PLANICAULIS* Hook. f. ; FBI I:658

Climber about 10 m. long stem rope-like, lenticular ; fruits orange-yellow when ripe. Growing next to water course.

Not rare. 9th mile from Kimin to Ziro, 19442.

36. *LEEA ROBUSTA* Roxb.

L. aspera Wall. ; FBI I:665.

A shrub, 3-4 m. high ; growing along road-side. Fruits green.

Very common. Kimin, 19337.

SABIACEAE

37. *SABIA CAMPANULATA* Wall. ; FBI 2:1.

A climber 3-3½ m. long forming a canopy on under-shrubs. Flowers in bud, green.

Rare. Khuni Pahad, 19372.

ANACARDIACEAE

38. *RHUS SEMIALATA* Murray ; FBI 2:10.

Shrub upto 5 m. high ; flowers creamy-white when open.

Common from Yacholi to Zorum, 19687.

LEGUMINOSAE

39. *CROTALARIA ALATA* Buch.-Ham. ex Roxb. ; FBI 2:69.

An undershrub 1-1½ m. high ; stem and leaves pubescent ; flowers faint yellow ; fruits black.

Common. New headquarters, 19410.

40. *C. TETRAGONA* Roxb. ; FBI 2:78

Shrubby 1-2 m. high ; flowers golden yellow, large ; fruits black when ripe. Growing along road-side.

Not common. Zorum, 19760.

41. *INDIGOFERA DOSUA* Buch.-Ham. ex D. Don var. *TOMENTOSA* Grah. ; FBI 2:102.

Shrub, 3 m. high, bushy ; flowers pink ; fruits brown, hairy.

Common along the road-side. Yacholi, 19682.

42. *SESBANIA BISPINOSA* Fawcett & Rendle

S. aculeata (Willd.) Pers. ; FBI 2:114.

Annual, 1 m. high ; in cultivated fields ; roots with nodules ; corolla yellow, dotted with black.

Not common. Kherbari, 19693.

43. *LESPEDeza SERICEA* Miq. ; FBI 2:142.

Undershrub with diffused branches, 1 m. high ; stem brown ; flowers white, minute. Growing on the hills along the road-side.

Not common. Forest shed near Hapoli, 19809.

44. *DESMODIUM LABURNIFOLIUM* DC. ; FBI 2:163.

Scandent undershrub—1 m. high. Flowers white, small.

Not rare. Yacholi, 19692.

45. *D. TRIQUETRUM* (Linn.) DC. ; FBI 2:163.

Perennial undershrub 1½ m. high ; flowers pink-violet ; petiole winged.

Not rare. Zorum, 19696.

46. *D. LAXIFLORUM* DC. ; FBI 2:164.

A shrub with spreading branches, 1-1½ m. high ; flowers white. Growing on steep rocky slopes.

Common. 9th mile from Kimin to Ziro, 19406.

47. *D. SINUATUM* Blume ex Baker ; FBI 2:166

Scandent perennial undershrub ; fruits drooping. Growing on hill slopes.

Rare. 40th mile from Kimin, 19711 ; Zorum Basti, 19899A.

48. *DESMODIUM LATIFOLIUM* DC. ; FBI 2:168
A shrub, 1-2 m. high ; growing on slopes. Flowers violet.
Not common. Litchi pahad, 19612 ; 19627.
49. *D. GANGETICUM* DC. ; FBI 2:168
A branching shrub, 1 m. high. Leaves trifoliate. Flowers white, small.
Common. New headquarters, 19557.
50. *D. POLYCARPUM* DC. ; FBI 2:171.
Trailing shrub, 1-1½ m. long ; on road-side slopes. Flowers pinkish-violet.
Rare. Pitepool, 19603.
- 50A. *D. POLYCARPUM* var. *TRICHOCAULON* (DC.) Baker ; FBI 2:172.
Perennial, stem and leaves clothed with spreading hairs. Flowers pink-violet. Growing on rocky soil.
Rare. Zorum, 19762.
51. *D. TRIFLORUM* (Linn.) DC. ; FBI 2:173.
A creeping prostrate herb growing in patches in moist places. Flowers pink.
Rare. 9th mile from Kimin to Ziro, 19413.
52. *D. PARVIFOLIUM* DC. ; F.B.I. 2:174.
Perennial diffused herb, 45 cm. high ; growing in the rock crevices ; flowers blue-violet.
Not rare. Yacholi camp, 19683.
53. *D. MOTORIUM* (Houtt.) Merr.
D. gyrans (Linn. f.) DC. ; FBI 2:174.
Perennial 2-3 m. high ; flowers yellow ; pod flat, jointed. Growing on slopes along road-sides.
Not common. Yacholi, 19723.
54. *D. RACEMOSUM* (Thunb.) DC.
Perennial, stem brown, smooth ; flowers small, white ; pod flat, short, 1-jointed. Growing on slopes.
Not rare. 40th mile from Kimin to Ziro, 19709.
55. *PUERARIA PHASEOLOIDES* (Roxb.) Benth. FBI 2:199.
A large climber on trees ; flowers blue-violet.
Not common. Pitepool, 19631.
56. *PHASEOLUS TOROSUS* Roxb.
Cultivated. A twinner growing on slopes ; flowers yellow ; pod cylindric.
Ruron village, 19795.
57. *CLITORIA MARIANA* Linn. ; FBI 2:208
A climber 2-3 m. or more long ; flowers large, solitary in axils, blue ; pod slightly compressed.
Not common. 40th mile from Kimin to Ziro, 19716.
58. *MASTERSIA ASSAMICA* Benth.
Sand binder ; trailing on slopes of hills in the open sunny places. Flowers red.
Common. 6th mile on Kimin-Ziro road, 19362.
59. *CASSIA MIMOSOIDES* Linn. var. *AURICOMA* (Grah.) Baker ; FBI 2:266
An undershrub 60-70 cm. high ; growing along road-side. Pods flat, hairy.
Not common. Yacholi, 19722.
60. *BAUHINIA PURPUREA* Linn. ; FBI 2:284
A tree of moderate size. Flowers white.
Common. Pitepool, 19630.
61. *ACACIA OXYPHYLLA* (Grahm ex Baker) Craib. Kew Bull. (1915) P. 409
A. intsia Willd. var. *oxyphylla* Grah. ; FBI 2:297
Armed shrub ; flowers creamy-white in globose heads. Growing along road-side.
Not rare. Yacholi, 19725.

ROSACEAE

62. *RUBUS PANICULATUS* Smith, FBI 2:329.
Scandent shrub ; leaves rusty-brown below ; inflorescence pinkish.
Fairly common. 7th camp, 19601.
63. *R. MOLUCCANUS* Linn. ; FBI 2:230
A climber, stem minutely prickly ; stem, leaves and calyx densely hairy. Fruits red. Growing along road side.
Not common. Yacholi, 19761.
64. *R. ROSAEFOLIUS* Smith ; FBI 2:341.
Prickly shrub, straggling ; fruits orange-red, edible.
Not rare. Zorum, 19737.
65. *POTENTILLA KLEINIANA* Wight & Arn. ; FBI 2:354.
A diffused herb ; petioles long ; stem hairy ; flowers yellow ; fruits reddish.
Common. Ziro inspection Bungalow, 19786.
66. *AGRIMONIA EUPATORIUM* Linn. ; FBI 2:361.
An undershrub with pinnately compound leaves ; flowers yellow, in racemes.
Not common. Zorum, 19752.
67. *ROSA INDICA* Linn. ; FBI 2:364.
Shrub, 2m. high, spiny ; fruits brown.
Cultivated near Hapoli, 19842.
68. *DOCYNIA INDICA* Dcne. ; FBI 2:369.
Tree of moderate size ; fruits long greenish.
Common. Ruron village, 19797.

69. *PYRUS PASHIA* Buch.-Ham. ex DC. ; FBI 2:374
Vern.-"Semo" Apatani.
A small tree ; fruits small, black when ripe, edible.
Common. Ruron village, 19796.

70. *POURTHIAEA ARGUTA* Dcne. ; var. *HOOKERI* (Dcne.)
Hook. f. ; FBI 2:382.
A small tree ; stem and leaves coarse ; fruits of a
size of pea, green.
Not rare. 40th mile from Kimin to Ziro, 19713.

71. *NIELLIA THYRSIFLORA* Don
Shrub 3-4 m. high ; flowers greenish brown ; calyx
with teeth.
Common. Near Hapoli, 19823.

SAXIFRAGACEAE

72. *HYDRANGEA VESTITA* Wall. ; FBI 2:405.
Shrub 3-3½ m. high ; bracts dried, brown ; fruits green.
Not rare. Near Hapoli, 19837.

73. *DICHROA FEBRIFUGA* Lour. ; FBI 2:406.
Undershrub 1-1½ m. high. Fruits green.
Rare. Near Hapoli, 19836.

HALORAGACEAE

74. *HALORAGIS MICRANTHA* R. Br. FBI 2:430.
Prostrate or suberect herb ; lower leaves opposite,
upper leaves alternate ; flowers pink, minute.
Rare. Ziro ; Inspection Bungalow, 19806.

HAMAMELIDACEAE

75. *LOROPETALUM CHINENSE* Oliv. ; FBI 2:428.
Shrub 6-7 m. high. Fruits brownish tomentose.
Not common. Near Hapoli, 19834.

COMBRETACEAE

76. *TERMINALIA MYRIOCARPA* Heurck and Muell ;
FBI 2:448.
Tree, 16-17 m. tall, bark chocolate coloured.
Very common. New headquarters, 19520.

77. *COMBRETUM PILOSUM* Roxb. ; FBI 2:453.
A straggling shrub 8-10 m. high ; leaves dark green ;
flowers greenish, fruits winged. Growing along the road-
side.
Not common. Yacholi, 19743.

MELASTOMACEAE

78. *OSBECKIA STELLATA* Wall. ; FBI 2:517.
Annual, woody below. Stem and leaves pubescent.
Flowers pink-violet.
Common. Kherbari, 19732 ; Ziro, 19900.

79. *O. NUTANS* Wall. ; FBI 2:521.
Undershrub on the sunny exposed slopes of rocks on
either side of road. Flowers violet.
Quite common. Khuni Pahad, 19302.

80. *OXYSPORA PANICULATA* DC. ; FBI 2:525.
Shrub, 5 m. high ; flowers deep red. Growing along
the road-side.
Not rare. 12th mile from Kimin to Ziro, 19478.

81. *ANPLECTRUM ASSAMICUM* C. B. Clarke ; FBI
2:546.
Shrub, 3-4 m. high ; fruits brownish red ; flowers
pink ; growing along road-sides.
Common. 6th mile from Kimin to Ziro, 19394.

ONAGRACEAE

82. *EPILOBIUM TRICHONEURUM* Hassk.
E. hookeri—C. B. Clarke ; FBI 2:585.
An erect herb ; stem reddish, pubescent ; flowers pink.
Growing along nallas.
Not rare. Appearing from 40th mile up to Ziro, 19730.

83. *JUSSIAEA SUFFRUTICOSA* Linn. ; FBI 2:587.
An undershrub 60-80 cms. high ; flowers large,
yellow ; growing on the stream-bed.
Common. Near pitepool Inspection Bungalow, 19636.

84. *CIRCAEA LUTETIANA* Linn. ; FBI 2:589.
Annual, woody below. Fruits echinate, green. Grow-
ing near rice fields.
Not common. Ruron village, 19799 ; Near Hapoli,
14831.

CUCURBITACEAE

85. *TRICHOSANTHES CORDATA* Roxb. ; F.B.I. 2:608.
A climber 10 m. long, climbing on trees. Fruits blood-
red, oval.
Not rare. 8th mile on Kimin-Ziro road, 19352.

86. *LAGENARIA VULGARIS* Ser. ; FBI 2:613.
A large climber ; stem and leaves clothed with spread-
ing hairs ; flowers large, orange-yellow.
Not common. Zorum, 19766.

87. *LUFFA ACUTANGULA* Roxb. ; FBI 2:615.
Cultivated. Fruits edible, 40-45 cm. long, strongly
ribbed.
New headquarters, 19521.

88. *MOMORDICA CHARANTIA* Linn. ; FBI 2:616.
A tendril climber 1-1½ m. long. Flowers yellow ; along
road-side.
Common. 9th mile from Kimin to Ziro, 19431.

89. *MOMORDICA DIOICA* Roxb. ; FBI 2: 617.
A tendril climber, 1m. long. Flowers yellow.
Not rare. 7th camp, 19615.

90. *GYNOSTEMMA PEDATA* Blume ; FBI 2:633.
A climber about 2-4 m. long ; flowers minute, greenish.
Growing near river bank.
Fairly common. 9th mile from Kimin to Ziro, 19339 ;
19423.

BEGONIACEAE

91. *BEGONIA ROXBURGHII* DC. ; FBI 2:635.
Perennial ; leaves broad ; inflorescence pink-red.
Common. 12th mile from Kimin to Ziro, 19491.
92. *B. RUBROVENIA* Hook. f. FBI 2:645.
A herb growing on wet rocks. Petiole and lower surface of leaves pink ; flowers pink.
Fairly common. Khuni Pahad, 19308.

FICOIDEAE

93. *MOLLUGO PENTAPHYLLA* Linn.
M. stricta Linn. ; FBI 2:663.
An erect much branched herb growing on sandy alluvium in open places. Flowers white.
Common. Pitepool, 19629 ; Ziro, 19785.

UMBELLIFERAE

94. *HYDROCOTYLE JAVANICA* Thunb. ; FBI 2:667.
A herb spreading by means of runners ; flowers small, greenish.
Not common. Khuni Pahad, 19344.
95. *SANICULA EUROPEA* Linn. ; FBI 2:670.
Annual, 60-70 cm. high ; flowers small, white. Growing in marshy places along with grasses.
Not common. 40th mile from Kimin to Ziro, 19714.
96. *OENANTHE LINEARIS* Wall. ; FBI 2:696.
An erect herb ; stem very soft ; flowers white. Growing in rice fields.
Common. Ruron village, 19789.
97. *O. JAVANICA* DC.
O. thomsoni C. B. Clarke ; FBI 2:697.
Annual, 1 m. high ; flowers white ; fruits green. Growing in swampy places.
Fairly common. Near Hapoli, 19852.

CAPRIFOLIACEAE

98. *SAMBUCUS HOOKERI* Rehrd.
Shrub or a small tree about 7-8 m. tall. Flowers white.
Common. 7th camp, 19616.

99. *VIBURNUM STELLULATUM* Wall. ; FBI 3:4.
Shrub 3 m. or more high. Fruits red, pulpy with one seed.
Rare. Near Hapoli, 19812.

100. *V. FOETIDUM* Wall. ; FBI 3:4.
Scandent shrub about 3m. high ; fruits orange-red, attractive. On the edge of the forest in swampy places.
Not rare. Hapoli, 19808.

101. *V. CORIACEUM* Blume ; FBI 3:5.
Shrub 3-3½ m. high ; fruits green. Growing in low swampy forest edge.
Common. 6th mile from Kimin, 19422 ; Near Hapoli, 19833.

RUBIACEAE

102. *OLDENLANDIA DIFFUSA* (Willd.) Roxb. : FBI 3: 65.
Growing on sandy soil. A herb with white flowers.
Common. 6th mile from Kimin, 19422 ; Zorum, 19774.
103. *O. HERBACEA* (Linn.) Roxb.
O. heynei R. Br. ; FBI. 3:65.
A prostrate herb with small white flowers. Growing on wet soil.
Common. Ziro Inspection Bungalow, 19784.
104. *ANOTIS WIGHTIANA* (Wall.) Benth. & Hook. f. ; FBI 3:75.
Prostrate or suberect herb ; stem and leaves hairy ; flowers faint purple, small.
Not rare. Ziro Inspection Bungalow, 19803.
105. *SPIRADICLIS CYLINDRICA* Wall. ; FBI 3:76.
A branched undershrub, 60-75 cm. high ; flowers small, white. Growing in rock crevices.
Common. Khuni Pahad, 19330.
106. *S. BIFIDA* Wall. ; FBI 3:76.
A herb 20-30 cm. high with creamy-white flowers arranged in a raceme.
Not rare. 7th camp, 19618.
107. *OPHIORRHIZA TRUETLERI* Hook. f. ; FBI 3:83.
An undershrub with whitish flowers. Growing along road-side.
Not common. Litchi Pahad, 19619.
108. *CARLEMANNIA GRIFFITHII* Benth. ; FBI 3:85.
An undershrub 60-90 cm. high ; Flowers small, white.
Common. Khuni Pahad, 19334 ; 19606.
109. *SILVIANTHUS BRACTEATUS* Hook. f. ; FBI 3:86.
A shrub, 2-3½ m. high ; in moist places ; cauliferous. Sepals greenish.
Common. Khuni Pahad, 19367.

110. *MUSSAENDA ROXBURGHII* Hook. f. ; FBI 3:87.
Shrub, 3-3½ m. high. One sepal lobe white, showy.
Stem pubescent.
Fairly common. 9th mile from Kimin to Ziro, 19452.

111. *ADENOSACME LONGIFOLIA* Wall. ; FBI 3:95.
Perennial, growing amidst grasses. Flowers pale green.
Common. 9th mile from Kimin to Ziro, 19395.

112. *HYPTIANATHERA STRICTA* (Roxb.) Wight & Arn.
FBI 3:121.
A small tree growing on slopes. Raw fruits green.
Rare. 9th mile from Kimin to Ziro, 19430.

113. *DENTILLARIA CORYMBOSA* (Willd.) O. Ktze.
Knoxia corymbosa Willd. ; FBI 3:128.
An erect herb, 30-60 cm. high ; stem and leaves thinly
pubescent ; flowers greenish-white. Growing in moist
places.
Not rare. Kherbari, 19731.

114. *LASIANTHUS LONGICAUDA* Hook. f. ; FBI 3:190.
Shrub, 3 m. or more in height. Ripe fruits blue-violet ;
leaves oily green.
Not common. Near Hapoli, 19813 ; 19817.

115. *BORRERIA OCYMOIDES* DC.
Spermacoce ocymoides Burm. ; FBI 3:200.
A hispid herb with minute white flowers in heads.
Common. Kimin, 19332.

116. *RUBIA CORDIFOLIA* Linn. ; FBI 3:202.
A climber, stem quadrangular ; flowers dull orange
coloured ; growing along the road-side.
Common. 40th mile from Kimin to Ziro, 19710.

117. *GALIUM ROTUNDIFOLIUM* Linn. ; FBI 3:204.
Trailing perennial herb, 40-50 cm. high ; flowers
green. Growing in edge of bamboo-forest.
Common. Hong village, 19781.

VALERIANACEAE

118. *VALERIANA HARDWICKII* Wall. ; FBI 3:213.
Annual up to 1½ m. high ; flowers white ; style white-
feathery and protruding.
Common. Hapoli, 19775.

COMPOSITAE

119. *VERNONIA CINEREA* (Linn.) Less. ; FBI 3:233.
Annual, up to 1 m. high ; flowers pink-white ; fruits
whitish. Growing along the road-side.
Common. Zorum basti, 19676.

120. *V. SALIGNA* DC. ; FBI 3:235.
Undershrub 1-1½ m. high ; stem grooved, slightly
pubescent. Flowers purple-white.
Not rare, Zorum, 19735.

121. *V. VOLKAMERIAEFOLIA* (Wall.) DC. ; FBI 3:240.
Shrub up to 5 m. high ; flowers in large terminal
panicles, faint purple.
Not common. Yacholi to Zorum, 19688.

122. *ADENOSTEMMA LAVENIA* (Linn.) O. Ktze.
A. viscosum Forst. ; FBI 3:242.
Erect herbs with white flower-heads. Growing along
road-side.
Not common. Yacholi, 14755.

123. *AGERATUM CONYZOIDES* Linn. ; FBI 3:243.
Annual up to 1 m. high ; flowers bluish white to
violet.
Common everywhere along the road-side and cleared
grounds up to Ziro. 19892 A.

124. *EUPATORIUM CANNABINUM* Linn. FBI 3:243.
Erect slightly branched herb with terminal heads of
white flowers. Growing along roadside.
Not common. 40th mile from Kimin to Ziro, 19727.

125. *DICROCEPHALA LATIFOLIA* DC. ; FBI 3:245.
A herb 15-45 cm. high ; flowers yellowish white.
Growing along the nallas.
Not common. 5th camp, 19620.

126. *RHYNCOSPERMUM VERTICILLATUM* Reinw. ; FBI
3:248.
Erect herb ; woody below ; stem and leaves thinly
pubescent ; flower heads white-yellow.
Not common. 40th mile from Kimin to Ziro, 19756.

**127. *ERIGERON LINIFOLIUS* Willd. ; FBI 3: 254.
Annual, up to 1 m. high ; ray-florets present ; inflores-
cence greenish-brown. Growing in open places along
roadsides.
Common. 9th mile from Kimin to Ziro, 19444.

128. *ANAPHALIS ADNATA* DC. ; FBI 3:282.
Erect herb 30-60 cm. high ; whole plant silvery white.
Flower heads silvery-yellow. Growing on slopes along
roadsides.
Common. Yacholi, 19729.

129. *A. ARANEOSA* DC. ; FBI 3:283.
Annual herb growing in mud along road-side. Heads
white, globular.
Fairly common. Hapoli, 19703.

130. *A. CONTORTA* (Don) Hook. f. ; FBI 3:284.
Erect herb, 30-60 cm. high ; leaves narrow, silvery
white all over ; flowers white.
Common. Ruron village, 19790.

** Editorial note: The identity of this plant needs further
scrutiny. This is probably *E. bonariensis* Linn.

131. *GNAPHALIUM LUTEOALBUM* Linn. ; FBI 3:288.
An erect herb, 15-30 cm. high ; leaves and stem whitish ; heads yellow. Growing along road-side.
Common. Litchi Pahad, 19625.

132. *G. HYPOLEUCUM* DC. ; FBI 3:288.
An erect herb, woody below, 60-80 cm. high ; leaves narrow ; flowers yellow. Growing along the roadside.
Fairly common. Zorum, 19750.

133. *INULA CAPPA* (Ham.) DC. ; FBI 3:295.
A perennial with smooth pubescence all over ; leaves silvery white beneath ; flowers ash-yellow. Growing along the road-side.
Fairly common. 40th mile from Kimin to Ziro, 19708.

134. *SIEGESBECKIA ORIENTALIS* Linn. ; FBI 3:304.
Annual up to 1½ m. high. Stem branches vertical, chocolate brown. Flowers with brown-yellow ray florets. Calyx sticky glandular.
Rare. Hong village, 19780.

135. *WEDELIA WALLICHII* Less. ; FBI 3:307.
An undershrub 60 cm.-1 m. high ; flowers yellow. Growing along stream.
Not common. Litchi-pahad, 19626.

136. *BIDENS BITERNATA* (Lour.) Merr. et Sherff.
Annual or perennial herb. Inflorescence with 3-6 white ray florets ; disc florets brown-yellow.
Not rare. 9th mile from Kimin to Ziro, 19447.
var. *BIPINNATA* ; FBI 3:309.
Not common. Yacholi, 19695.

137. *ARTEMISIA VULGARIS* Linn. ; FBI 3:325.
Annual, woody below ; stem and leaves hairy, aromatic ; flowers dull white. Growing on slopes along road-side.
Fairly common. From 40th mile onwards up to Ziro, 19748.

138. *CRASSOCEPHALUM CREPIDIODES* (Benth.) S. Moore.
Annual, stem rooting in the sandy crevices of rocks along the road-side. Flowers chocolate red.
Common. 9th mile from Kimin to Ziro, 19445.

139. *SENECIO GRACILIFLORUS* DC. ; FBI 3:338.
Annual up to 2½ m. high ; growing in rice fields and hill slopes. Flowers deep yellow.
Common. Near Hapoli, 19854.

140. *S. SAXATILIS* Wall. ; FBI 3:344.
Annual, growing in muddy soil ; flowers yellow, 1-2 cm. across.
Not rare. 40th mile from Kimin to Ziro, 19715.

141. *CNICUS INVOLUCRATUS* DC. ; FBI 3:362.
Perennial reaching the height of 5-6 m. ; armed ; leaves spiny ; flowers dull yellow.
Common along road-side. 40th mile onwards up to Ziro, 19767.

142. *AINSLIAEA PTEROPODS* DC. FBI 3:388.
Growing on leafy litter of forest floor. Flowers pinkish.
Fairly common. Near Hapoli, 19832.

143. *YOUNGIA JAPONICA* DC.
Crepis japonica (Linn.) Benth. ; FBI 3:395.
Herb, 30-40 cm. high ; leaves radical and cauline ; flower small, orange-yellow.
Not rare. New headquarters, 19560.

144. *PRENANTHES HOOKERI* Clarke ; FBI 3:412.
In the midst of grasses and ferns. Stem 2 m. high ; weak. Flowers pink-violet.
Rare. Near Hapoli, 19824.

CAMPANULACEAE

145. *LOBELIA ANGULATA* Forst.
Pratea begonifolia Lindl. ; FBI 3:422.
A prostrate herb, stem hairy ; flowers blue ; fruits violet when ripe. Growing near Nallas.
Not common. Pitepool, 19648.

146. *LOBELIA ZEYLANICA* Linn.
L. affinis Wall. ; FBI 3:424.
A suberect herb rooting at nodes, 20-30 cm. long ; flowers blue. Growing along river banks.
Not common. 9th mile from Kimin to Ziro, 19436.

147. *LOBELIA NICOTIANAEOFOLIA* Roth ex R. & S ; FBI 3:427.
L. nicotianaefolia Roth ex R. & S. var. *trichandra* Clarke ; FBI 3:427
L. colorata Wall. ; FBI 3:426
L. erecta Hook. f. & Thoms. ; FBI 3:426
L. pyramidalis Wall. ; FBI 3:426
L. rosea Wall. ; FBI 3:427
L. excelsa Leschen. ; FBI 3:427
An erect herb, growing near nallas amidst grasses ; flowers white, pink-violet.
Not rare. Pitepool, 19646 ; Hapoli, 19820.

148. *LEPTOCODON GRACILIS* Hook. f. & Thoms. ; FBI 3:430.
Climber on hedges, forming a net-work. Flowers white at bottom and violet purple at the throat and limb.
Rare. Hong village, 19777.

149. *CAMPANUMAEA PARVIFLORA* Benth. ; FBI 3:436.
A diffuse undershrub 30-60 cm. high. Flowers tetramerous, white.
Common. Khuni Pahad, 19312.

150. *CAMPANULA COLORATA* Wall. ; FBI 3:400.
An erect herb about 30 cm. high ; growing in damp places. Stem and leaves hairy. Flowers blue.
Not rare. Zorum, 19746.

MYRSINACEAE

151. *MAESA INDICA* (Roxb.) Wall. ; FBI 3:509.
A shrub up to 2m. high ; fruits small, greenish. Growing on wet hard soil.
Not rare. New headquarters, 19568.

152. *ARDISIA UNDULATA* Clarke ; FBI 3:524.
Undershrub, up to 2m. high, fruits oily green.
Not rare. Near Hapoli, 19838.

153. *A. HUMILIS* Vahl ; FBI 3:529.
A small tree, leaves dark green ; calyx persistent in fruit. Growing along river bank.
Common. 9th mile from Kimin to Ziro, 19409.

STYRACACEAE

154. *SYMPLOCOS CRATEGOIDES* Ham. ; FBI 3:573.
Shrub, about 5 m. high. Ripe fruits blue-black, pulpy.
Rare. Near Hapoli, 19855.

OLEACEAE

155. *JASMINUM SUBGLANDULOSUM* Kurz ; FBI 3:600.
A twinning shrub 3-4 m. high ; flowers white.
Not rare. 10th mile from Kimin to Ziro, 19335.

156. *J. CAUDATUM* Wall. ; FBI 3:601.
A climber on trees ; flowers white ; growing in wet soil.
Not common. New headquarters, 19561.

APOCYANACEAE

157. *CHONEMORPHA GRIFFITHII* Hook. f. ; FBI 3:662.
Climber on trees ; leaves brownish hairy ; fruits grey brown.
Not rare. 9th mile from Kimin to Ziro, 19454.

ASCLEPIADACEAE

158. *PENTASACME CAUDATUM* Wall. ; FBI 4:28.
On rock on mossy cover ; flowers showy, white.
Rare. Khuni Pahad, 19602.

LOGANICEAE

159. *BUDDLEIA ASIATICA* Lour. ; FBI 4:82.
An undershrub 1½-2 m. high ; in river bed rooting in the rock crevices and moist walls. Flowers white.
Common. Khuni Pahad, 19371.

GENTIANACEAE

160. *EXACUM TETRAGONUM* Roxb. ; FBI 4:95.
Erect herb, branching at the top ; stem quadrangular, winged ; flowers blue-violet.
Not common. 40th mile from Kimin to Ziro, 19736.

- 160A. *E. TETRAGONUM* var. *STYLOSA* (Wall.) Clarke ; FBI 4:95.
An erect unbranched herb ; 60-75 cm. high ; flowers blue, stamens yellow.
Fairly common. Khuni Pahad, 19311.

161. *CRAWFURDIA AFFINIS* Wall. ; FBI 4:107.
Climber 3 m. or more long, on all undergrowths on roadsides. Flowers blue.
Hapoli to Forest shed 19807.

BORAGINACEAE

162. *TOURNEFORTIA VIRIDIFLORA* Wall. var. *griffithii* Clarke ; FBI 4:146.
Annual herb, 1-1½ m. high ; flowers white, in two rows.
Not common. Kimin, 19388.

163. *CYNOGLOSSUM GLOCHIDIATUM* Wall. ; FBI 4:156.
Erect herb 60-70 cms. high. Inflorescence branched. Flowers blue.
Common on the slopes along roadsides. Zorum, 19738.

CONVOLVULACEAE

164. *ARGYREIA WALLICHII* Chois. ; FBI 4:187.
Large twinner spreading on trees ; stem and lower side of the leaves silvery white ; flowers pink.
Not common. 40th mile from Kimin to Ziro, 19712.

165. *MERREMIA UMBELLATA* (Linn.) Hall. f.
Ipomoea cymosa R. & S. ; FBI 4:211
Climber, 10 m. long. Flowers pinkish or lilac-red.
Common. New headquarters, 19457.

SOLANACEAE

166. *SOLANUM VERBASCIFOLIUM* Linn. ; FBI 4:230
Unarmed shrub ; stem powdery, rough ; leaves glandular pubescent ; flowers white. Growing along the roadside.
Not rare. Kherbari, 19728.

167. *SOLANUM KHASIANUM* Clarke ; FBI 4:234.
Armed shrub ; fruits with green and white lines.
Growing along the roadside.
Not common. Yacholi, 19763.

168. *S. TORVUM* Swartz ; FBI 4:234.
Shrub, 3m. high ; stem prickly ; flowers white ; fruits globose.
Common on the way from Kimin to Pitepool ; 19665.

169. *LYCOPERSICUM ESCULENTUM* Miller ; FBI 4:237.
A weak shrub about 90-120 cm. high. Flowers yellow.
Fruits red-orange when ripe.
Rare. Khuni Pahad, 19307.

170. *PHYSALIS MINIMA* Linn. ; FBI 4:238.
Annual about 1m. high ; ripe fruits chocolate brown ; flowers white.
Not common. New headquarters, 19523.

171. *CAPSICUM ANNUUM* Linn. var. *ACUMINATA* Fingerh.
C. frutescens FBI 4:239 (non Linn.)
An odd plant growing on rock ; fruits blood-red, 7 cm. long.
Rare. Khuni Pahad, 19382.

SCROPHULARIACEAE

172. *MAZUS DENTATUS* Wall. ; FBI 4:260.
An erect herb, leaves all radical ; scape 15 cm. high ; flowers blue violet. Sepals green, persistent. Growing along the nallas.
Common. Pitepool, 19649.

173. *LINDENBERGIA INDICA* (Linn.) O. Ktze.
L. urticaefolia Lehm. ; FBI 4:262
A herb, 15-30 cm. high ; flowers yellow ; growing on wet rocks.
Not common. Khuni Pahad, 19301.

174. *LIMNOPHILA CHINENSIS* (Osbeck) Merr.
L. hirsuta Benth. ; FBI 4:268
An erect herb, 10-15 cm. high. Stem reddish, hairy. Flowers violet-blue.
Common near nallas. Pitepool, 19643.

175. *L. CONNATA* (Buch.-Ham.) Hand.-Mazt.
L. hypericifolia Benth. ; FBI 4:169.
Perennial herbs in sandy alluvium. Flowers pink-violet, attractive.
Not rare. Near Hapoli, 19844.

176. *TORENIA ASIATICA* Linn. ; FBI 4:277.
A herb, stem non-bulbiliferous, 15-20 cm. high ; flowers dark violet.
Fairly common along the roadside near nallas. 6th mile from Kimin to Ziro, 19425 ; Pitepool, 19644.

177. *T. VAGANS* Roxb. ; FBI 4:277.
An erect bulbiliferous herb, 15-30 cm. high. Flowers dark blue.
Not common. Kimin, 19310.

178. *LINDERNIA CILIATA* (Colsm.) Pennell
Bonnaya brachiata Link & Otto ; FBI 4:284.
Growing in the sandy alluvium amidst grasses. Flowers faint-blue.
Common. Kimin, 19385.

179. *L. ANAGALLIS* Pennell
B. veronicaefolia Spreng. ; FBI 4:285.
An erect herb branching from the base ; 20-30 cm. high ; flowers blue.
Common along the roadside in sandy alluvium. Kimin, 19386. 6th mile from Kimin to Ziro, 19424.

179A. *L. ANAGALLIS* var. *GRANDIFLORA* (Retz.) Mukerjee
Flowers violet-pink. Not rare. Kimin, 19383.

180. *SCOPARIA DULCIS* Linn. ; FBI 4:289.
Herb, woody below ; flowers white. Growing in sandy alluvium.
Fairly common. 9th mile from Kimin to Ziro, 19451.

181. *MELASMA AVENSE* (Benth.) Pennell
Alectra indica Benth. ; FBI 4:297.
Erect herb, stem and leaves coarse. Flowers yellow.
Rare. Ziro Inspection Bungalow, 19804.

182. *CENTRANTHERA GRANDIFLORA* Benth. ; FBI 4:301
A herb branching above 60-75 cm. high. Flowers large, yellow in the leaf axils.
Rare. 6th mile from Kimin, 19415.

183. *PEDICULARIS FRAGILIS* Prain.
Annual 40-50 cm. high. Leaves with brownish-white dots. Flowers pink. Rare. Hapoli, 19850.

LENTIBULARIACEAE

184. *UTRICULARIA BIFIDA* Linn. ; FBI 4:332.
Herb on swampy soil in rice fields. Flowers deep yellow.
Very common. Hapoli, 19848.

GESNERACEAE

185. *LOXOSTIGMA GRIFFITHII* Clarke ; FBI 4:344.
Epiphytic on trees. Flowers yellowish green. with brownish tint on tubes.
Rare. Hapoli, 19894A.

186. *LYSIONOTUS SERRETUS* Don ; FBI 4:344.
On dry rock boulders. Stem whitish with serrate leaves. Young fruits green.
Not common. 5th camp, 19600.

187. *CHIRITA ACUMINATA* R. Br. ; FBI 4:359.
A shrub 60-90 cm. high ; young parts and leaves tomentose. Flowers large white.
Not rare. Khuni Pahad, 19340.

188. *BOEICA FULVA* Clarke ; FBI 4:362
An undershrub 1 m. high ; growing on roadside walls. Flowers purple ; young parts and leaves tomentose.
Common. 9th mile from Kimin 14325 ; 19400.

189. *RHYNCHOGLOSSUM OBLIQUUM* Blume ; FBI 4:367
A herb with soft stem, growing on wet rocks. Flowers blue.
Fairly common. Khuni Pahad, 19323.

190. *R. ELLIPTICUM* (Wall.) A. DC. ; FBI 4:373.
Undershrub amidst undergrowths in shady moist slopes, cauliflorous ; fruits green.
Fairly common. 7th mile from Kimin to Ziro, 19349.

191. *R. VESTITUM* (Griff.) Hook. f. & Thoms. FBI 4:373
Perennial, about 1m. high ; young fruits with densely hairy calyx ; petals pink.
Fairly common. 7th camp, 19599.

PEDALIACEAE

192. *SESAMUM INDICUM* Linn. FBI 4:387.
Annual, 1-1½ m. high ; flowers white ; stem and leaves aromatic. Growing on sandy alluvium.
Not rare. 9th mile from Kimin to Ziro, 19453.

ACANTHACEAE

193. *THUNBERGIA GRANDIFLORA* (R. & W.) Roxb. ; FBI 4:392.
Climber, 13-14 m. long ; flowers bluish white.
Common. 9th mile from Kimin to Ziro, 19456.

194. *T. COCCINEA* Wall. ; FBI 4:393.
A large climber on shrubs or small trees ; calyx purple, corolla red.
Common. 40th mile from Kimin to Ziro, 19706.

195. *STROBILANTHES PENTSUMONOIDES* T. Anders. ; FBI 4:460.
Perennial herb, about 1 m. long ; trailing amidst grasses. Flowers deep violet, shining.
Not rare. Yacholi camp, 19679.

196. *STROBILANTHES DISCOLOR* T. Anders. ; FBI 4:462
An undershrub growing along the roadside. Flowers pink-violet.
Common. 13th mile from Kimin to Ziro, 19304 ; Khuni Pahad, 19342.

197. *S. COLORATUS* T. Anders. ; FBI 4:473.
An undershrub, 1 m. high, growing on slopes. Quite glabrous. Flowers showy, purple.
Common. 9th mile from Kimin, 19405.

198. *S. FURCATUS* Biswas
A scandent shrub ; flowers white ; sepals green, bracts green ; inflorescence about 10cm. long.
Not common. 7th camp, 19660.

199. *BARLERIA CRISTATA* Linn. ; FBI 4:488.
Perennial undershrub 1 m. high ; branches diffused ; flowers purple or white. Growing on sandy soil. This thus includes the typical variety (flowers purple) as well as var. *dichotoma* (Roxb.) Prain, Beng. Pl. 812, 1903, with white flowers.
Rare. Yacholi, 19680, 19681.

200. *ASYSTASIA NEESIANA* Nees ; FBI 4:496.
An undershrub with spreading branches. Flowers blue-violet.
Not common. Kimin, 19336.

201. *PSEUDERANTHEMUM PALATIFERUM* (Wall.) Radlk.
Eranthemum palatiferum Nees ; FBI 4:498.
A shrub about 2 m. high ; leaves thick, faint green ; fruiting.
Common. New headquarters, 19550.

202. *ANDROGRAPHIS TENUIFLORA* T. Anders. ; FBI 4:502.
Perennial trailing herb. Stem diffused. Flowers very small, pink-violet.
Not rare. 9th mile from Kimin, 19455.

203. *PHLOGACANTHUS CURVIFLORUS* Nees ; FBI 4:511.
A shrub 3-5 m. high ; sepals & petals rosy pink.
Common. 6th mile from Kimin to Ziro, 19397.

204. *JUSTICIA VASULOSA* Wall. ; FBI 4:533.
Perennial herb, up to 60 cm. high ; flowers white ; bracts with rounded tips. Growing amongst grasses.
Rare. 7th camp. 19668.

205. *J. KHASIANA* Clarke ; FBI 4:537.
Suberect herb growing on slopes along roadsides. Flowers blue.
Not common. 40th mile from Kimin, 19739.

VERBENACEAE

206. *CALLICARPA ARBOREA* Roxb. ; FBI 4:567.
A tree 13-15 m. tall ; leaves dark green above, whitish below ; flowers small greenish-white.
Fairly common. Pitepool, 19632.

207. *C. RUBELLA* Lindl. ; FBI 4:569.
Undershrub about 2½ m. high ; diffused bushy habit ; flowers red.
Very common. Pitepool, 19898.

208. *CLERODENDRUM SERRATUM* (Linn.) Moon
Clerodendron serratum Spreng; FBI 4:592.
 A shrub 2-3 m. high, growing along the roadside.
 Flowers purple blue.
 Common. 40th mile from Kimin to Ziro, 19707.

209. *C. VENOSUM* Wall.; FBI 4:592.
 A shrub 3-4 m. high along the roadside. Flowers
 white-purple, fruits green.
 Not rare. 7th mile from Kimin, 19398.

210. *C. BRACTEATUM* Wall.; FBI 4:593.
 A shrub, about 2 m. high; calyx brick red inside;
 fruits green.
 Not common. Kimin, 19350.

211. *C. SQUAMATUM* Vahl var. *URTICIFOLIA* Hook. f.;
 FBI 4:594.
 Perennial shrub about 3 m. high next to stream
 amidst ferns etc. Flowers bright red.
 Not rare. Pitepool, 19605.

212. *C. GLANDULOSUM* Colebr. ex Wall.
C. colebroockianum Walp.; FBI 4:594.
 A branched shrub about 1-1½ m. high; flowers white.
 Common. Khuni Pahad, 19329, 19399.

LABIATAE

213. *ORTHOSIPHON INCURVUS* Benth.; FBI 4:614.
 Perennial herb on humus soil; fruits with dried calyx.
 Common. 9th mile from Kimin to Ziro, 19461.

214. *PLECTRANTHUS TERNIFOLIUS* D. Don; FBI 4:621.
 A shrub about 2 m. high; inflorescence dusty-pink.
 Not common. Kherbari, 19704.

215. *DYSOPHYLLA LINEARIS* Benth.; FBI 4:639.
 An erect herb up to 1 m. high; leaves whorled;
 flowers in dense spike, violet-blue.
 Fairly common in marshy places. New headquarters,
 19701.

216. *ELSHOLTZIA BLANDA* Benth.; FBI 4:643.
 Perennial, 1-1½ m. high; stem quadrangular; flowers
 white; growing on slopes.
 Rare. Rurun village, 19793.

217. *E. INCISA* Benth.; FBI 4:644.
 Perennial, glabrous; inflorescence slender, green.
 Growing near rice fields.
 Rare. Rurun village, 19800.

218. *PERILLA OCIMOIDES* Linn.; FBI 4:646.
 Annual 30-40 cm. high; leaves and sepals densely
 hairy; aromatic; flowers white.
 Common. Rurun village, 19794.

219. *CALAMINTHA UMBROSA* Benth.; FBI 4:650.
 Perennial, aromatic, pubescent, 30-60 cm. high;
 flowers faint violet in whorls.
 Common. Rurun village, 19791.

220. *MELISSA PARVIFLORA* Benth.; FBI 4:651.
 Perennial, stem quadrangular grooved; flowers white
 in whorls in leaf axils.
 Not common. Yacholi, 19747.

221. *ANISOMELES INDICA* (Linn.) O. Ktze.
A. ovata R. Br.; FBI 4:672.
 Spreading shrub, 1-1½ m. high; pubescent, with
 whorls of purple flowers.
 Common. 9th mile from Kimin to Ziro, 19407.

222. *ACHYROSPERMUM WALLICHIANUM* Benth.; FBI
 4:673.
 Undershrub with hairy leaves; spike 5-7 cm. long,
 greenish; flowers white.
 Not common. New headquarters, 14328; 19554.

223. *LEUCAS MELLISSIMA* Wall.; FBI 4:682.
 A herb or an undershrub about 75 cm. high with
 whorls of white flowers in the axils of leaves.
 Common. Kimin, 19343.

224. *L. CILIATA* Benth.; FBI 4:687.
 An undershrub with whorls of white flowers in axils
 of leaves; calyx green, persistent.
 Not common. Yacholi, 19718.

225. *TEUCRIUM STOLONIFERUM* Roxb.; FBI 4:700.
 Erect herb, stem quadrangular, slightly pubescent.
 Flowers faint purple.
 Not common. Zorum, 19757.

226. *AJUGA LOBATA* Don; FBI 4:702.
 Prostrate herb; stem and leaves fleshy with reddish
 tinge. Flowers blue.
 Rare. Ziro Inspection Bungalow, 19805.

PLANTAGINACEAE

227. *PLANTAGO MAJOR* Linn.; FBI 4:705.
 A herb, leaves all radical; spike long with greenish
 white flowers.
 Common. Pitepool, 19720.

AMARANTHACEAE

228. *DEERINGIA AMARANTHOIDES* (Lamk.) Merr.
D. celosioides R. Br.; FBI 4:714.
 An undershrub 1-1½ m. quite glabrous; flowers
 white; growing in damp moist soil.
 Not common. 9th mile from Kimin to Ziro, 19434.

229. *CELOSIA ARGENTEA* Linn. ; FBI 4:714.

C. cristata Linn. ; FBI 4:715.

An erect undershrub with pink terminal inflorescence.

Cultivated. New headquarters, 19402.

230. *AMARANTHUS VIRIDIS* Linn. ; FBI 4:720.

An erect herb 15-30 cm. ; flowers dull green.

Fairly common. Kimin 19333 ; Yacholi, 19686.

231. *CYATHULA PROSTRATA* (Linn.) Blume ; FBI 4:723.

A diffuse herb 20-40 cm. high ; rooting at nodes.

Fairly common. Kimin, 19331.

232. *AERVA SANGUIOLENTA* (Linn.) Blume

Aerua scandens Wall. ; FBI 4:727.

Perennial herb 1½ m., flowers whitish tomentose. Growing on sandy soil of roadside.

Rare. Khejuri village, 19678.

233. *ACHYRANTHES BIDENTATA* Blume ; FBI 4:730

An undershrub about 1 m. high ; inflorescence greenish. Growing next to water course.

Very common. 10th mile from Kimin to Ziro, 19360 ; Litchi Pahad, 19623.

234. *ALTERNANTHERA SESSILIS* (Linn.) DC. FBI 4:731.

A diffuse herb with axillary dull white inflorescence. Growing in moist places.

Fairly common. New headquarters, 19411.

CHENOPODIACEAE

235. *CHENOPODIUM ALBUM* Linn. ; FBI 5:3.

Annual, 1½ m. high, flowers green ; succulent.

Not common. Yacholi camp, 19685.

POLYGONACEAE

236. *POLYGONUM BARBATUM* Linn. ; FBI 5:37.

Erect hairy herb ; stipules ciliated ; flowers white.

Common in marshes along roadside. Pitepool, 19650 19654.

237. *P. SERRULATUM* Lag. ; FBI 5:38.

A tall diffuse herb, 60-70 cm. high ; flowers white in weak spikes.

Fairly common. 6th mile from Kimin to Ziro, 19416.

238. *P. ALATUM* Buch.-Ham. ex Don : FBI 5:41.

A trailing herb 1 m. long ; flowers in head, pink ; growing next to water course.

Very common. Litchi Pahad, 19624 ; Zorum, 19724.

239. *P. CAPITATUM* Buch.-Ham. ex Don ; FBI 5:44.

A trailing herb 1 m. or more long growing on wet rocky soil. Flowers pink.

Not common. Khuni Pahad, 19326.

240. *POLYGONUM CHINENSE* Linn. ; FBI 5:44.

Undershrub about 2 m. high ; flowers in branched inflorescence ; stem glabrous brown.

Fairly common. Pitepool, 19651. Zorum, 19752.

241. *P. MURICATUM* Meissn. ; FBI 5:45.

Herb, 60-80 cm. high ; stem with scattered stiff hairs. quadrangular ; flowers white ; growing along roadside in the marshes.

Not common. Pitepool, 19652.

242. *P. PERFOLIATUM* Linn. ; FBI 5:46.

Spreading on soil ; stem very prickly ; fruits shining blue when ripe.

Common along roadside. Yacholi, 19745.

243. *P. RUDE* Meissn. ; FBI 5:49.

A shrub 6-7 m. high ; flowers creamy white in racemes.

Common. Yacholi, 19721.

244. *P. PALMATUM* Dunn.

Spinescent twining herb trailing through hedges ; flowers red pink.

Rare. Hong village near Ziro, 19779.

PIPERACEAE

245. *PIPER SYLVATICUM* Roxb. ; FBI 5:84.

A twiner nearly 1 m. long with dull green slender spike.

Fairly common along the roadside. New headquarters, 19432.

246. *P. THOMSONI* Hook. f. ; FBI 5:87.

A twiner 6-7 m. long ; stem swollen at nodes. Growing in damp soil.

Fairly common. New headquarters, 19562.

LAURACEAE

247. *ACTINODAPHNE OBOVATA* Blume ; FBI 5:153.

Shrub, 5 m. high ; leaves aromatic ; flower buds green ; last seasons ripe fruits blue black.

Common. Zorum basti, 19896A.

248. *LINDERA PULCHERRIMA* (Nees) Benth. ; FBI 5:185.

Shrub 6-7 m. high ; leaves aromatic ; ripe fruits dark blue.

Common. 2 miles from Hapoli, 19814.

LORANTHACEAE

249. *LORANTHUS SCURRULA* Linn. ; FBI 5:208.

Hemiparasitic on *Saurauja* ; flowers greenish purple ; leaves tomentose.

Not common. Zorum hill, 19690.

EUPHORBIACEAE

250. *PHYLLANTHUS GLAUCUS* Wall. ; FBI 5:288.
An erect undershrub branching at the top. Flowers greenish white.
Not rare. Khuni Pahad, 19317 ; Kimin, 19392.
251. *P. URINARIA* Linn. FBI 5:293.
Much branched undershrub 60-90 cm. high ; flowers dull green.
Common along roadside. New headquarters, 19412.
252. *P. PARVIFOLIUS* Buch.-Ham. ; FBI 5:294.
Perennial undershrubs ; stem brownish chocolate ; male flowers small whitish ; fruits green.
Common. Kherbari, 19694.
253. *ANTIDESMA ACUMINATUM* Wall. ; FBI 5:363.
A shrub about 4 m. high ; fruits black when ripe. Growing near nalla.
Not rare. 6th mile from Kimin to Ziro, 19393.
254. *ACTEPHILA EXCELSA* Muell. ; FBI 5:282.
A shrub 3 m. high ; fruits with 6 ridges, green. Growing near bank of a stream.
Rare. 8th mile on Kimin-Ziro road, 19357.
255. *BALIOSPERMUM CORYMBIFERUM* Hook. f. ; FBI 5:463.
Undershrub, 1-2 m. high ; dioecious. Lower leaves large.
Common. 9th mile from Kimin, 19403.

URTICACEAE

256. *FICUS GASPARRINIANA* Miq. var. *LACCRATIFOLIA* (Lerl. et. Vent.) Corner
F. bhotanica King ; FBI 5:519.
A shrub or a small tree ; stem and leaves hairy ; fruits cherryed. Growing on slopes along roadside.
Rare. Zorum, 19733.
257. *F. HISPIDA* Linn. f. ; FBI 5:522.
A small tree growing along river bank.
Common. New headquarters, 19418.
258. *LAPORTEA CRENULATA* (Roxb.) Gaud. ; FBI 5:550.
Perennial shrub 3 m. high ; inflorescence greenish ; deadly irritating leaves. Growing in swamps or in the edge of the forest.
Common. 9th mile from Kimin, 19429 ; Pitepool, 19672.
259. *L. PTEROSTIGMA* Wedd.
A small tree with spreading branches ; inflorescence greenish. Growing in damp forest soil.
Fairly common. Pitepool, 19658.

260. *PILEA SMILACIFOLIA* Wedd. ; FBI 5:533.
A shrub growing along the streams ; 1-1½ m. high ; flowers minute, white.
Common. Litchi Pahad, 19613.
261. *ELATOSTEMA SESSILE* Forst. ; FBI 5:563.
A herb about 20-25 cm. high ; flowers in axillary clusters. Growing on wet rocks along mosses.
Common. Khuni Pahad, 19313.
262. *E. LINEOLATUM* Wight ; FBI 5:565.
Small undershrub 30-40 cm. high, growing on slopes along roadside.
Common. 9th mile from Kimin to Ziro, 19414.
263. *E. OBTUSUM* Wedd. ; FBI 5:573.
A herb with clinging roots growing on wet rocks. Flowers minute, dull green.
Fairly common. Khuni Pahad, 19315.
264. *BOEHMERIA MACROPHYLLA* Don ; FBI 5:577.
A shrub 2 to 3 m. high with lanceolate leaves and flowers in interrupted spikes.
Very common. 10th mile from Kimin to Ziro, 19345.
265. *B. PLATIPHYLLA* Don var. *TOMENTOSA* Wedd. ; FBI 5:578.
An undershrub 2-2½ m. high in sunny slopes of roadsides. Inflorescence green.
Fairly common. Khuni Pahad, 19369.
266. *POUZOLZIA VIMINEA* (Wall.) Wedd. ; FBI 5:581.
A shrub about 1-1½ m. high ; flowers greenish white. Common. Kimin Inspection Bungalow, 19389 ; 19552.
var. *FULGENS* Wedd. ; FBI 5:581.
Leaves snow-white beneath.
Common. Kimin, 19314.
267. *P. BENNETTIANA* Wight ; FBI 5:585.
A trailing undershrub with axillary whorls of flowers ; flowers dull green.
Common. 9th mile from Kimin to Ziro, 19435.

CUPULIFERAE

268. *ALNUS NEPALENSIS* Don ; FBI 5:600.
A shrub or small tree ; stem lenticulate ; leaves coarse, flower-buds in inflorescence green.
Not common. Yacholi, 19717.
269. *QUERCUS GLAUCA* Thunb. ; FBI 5:604.
A tree 13-14 m. tall ; fruits solitary seated in a cup-like base.
Common. From Yacholi to Hapoli, 19691.
270. *CASTANOPSIS INDICA* (Roxb.) A. DC. ; FBI 5:620
Tree 13-14 m. tall.
Very common beyond Pitepool. Zorum basti, 19900A

CONIFERAE

- 271.
- PINUS WALLICHIANA*
- A. B. Jackson

P. excelsa Wall. ; FBI 5:651.

Huge tree forming a dominant component of vegetation on slopes of valley.

Ruron village, 19801.

ORCHIDACEAE

- 272.
- LIPARIS LONGIPES*
- Lindl. ; FBI 5:703.

Epiphytic on tree trunks covered with humus ; pseudobulb with 2 leaves.

Common. New headquarters, 19549.

- 273.
- L. ASSAMICA*
- King & Pantl.

Epiphytic on a tree trunk in a humid valley ; flowers greenish brown.

Not common. Near Hapoli, 19891A.

- 274.
- DENDROBIUM ACINACIFORME*
- Roxb. ; FBI 5:723.

Epiphytic ; scape without any flower or fruit.

Common. 12th mile from Kimin to Ziro, 19506.

- 275.
- D. CRETACEUM*
- Lindl. ; FBI 5:736.

Epiphytic on trees ; stem and leaves succulent, soft and pendulous.

Fairly common. New headquarters, 19528.

- 276.
- DENDROBIUM AMOENUM*
- Wall. ; FBI 5:738.

Epiphytic on trees. Leaves few.

Not rare. New headquarters, 19531.

- 277.
- D. LITUIFLORUM*
- Lindl. ; FBI 5:740.

Epiphytic on rocks ; stem narrowest at base.

Common. Khuni Pahad, 19508.

- 278.
- D. PLICATILE*
- Lindl.

D. fimbriatum ; FBI 5:745.

Epiphytic.

Common. New headquarters, 19532.

- 279.
- D. CHRYSOTOXUM*
- Lindl. ; FBI 5:750.

Epiphytic on trees ; stem with offsets.

Fairly common. 12th mile from Kimin to Ziro, 19508.

- 280.
- BULBOPHYLLUM ODORATISSIMUM*
- Lindl. ; FBI 5:758.

Epiphytic ; pseudobulb elongated with one leaf ; fleshy.

Common. 10th mile from Kimin to Ziro, 19505.

- 281.
- CIRRHOPE TALUM ANDERSONI*
- Hook. f. ; FBI 5:777.

Epiphytic on trees. Inflorescence 6-flowered. Flowers red with white streaks.

Not rare. Yacholi, 19770.

- 282.
- ERIA STRICTA*
- Lindl. ; FBI 5:791.

Stem about 10 cm. long with 2-3 leaves ; flower buds pale green. Epiphytic.

Common. New headquarters, 19514.

- 283.
- E. ACERVATA*
- Lindl. ; FBI 5:796.

Epiphytic on mossy humus covered barks, lobed at nodes ; pseudobulb distinct ; fruits small.

Common. New headquarters, 19511A ; 19526.

- 284.
- E. FLAVA*
- Lindl. ; FBI 5:801.

Epiphytic on mossy humus covered barks ; pseudobulb flat, not lobed, with 2-4 leaves.

Common. Khuni Pahad, 19358 ; New headquarters, 19525 ; 19527.

- 285.
- E. PULCHELLA*
- Lindl. ; FBI 5:801.

Epiphytic.

Not common. New headquarters, 19353A.

- 286.
- E. PANNEA*
- Lindl. ; FBI 5:804.

Epiphytic ; leaves cylindric-flat.

Rare. Khuni Pahad, 19507.

- 287.
- E. CLAUSA*
- King & Pantl.

Epiphytic on trees ; scape brown.

Common. Near Hapoli, 19890A.

- 288.
- ANTHOgonium GRACILE*
- Lindl. ; FBI 5:822.

Ground orchid in black soil ; flowers red.

Common in grassy fields and in wet places. Hapoli, 19846.

- 289.
- AGROSTOPHYLLUM CALLOSUM*
- Reichb. f. ; FBI 5:824.

Epiphytic on trees ; old flowers blackish.

Fairly common. Hapoli forest, 19689.

- 290.
- CRYPTOCHILUS SANGUINEA*
- Wall. ; FBI 5:827.

Epiphytic pseudobulb with one small leaf.

Not common. Near Hapoli, 19890.

- 291.
- COELOGYNE CRISTATA*
- Lindl. ; FBI 5:829

Epiphytic on trees ; new scapes arising ; pseudobulbs with two leaves.

Not common. New headquarters, 19536.

- 292.
- C. CORYMBOSA*
- Lindl. ; FBI 5:831.

Epiphytic ; stem cylindrical ; pseudobulbs linear with two leaves.

Not common. Near Hapoli, 19891.

- 293.
- C. MICRANTHA*
- Lindl. ; FBI 5:836.

Epiphytic ; pseudobulb with two leaves ; roots long.

Common. Khuni Pahad, 19510.

- 294.
- C. BARBATA*
- Griff. ; FBI 5:839.

Epiphytic on trees ; very vigorous ; inflorescence axis proliferating.

Common. Near Hapoli, 19888A.

295. *COELOGYNE FLAVIDA* Wall., FBI 5:839.
Epiphytic. Pseudobulbs with two leaves.
Not rare. 10th mile from Kimin, 19504.
296. *PHOLIDOTA ARTICULATA* Lindl. ; FBI 5:844.
Epiphytic on trees ; stem 60 cm. long ; fruits small.
Fairly common. New headquarters, 19516.
297. *P. IMBRICATA* Lindl. ; FBI 5:845.
Epiphytic on trees ; pseudobulbs small, oval with one leaf ; stem wiry.
Not common. New headquarters, 19529 ; 19533.
298. *CALANTHE TRICARINATA* Lindl. ; FBI 5:847.
Rootstock fibrous ; leaves deeply veined. thin, main nerves 3. Fruits green.
Rare. Near Hapoli, 19888.
299. *C. GRACILIS* Lindl. ; FBI 5:855.
Roots fibrous ; leaves thin, main veins 5-6 ; fruits green, smooth.
Rare. Near Hapoli, 19889.
300. *ARUNDINA GRAMINIFOLIA* (Don) Hochr.
A. bambusifolia Lindl. ; FBI 5:857.
In the midst of bushes and grasses along roadside-wall ; flowers few, lilac-violet.
Common. 8th mile from Kimin to Ziro, 19378.
301. *RHYCHOSTYLIS RETUSA* Blume ; FBI 6:32.
Epiphytic on trees ; leaves thick, leathery ; fruiting.
Common. Khuni Pahad, 19511.
302. *SARCOCHILUS PURPUREUS* (Lindl.) Benth. ; FBI 6:36.
Forming tangled masses as epiphytes ; flowers brownish red.
Fairly common. New headquarters, 19534.
303. *AERIDES FIELDINGII* Lodd. ex Morren ; FBI 6:45.
Epiphytic on trees ; leaves dark green.
Fairly common. New headquarters, 19535.
304. *SACCOLABIUM DISTICHUM* Lindl. ; FBI 6:64.
Epiphytic on fallen tree trunks ; stem 5-6 cm. long ; leaves distichous, flowers green.
Rare. Near Hapoli, 19851.
305. *S. ACUMINATUM* (Lindl.) Hook. f. ; FBI 6:65.
Epiphytic orchid 5-7 cm. long, growing on *Ardisia*.
Rare. 9th mile from Kimin to Ziro, 19408.
306. *CEPHALANTHERA ENSIFOLIA* Richard ; FBI 6:125.
Terrestrial orchid ; rootstock tuberous ; flowers pink white.
Not common. Near Hapoli, 19886.
307. *ANAECTOCHILUS PUMILUS* K. & P.
Epiphytic on rocks, about 5 cm. long ; Fruits green.
Rare. Khuni Pahad, 19384.

SCITAMINEAE

308. *GLOBBA MULTIFLORA* Wall. ; FBI 6:202.
A stout herb growing on slopes ; fruits green ; bulbiferous.
Not common. Litchi Pahad, 19617.
309. *HEDYCHIUM THYRSIFORME*, Ham. ex Smith ; FBI 6:230.
Perennial, rooting in soil-covered rock crevices ; calyx brown red, oval.
Rare. 8th mile from Kimin to Ziro, 19348.
310. *H. GARDNERIANUM* Rosc. ; FBI 6:230.
Perennial, flowers lemon yellow.
Not common. 21st mile from Kimin to Ziro, 19597.
311. *COSTUS SPECIOSUS* (Koenig) Smith ; FBI 6:249.
Stem 2 m. high ; flowers white, showy ; calyx deep red ; spike 10 cm. long.
Very common. 6th mile from Kimin to Ziro, 19448.
312. *CATIMBIUM MALACCENSE* (Burm.) Holtt.
Alpinia malaccensis Rosc ; FBI 6:255.
Perennial ; fruits spherical, orange red, densely hairy above.
Very common. Khuni Pahad, 19490.
313. *PHRYNIUM PARVIFLORUM* Roxb. ; FBI 6:259.
In the sandy slopes of rock overlooking a stream ; inflorescence subterminal, brown.
Common. Khuni Pahad, 19376.
314. *MUSA BALBISIANA* Colla
M. sapientum Linn., FBI 6:262.
Plant forming rows on either side of the road. Fruits full of seeds.
Very common. New headquarters, 19381.

HAEMODORACEAE

315. *OPHIOPOGON INTERMEDIUS* D. Don ; FBI 6:269.
A herb, leaves grass-like ; fruits of a size of pea ; growing in moist places.
Not common. Zorum, 19765.

TACCACEAE

316. *TACCA INTEGRIFOLIA* Ker-Gawl ; FBI 6:287
On the moist slopes of roadside, amidst undergrowth of ferns. Bracts showy, two, large, bluish-white.
Very common. Khuni Pahad, 19359.

DIOSCOREACEAE

317. *DIOSCOREA PENTAPHYLLA* Linn. ; FBI 6:289
A climber 6-7 m. long ; leaves 3-5 foliate ; stem prickly below ; fruits winged.
Not common. Yacholi, 19719.

318. *DIOSCOREA BULBIFERA* Linn. ; FBI 6:296

A large climber with white flowers arranged in drooping panicles.

Fairly common. Kimin, 19341.

LILIACEAE

319. *POLYGONATUM PUNCTATUM* Royle ; FBI 6:321

Epiphytic on trees ; 15-20 cms. long. Leaves thick. Fruits green.

Rare. Soron village, 19893.

320. *DRACAENA ANGUSTIFOLIA* Roxb. ; FBI 6:327

Perennial undershrub, in the edge of the forest, 2m. high ; leaves dull green ; flower buds greenish-white.

Very common. Pitepool, 19669.

321. *DIANELLA ENSIFOLIA* Redoute ; FBI 6:337

Rhizomatous herb ; scape about 1-1½ m. long ; fruits blue. Growing on slopes.

Common. 40th mile from Kimin to Ziro, 19754.

322. *DISOPORUM PULLUM* SALISB. ; FBI 6:360

A herb, 60-80 cm. high ; leaves linear, main veins 3 ; fruits of size of a pea.

Not common Soron village, 19892.

PONTEDERIACEAE

323. *MONOCHORIA VAGINALIS* (Burm. f.) Presl. FBI 6:363

Perennial in the drains of rice-fields ; flowers violet-blue.

Not rare. Ziro, 19776.

COMMELINACEAE

324. *ACLISIA SORZOGONENSIS* (Endl.) Brück.

Polia sorzogonensis Endl. ; 6:367.

A stout erect herb about 90-100 cm. high ; stem very rough. Flowers white in terminal or axillary panicles.

Rare. Khuni Pahad, 19309.

325. *A. SUBUMBELLATA* (Clarke) Brück.

Polia subumbellata Clarke ; FBI 6:368

A trailing herb about 60-90 cm. long ; growing on wet slopes. Fruits black berries.

Not rare. Khuni Pahad, 19305.

326. *COMMELINA PALUDOSA* Blume

C. obliqua Buch.-Ham. ; FBI 6:372

A stout herb, spreading to a length of 90 cm. or more. Flowers blue.

Very common. Khuni Pahad, 19306, New headquarters, 19404 ; Pitepool, 19639 ; 19647.

327. *MURDANNIA SPIRATA* (Linn.) Brück.

Aneilema spiratum Br. ; FBI 6:377

Growing in sandy muddy places ; flowers white.

Rare. Near Hapoli, 19840.

328. *M. NUDIFLORA* (Linn.) Brenan.

Aneilema nudiflorum Br. ; FBI 6:378

A diffused herb growing along the roadside in sandy bed. Flowers blue.

Common. New headquarters, 19401 ; 19427 ; 19462 ; Pitepool, 19637.

329. *ANEILEMA PROTENSUM* Wall.

A. scaberrimum Kunth ; FBI 6:382

Suberect herb about 1-1½ m. long ; flowers faint pink or white.

Not common. 40th mile from Kimin to Ziro, 19758.

330. *FORRESTIA HOOKERI* Hassk. ; FBI 6:384

Perennial 1-1½ m. high. Inflorescence sessile on stem ; seeds blood-red exposed when fruit dehisces into 3 valves.

Common. Khuni Pahad, 19374.

331. *CYANOTIS BARBATA* Don ; FBI 6:385

In swampy hill slopes rooting in sandy soil ; flowers bluish white.

Fairly common. Near Hapoli, 19819.

332. *C. PAPILIONACEA* Schultes f. ; FBI 6:387

Very tiny suberect herb 10-15 cm. long ; flowers blue ; growing on slopes.

Rare. Ruron village, 19792.

333. *FLOSCOPA SCANDENS* Lour. ; FBI 6:390

A robust herb, suberect, 2 m. long ; flowers in terminal inflorescence, pink violet. Growing next to water course.

Common. Pitepool, 19638.

JUNCACEAE

334. *JUNCUS EFFUSUS* Linn. ; FBI 6:392

A herb with rounded stem ; leaves scally at the base ; inflorescence intermediate on the stem.

Common in humus soil of water course. Pitepool, 19640.

335. *J. PRISMATOCARPUS* R. Br. ; FBI 6:395

Herb 20-30 cm. high ; flowers in terminal panicles ; greenish brown ; some plants showing vivipary.

Fairly common. Next to nallas. Pitepool, 19641, Hapoli ; 19810.

PALMEAE

336. *PHOENIX SYLVESTRIS* (Linn.) Roxb. ; FBI 6:425

Tree 6-7 m. tall ; fruits red.

Common almost on all hill slopes. 10th mile from Kimin to Ziro, 19485.

337. *CALAMUS ERECTUS* Roxb. ; FBI 6:438

A tree, 3-5 m. tall ; leaves 3-4 m. long ; rachis spiny ; inflorescence dark green.

Rare. New headquarters, 19570.

338. *CALAMUS LEPTOSPADIX* Griff. ; FBI 6:441

A tree, 6-7 m. tall ; leaves 3-4 m. long ; fruits brown-green.

Common. New headquarters, 19569.

PANDANACEAE

339. *PANDANUS FURCATUS* Roxb. ; FBI 6:484

Only common sp. in the area ; stem profusely branched, 6-7 m. long ; leaves distichous.

Very common. In the slopes of valley. Pitepool, 19673.

ARACEAE

340. *ARISAEMA SPECIOSUM* (Wall.) Mart. ; FBI 6:500

Leaf 3-lobed ; fruits red when ripe.

Not rare. Near Hapoli, 19897.

341. *A. CONCINNUM* Schott ; FBI 6:505

Stem 1 m. long. Fruits maize like, deep-red when ripe. Growing in the leaf-humus of forest-floor.

Common. Near Hapoli, 19828.

342. *GONATANTHUS ORNATUS* Schott ; FBI 6:522

On rocks. Spadix short. Propagating also by means of sucker-like outgrowths.

Common. 12th mile from Kimin, 19474.

343. *ALOCASIA FORNICATA* (Roxb.) Schott ; FBI 6:526

Stem very stout 1-1½ m. long. Leaves shining green. Fruits enclosed tightly in a spathe.

Not rare. New headquarters, 19548.

ALISMATACEAE

344. *ALISMA PLANTAGO* Linn. ; FBI 6:559

Water plants growing in muddy silt along the roadside ditches, flowers white.

Not rare. Near Hapoli, 19835.

345. *SAGITTARIA SAGITTIFOLIA* Linn. ; FBI 6:561

Water plants in roadside ditches.

Common. Near Hapoli, 19839.

ERIOCAULEAE

346. *ERIOCAULON BROWNIANUM* Mart. ; FBI 5:576

In swampy muddy places ; scape about 1 m. long ; flowers white.

Common. Near Hapoli, 19822.

347. *E. LUZULAEFOLIUM* Mart. ; FBI 6:582

Perennial water plants in sandy soil of running water ; inflorescence bluish-grey.

Not common. Near Hapoli, 19843.

CYPERACEAE

348. *CYPERUS BREVIFOLIUS* (Rottb.) Hassk.

Kyllinga brevifolia Rottb. ; FBI 6:588

Herb 15-20 cm. high. Flowers dull green in head. In moist places.

Fairly common. 9th mile from Kimin to Ziro, 19426.

349. *C. DIFFUSUS* Vahl ; FBI 6:603

On the sandy rock in moist situations.

Common. Khuni Pahad, 19370.

350. *FIMBRISTYLIS DICHOTOMA* (Linn.) Vahl ; FBI 6:635.

Annual, on swamy places. Inflorescence brown.

Fairly common. Pitepool, 19674.

351. *F. TENERA* Roem. & Schultes ; FBI 6:642

Small herb 10-15 cm. high ; spikes 2-3 mm. long, brown. Growing on wet soil.

Not rare. Ziro Inspection bungalow, 19787.

352. *SCIRPUS ERIOPHORUM* Mich. FBI 6:661

Annual ; stem 1-1½ m. high ; inflorescence brown when ripe.

Almost in every nalla etc. throughout Hapoli area, 19845.

353. *CAREX FILICINA* Nees ; FBI 6:717

Perennial in swampy places ; stem triangular solid. Smooth. Inflorescence greenish brown with small spikelets.

Common. Hapoli, 19829.

GRAMINEAE

354. *PASPALUM CONJUGATUM* Berg. var. *PUBESCENS* Doell.

Stem brown red, soft ; inflorescence 'T' shaped, hairy, awnless, spikelets feathery.

Not common. 12th mile from Kimin to Ziro, 19486.

355. *ISACHNE ALBENS* Trin. ; FBI 7:22

An erect grass ; stem hairy, inflorescence greenish white.

Common. Pitepool, 19655.

356. *ECHINOCHLOA COLONUM* (Linn.) Link.

Panicum colonum Linn. ; FBI 7:32

A thin tall grass ; inflorescence green ; growing along the roadside.

Common. 21st mile from Kimin to Ziro, 19662.

357. *SACCIOLEPIS INTERRUPTA* (Willd.) Stapf

Panicum interruptum. Willd. ; FBI 7:40.

Annual, rooting in sandy mud ; flowers chocolate green.

Not rare. Near Hapoli, 19821.

358. *PANICUM MILIACEUM* Linn. ; FBI 7:45
An erect grass 60-80 cm. high ; panicles loose ; flowers greenish.
Not rare. Pitepool, 19656.
359. *P. KHASIANUM* Munro ex Hook. f. ; FBI 7:54
Perennial, rooting in sandy alluvium ; leaves and inflorescence dark-green.
Rare. New Headquarters, 19459.
360. *SETARIA PALMIFOLIA* (Koen.) Stapf.
Panicum plicatum FBI 7:55 (in part)
Next to water course. Inflorescence of awnless flowers.
Very common. Khuni Pahad, 19366.
361. *CYRTOCOCCUM OXYPHYLLUM* (Steud.) Stapf
Panicum pilipes Nees & Arn. ex Buse ; FBI 7:57
Trailing amidst bushes ; spikelets crowded ; awnless.
Not rare. 12th mile from Kimin to Ziro, 19477.
362. *C. ACCRESCENS* (Trin.) Stapf
Panicum patens Linn. ; FBI 7:57 (in part)
Erect herb 30-50 cm. high ; stem and leaves hairy ; flowers very small in large loose panicles.
Rare. 7th camp, 19657.
363. *DIGITARIA VIOLESCENS* Link.
A tufted grass 30-40 cm. high. Growing in moist places along roadside.
Rare. 9th mile from Kimin to Ziro, 19417.
364. *OPLISMENUS COMPOSITUS* (Linn.) P. Beauv. ; FBI 7:66
Diffuse herb, leaves dark green, inflorescence green ; next to river bank.
Common. New Headquarters, 19556.
365. *ARUNDINELLA BENGALENSIS* (Spreng.) Druce
A. Wallichii, Nees ex Steud. ; FBI 7:75
Perennial rootstock ; stem and leaves densely hairy ; hairs stiff, white. Inflorescence greenish brown.
Very common. Kherbari, 19700.
366. *ORYZA SATIVA* Linn. ; FBI 7:92
Flowers with white stamens. Cultivated. Kherbari, 19697.
367. *COIX LACRYMA-JOBI* Linn. var. *mayuen* Stapf ex Hook. f. ; FBI 7:100
Annual. Fruiting.
Cultivated. New Headquarters, 19522.
368. *SACCHARUM SPONTANEUM* Linn. ; FBI 7:118
Very common element in the river beds. Flowers white.
8th mile from Kimin to Ziro, 19364.
369. *POGONANTHERUM PANICEUM* (Lamk.) Hack.
P. saccharoideum Beauv. ; FBI 7:141
A grass about 30-50 cm. spreading. Growing in the rock crevices.
Common. Khuni Pahad, 19346.
370. *P. CRINITHUM* (Thunb.) Kunth ; FBI 7:141 (*P. crinitum* Trin. by error)
Very common on steep rock-walls in moist situations.
Not rare. Khuni Pahad, 19365.
371. *ARTHRAOXON LANCIFOLIUS* (Trin.) Hochst.
A. microphyllus Hochst. ; FBI 7:147
Small erect grass, leaves and inflorescence light green.
Not common. 21st mile from Kimin to Ziro, 19661.
372. *HACKELOCHLOA GRANULARIS* (Linn.) O. Kuntze
Manisuris granularis Linn. f. FBI 7:159
Annual diffused herb on sandy soil along roadside.
Common. Kherbari, 19698.
373. *THEMEDA CAUDATA* (Nees) A. Camus
Anthistiria gigantea Cav. sub. sp. *caudata* Hack. ; FBI 7:217
A grass growing to a height of 3-4 m. Inflorescence greenish brown.
Common. Pitepool, 19635.
374. *GARNOTIA STRICTA* Brongn. var. *khasiana* Stapf ; FBI 7:243.
On rock crevices where water gets collected.
Not rare. Khuni Pahad, 19375, 19475.
375. *ELUSINE CORACANA* (Linn.) Gaertn.
Annual, 60 cm. high. Cultivated in the valley.
Ziro, 19778.
376. *PHRAGMITES KARKA* (Retz.) Trin. ; FBI 7:304
Perennial stem 3-3½ m. Inflorescence brush-like, green.
Growing on sandy alluvium.
Not common. 9th mile from Kimin, 19449.
377. *ERAGROSTIS TENELLA* (Linn.) P. Beauv ex Roem. & Schultes ; FBI 7:315
E. amabilis (Linn.) Wight et Arn. ex Hook. et Arn. (not of F.B.I. 7:317)
Thin spreading grass, growing along the roadside.
Not rare. Yacholi, 19768.
378. *E. UNIOLOIDES* (Retz.) Nees ex Steud.
E. amabilis FBI 7:317 (non Wight & Arn.)
In the sandy alluvium on wet roadside ditches.
Very common. Khuni Pahad, 19373 ; Kherbari 19699.
379. *E. PILOSA* (Linn.) Beauv. ; FBI 7:323
Perennial, rooting in river bed. Inflorescence dense.
Not common. 9th mile from Kimin, 19450.

380. *PHYLLOSTACHYS ASSAMICA* Gamble ex Brandis
Tall bamboos forming a dominant component of vegetation near the village.
Common. Ruron village, 19802.

381. *DENDROCALAMUS SIKKIMENSIS* Gamble; FBI 7:405
A tall bamboo wild and also cultivated in the Apatani valley.
Common. Ziro, 19887.

PTERIDOPHYTES

MARATTIACEAE

382. *ANGIOPTERIS EVECTA* (Forst.) Hoffm; Bedd. 460
A fern with huge fronds. Growing near nalla.
Common. 9th mile from Kimin to Ziro, without number.

SCHIZAEACEAE

383. *LYGODIUM JAPONICUM* (Thbg.) Sw.; Bedd. 457
Trailing along with grasses on slopes.
Not rare. 40th mile from Kimin to Ziro, 19742.

CLEICHENIACEAE

384. *DICRANOPTERIS LINEARIS* (Burm.) Underwood
Gleichenia linearis (Burm.) Clarke; Bedd. 4
Growing on roadside walls, dichotomously branching; leaves pinnate.
Not common. Near Hapoli, 19859.

HYMENOPHYLLACEAE

385. *CREPIDOMANES BIPUNCTATUM* (Poir.) Copel.
Trichomanes bipunctatum Poir.; Bedd. 41
Epiphytic on trees; rhizome covered with humus; 6-10 cm. long.
Common. New headquarters, 19558.

PTERIDACEAE

386. *PTERIS GREVILLEANA* Wall.; Bedd. 112
Fern growing on wet rocky soil.
Not rare. Khuni Pahad, 19324.
387. *P. CRETICA* Linn.; Bedd. 106
On humus covered forest floor in leaf litters in the shade of *Quercus*. Fronds dimorphic.
Not common. Yacholi, 19771.

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388. *P. BIAURITA* (Hook.); Linn.
Campteria biaurita Bedd. 116
Fern growing on wet rock soil. Caudex erect, leaves light green, stipe brown.
Very common. Khuni Pahad, 19320. Near Hapoli, 19870.

389. *P. VITTATA* Linn.
P. longifolia Auctt. quoad.; Bedd. 106.
Very rare; fronds 60 cm. long; stipe not very scaly.
Rare. 9th mile from Kimin to Ziro, 19443.

390. *P. WALLICHIANA* Ag.
Growing on the humus covered soil. Fronds about 1 m.
Not rare. Khuni Pahad, 19464.

391. *MICROLEPIA SPELUNCAE* (Linn.) Moore; Bedd. 67
A fern growing along streamlets.
Not rare. Khuni Pahad, 19319.

392. *M. PILOSULA* (Wall.) Presl
M. speluncae (Linn.) Moore var. *hirta* Bedd.; Bedd. 68
Caudex short creeping, stipe ebony below, green above, small whitish hairs stand up from above. Next to water fall.
Not rare. 7th camp, 19579.

393. *ADIANTUM PHILIPPENSE* Linn.
A. lunulatum Burm.; Bedd. 82
A small fern 15-20 cm. high, growing on wet rocky slopes.
Not common. 9th mile from Kimin to Ziro, 19420.

394. *ONYCHIUM SILICULOSUM* (Desv.) C. Chr.
Very common on sandy rock-walls and slopes in sunny situations.
Common. Khuni Pahad, 19377.

395. *CONIOGRAMME FRAXINEA* (Don) Diels
Syngamma fraxinea Bedd.; Bedd. 386.
On sandy humus cover below rock boulders.
Not common. Appears from new headquarters up to Pitepool, 19667.

396. *PITYROGRAMMA CALOMELANOS* (Linn.) Link
Pellaea calomelanos Link; Bedd. 104.
On rocky slopes, in sandy stones; young plants with white powder.
Rare. New headquarters, 19368.

PLAGIOGYRIACEAE

397. *PLAGIOGYRIA EUPHLEBIA* (Kze.) Mett.; Bedd. 129
Caudex erect, rachis triangular; fronds dimorphic; fertile ones much linear.
Very common. Near Hapoli, 19869.

ASPIDIACEAE

398. *EGENOLFIA APPENDICULATA* (Willd.) J. Sm.
Polybotrya appendiculata Willd. ; Bedd. 424
 Growing on rock boulders or sandy alluvium ; rhizome erect, fronds dimorphic.
 Not rare. New headquarters 19543.
 Very common. New headquarters, 19544 ; 19545 ; 5th camp. 19588. (var. *ludens*.)
399. *DRYOPTERIS SUBARBOREA* (Bak.) C. Chr.
Lastrea megaphylla Bedd. ; Bedd. Suppl. 63.
 Epiphytic on trees ; fronds light green ; sori on either side of the main vein.
 Not rare. Near Hapoli, 19866.
400. *D. PALEACEA* Handel-Maz.
 Caudex erect, stipe very hairy below ; fronds light green.
 Rare. Near Hapoli, 19872.
401. *D. ATRATA* (Wall.) Ching
Lastrea hirtipes (Bl.) Moore ; Bedd. 232
 Rhizome creeping ; stipe slightly hairy below ; fronds light green.
 Not common. Near Hapoli, 19873.
402. *D. ODONTOLOMA* (Moore) C. Chr.
Lastrea odontoloma Moore ; Bedd. 248.
 Caudex erect. Stipe hairy below. Leaves light green.
 Not common. Near Hapoli, 19871.
403. *TECTARIA MULTICAUDATA* (Wall.) Ching
Aspidium multicaudatum Wall. ; Bedd. 222
 In the shade of bushes in humus cover on rock boulders, along a mountain stream.
 Rare. 7th camp, 19577.
404. *CYCLOSORUS JACULOSUS* (Chr.) H. Ito.
 Creeping rhizome on sandy cover of rock crevices.
 Rare. 13th mile from Kimin to Ziro, 19580.
405. *C. SAGITTIFOLIUS* (Bl.) Ching
 Caudex erect, short. Stipe very scaly at base.
 Not rare. 15th mile from Kimin, 19591.
406. *THELYPTERIS VISCOSA* (J. Sm.) Ching
 Growing on either side of the road.
 Common. Kimin, 19318.
407. *T. SETIGERA* (Bl.) Ching
Lastrea tenericaulis (Wall.) Moore ; Bedd. 266
 On sandy cover on rocks near streams. Stipe and rachis hairy. Pinnules crowded.
 Not rare. 12th mile from Kimin to Ziro, 19473. Near Hapoli, 19876.
408. *ABACOPTERIS LAKHIMPURENSIS* (Ros.) Ching var. *HIRSUTA* Ching
Meniscium cuspidatum Bl. ; Bedd. 400.
 Creeping stout rhizome ; fronds 2-3 m. long ; stipe 60 cm. long, scaly at the base only. Next to water fall on the rock boulder.
 Common. 7th camp, 19585 ; Kimin, 19321.
409. *POLYSTICHUM ACULEATUM* (Linn.) Roth ; Bedd. 207.
 Caudex erect in the sandy humus on rocks ; below the over hanging rocks.
 Common. 21st mile from Kimin to Ziro, 19664.
 var. *BIARISTATUM* (Bl.) Moore ; Bedd. 204
 Epiphytic on tree barks.
 Rare. Near Hapoli, 19857.
410. *DIPLAZIUM LOBULOSUM* (Wall.) Presl
D. longifolium (Don) Moore ; Bedd. ; 179
 Caudex erect, epiphytic or terrestrial. Sori slightly curved at one end.
 Not rare. Near Hapoli, 19860 ; 19868.
411. *ATHYRIUM ATKINSONI* Bedd. ; Bedd. 163.
 Caudex erect, rooting on sandy soil cover ; next to stream. Fronds tripinnate ; sori oblique in 2 rows.
 Rare. 9th mile from Kimin to Ziro, 19439.
412. *A. ASPERUM* (Bl.) Milde
Diplazium asperum Blume ; Bedd. 184
 Caudex erect producing 5-10 fronds, 3-3½ m. long ; next to stream.
 Not rare. 10th mile from Kimin to Ziro, 19463 ; 19469.
413. *A. LATIFOLIUM* (Don) Milde
Diplazium latifolium (Don) Moore ; Bedd. 187
 Common up to Pitepool in wet places near water falls, 19576.
414. *A. FIMBRISTEGIUM* Copel.
 Caudex erect in the shelter of rocks ; stipe scaly at the base only. Near waterfall.
 Not common. 7th camp, 19575.
415. *A. ACROSTICHOIDES* (Sw.) Diels
A. thelypteroides Michx. ; Bedd. 164
 Caudex erect ; fronds dimorphic ; rachis smooth, pale reddish.
 Near Hapoli, 19864.
416. *A. BORYANUM* (Willd.) Tagawa
Phegopteris Kingii Bedd. ; Bedd. Suppl. 84
 Caudex erect, fronds tripinnate, sori globose. Growing next to stream.
 Not common. 13th mile from Kimin, 19581.

ASPLENIACEAE

417. *ASPLENIUM ENSIFORME* Wall. ; Bedd. 141
Epiphytic on trees ; sori linear ; fronds thick, leathery.
Common. Near Hapoli, 19863.
418. *A. NORMALE* Don ; Bedd. 144
Caudex erect ; sori linear small ; rachis dark-violet.
Not rare. Near Hapoli, 19865.
419. *A. BORNEENSE* Hook.
On rocky crevices in sandy humus, in the shade of
overhanging rocks ; next to waterfall.
Not rare. 7th camp, 19574.
420. *A. RUTAEFOLIUM* Kurz ; Bedd. 159.
Rhizome small ; fronds thick, fleshy, light green ;
sori along the margins.
Rare. Near Hapoli, 19884.
421. *A. FINLAYSONIANUM* Wall.
Hemidictum finlaysonianum Moore ; Bedd. 195
A fern growing on rock along with mosses.
Common. Khuni Pahad, 19338.

POLYPODIACEAE

422. *POLYPODIUM AMOENUM* Wall.
Goniophlebium amoenum (Wall.) J. Sm. ; Bedd. 317
Epiphytic on tree trunks ; sori deeply situated on
either side of the midrib.
Very common. Near Hapoli, 19861, 19867, 19880.
423. *PYRROSIA HETERACTA* (Mett.) Ching
Niphobolus heteractis (Mett.) J. Sm. ; Bedd. 327
Epiphytic ; sori filling up completely or partially the
lower surface.
Not rare. Hapoli forest, 19773.
424. *P. ADNASCENS* (Sw.) Ching
Niphobolus adnascens (Sw.) Kaulf. ; Bedd. 325
Epiphytic on rock boulders, rhizome closely adhering
to stone.
Not common. 21st mile from Kimin to Ziro, 19594.
425. *P. MOLLIS* (Kze.) Ching
Niphobolus fissus (Bak.) Bedd. (in part) ; Bedd. 330 (*N. fissus* Bl. by error)
On tree trunks ; densely tomentose.
Common. 12th mile from Kimin to Ziro, 19488.
426. *P. FLOCCIGERA* (Bl.) Ching
Niphobolus fissus (Bak.) Bedd. (in part) ; Bedd. 330
Epiphytic on trees or rocks ; sori globular or scattered
and intermingled with brown hairs.
Near Hapoli, 19878.

427. *P. BEDDOMIANA* (Gies.) Ching
Niphobolus stigmatosus (Sw.) Moore ; (in part) Bedd. 328
Epiphytic on rock boulders.
Common. 21st mile from Kimin to Ziro, 19596 ;
Khuni Pahad, 19363.
428. *MICROSORIUM DILATATUM* (Bedd.) Sledge
Pleopeltis dilatata (Wall.) Bedd. ; Bedd. 367
In the humus cover on rocky substratum. Fronds
1½ m. long. Stipe scaly on lower side.
Not rare. 7th camp, 19578.
429. *M. ZIPPELII* (Bl.) Ching
Pleopeltis zippeüii (Bl.) Moore ; Bedd. 357
Epiphytic on tree trunks ; rhizome creeping ; sori in
two rows on either side of the midrib.
Rare. Near Hapoli, 19874.
430. *M. HYMENODES* (Kze.) Ching
Epiphytic on tree trunks ; sori scattered on the back
of leaf ; rhizome slender.
Not common. Near Hapoli, 19862, 19877.
431. *M. LUCIDUM* (Roxb.) Copel.
Pleopeltis leorrhiza (Wall.) Moore ; Bedd. 372
Epiphytic on mossy rocks.
Not rare. 5th camp, 19589.
432. *COLYSIS ELLIPTICA* (Thunb.) Ching.
Selliguea elliptica (Thunb.) Bedd. ; Bedd. 392
Epiphytic on humus covered rocks along the side of
a stream. Fronds dull green with chocolate brown scales
below.
Rare. 13th mile from Kimin, 19582.
433. *C. HEMIONITIDEA* (Wall.) Presl
Pleopeltis hemionitidea (Wall.) Moore ; Bedd. 358
Epiphytic on rocks in the shade of overhanging rock
boulders.
Not rare. 7th camp, 19590.
434. *LEPTOCHILUS DECURRENS* Blume
Gymnopteris variabilis (Hook.) Bedd. ; Bedd. 429
Creeping stem on rocks, next to water edge ; fronds
dimorphic.
Not rare. 12th mile from Kimin to Ziro, 19471.
435. *DRYNARIA PROPINQUA* (Wall.) J. Sm. ; Bedd. 339.
Epiphytic on trees in humid forests.
Common. Yacholi camp, 19684.
436. *LEPISORUS THUNBERGIANUS* (Klf.) Ching
Pleopeltis linearis Thunb. ; (in part) Bedd. 346
Epiphytic on rocks and tree trunks. Fronds simple.
Common. Khuni Pahad, 19489 ; Zorum, 19741.

437. *LEPISORUS MACROSPHAERUS* (Bak.) Ching
Epiphytic on trees ; sori large arranged along the margin of the frond.

Not common. Near Hapoli, 19858.

438. *CRYPsinus GRIFFITHIANUS* (Hook.) Copel.
Pleopeltis griffithiana Hook. ; Bedd. 354
Rhizome creeping ; densely covered with brown hairs, lateral veins parallel ; sori large.

Not common. Near Hapoli, 19879.

EQUISETACEAE

439. *EQUISETUM DIFFUSUM* Don
Erect much branched stems with cones ; growing near nallas.

Common. Pitepool, 19642 ; Zorum, 19734.

SELAGINELLACEAE

440. *SELAGINELLA SUBDIAPHANA* (Wall.) Spring
Suberect, 10-15 cm. long, growing on wet rocky soil. Very common. Near Kimin. 19396, 19421, 19479, 19483.

441. *S. WALLICHII* (Hook. et Grev.) Spring
On sandy cover of rocks ; leafy stem vertical, 15 cm. long ; feather-like.

Not common. Khuni Pahad, 19484, 19593.

442. *S. HELFERI* Warb.

Very robust, about 3 m. high ; leaves dark green ; growing in damp soil.

Not rare. New headquarters, 19555.

443. *S. CILIARIS* (Retz.) Spring

Moss like habit, covering the rock surface above a bridge.

Rare. Pitepool, 19671.

444. *S. INAEQUIFOLIA* (Hook. et Grev.) Spring

Robust perennial, stem as stout as finger ; growing on the shaded steep rock walls.

Common. Khuni Pahad, 19356.

445. *S. INTERMEDIA* (Bl.) Spring

A stout herb 1-2 m. long ; leaves shining green ; growing as undergrowth.

Not rare. Near Kimin, 19419.

446. *S. PENTAGONA* Spring

Perennial, stem 2-3 m. long ; trailing through bushes ; rhizophore 60 cm. long brown.

Common. Khuni Pahad, 19355.

LYCOPODIACEAE

447. *LYCOPodium SERRATUM* Thunb.

Epiphytic on mossy bark ; fertile.

Not rare. Near Hapoli, 19830.