Report No. 420 (ICAR) Jan. 1979

(For Official Use Only)

# *Report on*
# *I C A R Farm, Village Prothropur*
# *Tahsil Port Blair, Andaman & Nicobar Islands*

Regional Centre
Calcutta

National Bureau of Soil Survey & Land Use Planning
Indian Council of Agricultural Research
Seminary Hills, Nagpur - 440006

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C O N T E N T S :



M A P S :

(1) Soil map. (2) Index map.

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3

Soil Survey report of the proposed ICAR Farm at village Prothropur, Tahsil Port Blair, Andaman and Nicobar Islands.

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1.. INTRODUCTION :

Soil survey of the proposed site for the establishment of a Research Farm in Andaman and Nicobar Islands was carried out at the request of the Associate Project Director, ICAR Research Farm, Port Blair during the month of May,1978.

The objectives of the survey were to map different soils, characterise them and assess their potentiality for establishing Research Farm to bring about the socio-economic improvement in these Islands.

2.. DESCRIPTION OF THE AREA :

2.1 Location :

The proposed farm is situated at a distance of about 8 km. north of Port Blair town in Prothropur village and about 1.5 km. away from the main Road (Fig. I). It lies between east longitudes 92°47' and north latitudes 11°39½. The total area of the proposed farm site is 40.47 hectares.

2.2 Physiography, Relief and Drainage :

The farm area is a part of hill range running north-south through more or less the middle of the Island. The terrain is highly dissected and irregular. Physiographically the area can be classified as medium hill slope. The slope class ranges from moderately steep to very steep. Erosion on the hill slopes is quite severe.

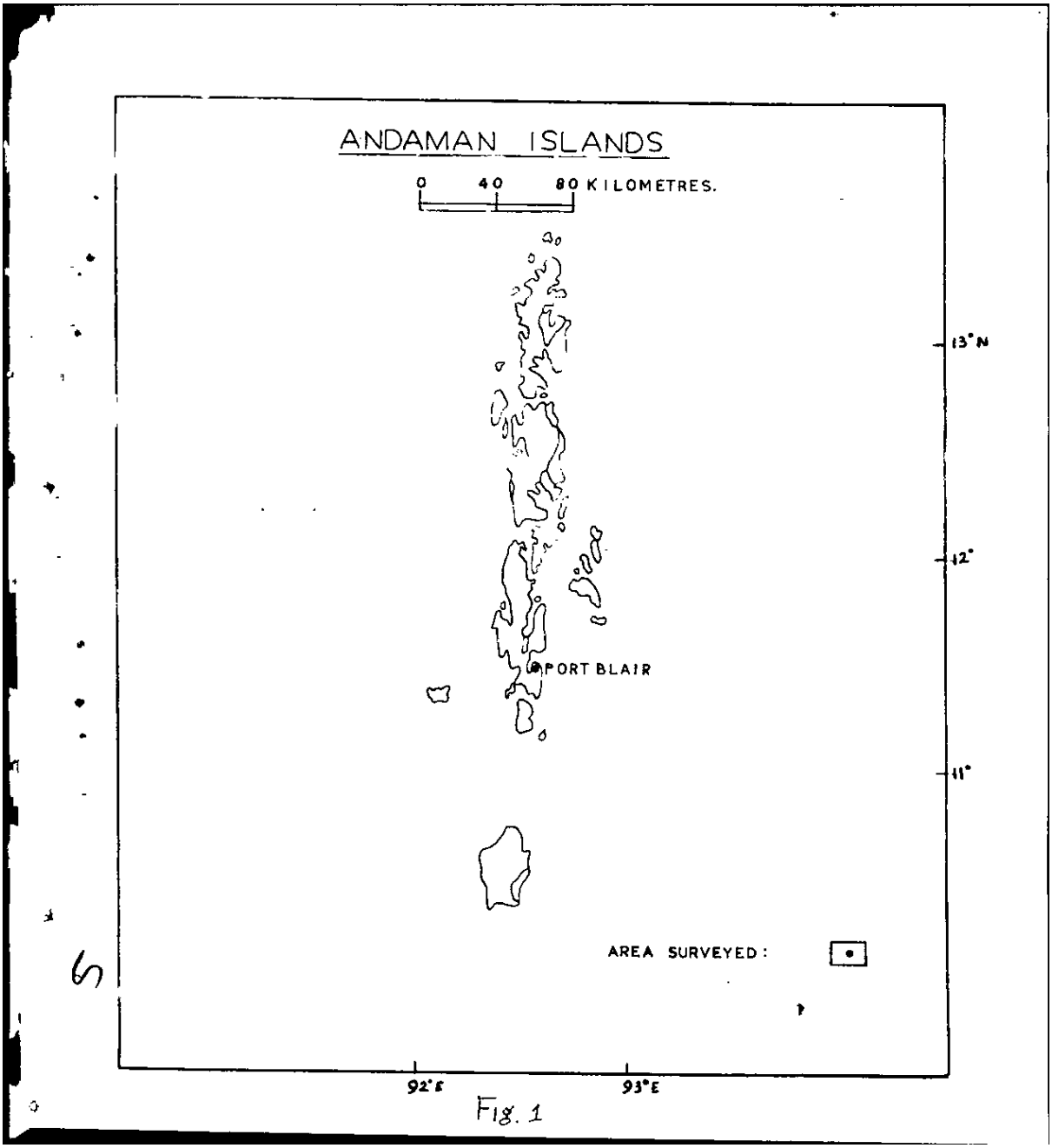
ANDAMAN ISLANDS
0 40 80 KILOMETRES.
13°N
12°
11°
PORT BLAIR
AREA SURVEYED :
92°E
93°E

Fig. 1

The surveyed area is drained by seasonal streams which finally joins the sea through creeks. The water course divides the area into two main blocks.

2.3 Geology :

The bed-rock consists of a succession of sand-stone, silt stone and shale of Tertiary age. These are sometimes traversed by irregular bands and patches of serpentineous rocks. Amongst the rocks under lying the area, the shales, lime stones and serpentines are impermeable. The silt stones and fine grained sand stones are also poorly permeable to impermeable.

2.4 Climate :

The climate of Andamans is humid tropical. The weather is warm and sultry in summer. These Islands lie in the the full sweep of South-west and north-east monsoons. They are subjected to cyclonic disturbance originating from the Bay of Bengal during the months September to November. The period, December to February constitutes the cool season. Hot season extends from March to May. April is the hottest month with mean maximum temperature of 31°C and minimum of 24.2°C. The average annual rain fall is 3180.5mm. received in 147.6 rainy days. The mean daily maximum temperature is 29.6°C and minimum 23.5°C. The difference of mean Summer and Winter temperature is less than 5°C and the mean annual temperature is above 22.0°C. Therefore it is classified as 'Iso-hyperthermic' moisture regime.

The humidity is high throughout. Distribution of rain fall is subjected to variations within the island. The variable topography and physiography may be responsible for uneven distribution of rainfall.

2.5 Vegetation :

The area is under secondary forest vegetation and fallow grass land. Some of the species are Pterocarpus dalbergioides, Terminalia procera, Terminalia manii, Species of Dipterocarpus, Largestromia hysoleuca and Anacardium occidentale, etc. Eupotorium is the common weed. Some patches of abandoned grass land are used for grazing.

2.6 Water Supply :

Water supply is mostly by dug wells and springs. Seepage also contributes. Most of these yield insufficient water or run dry in summer. Most of the streams are seasonal. Due to steep hill slopes and limited flow length the run off is rapid and drains into the sea without adequate sub-surface storage capacity. The streams remain dry in Summer. Seepage loss is likely to be more in these soils. The prevailing geological and morphological conditions favour rapid recession of the water table with the advent of dry season. The sand-stones which would otherwise be the only strata with any promise of previous zones are, however, topographically conditioned into steep sided ridges or spurs mainly due to the geological structure. This minimises the recharge into small streams, wells and dams. Once the catchment is denuded the problems is likely to be further aggravated.

3.. TRANSPORT :

The proposed area is connected to Port Blair by road and is about 1.5 km. from the main road going to Garacharma. The site is approachable by an abandoned Japanese road which now needs reconstruction for the development of the area.

4.. AGRICULTURE AND PRESENT LAND USE :

The area was subjected to denudation and was under intensive cultivation of sweet potato in the past. It is presently under secondary forest vegetation and fallow grazing land. Soils are severely eroded due to improper management of land in the past for agriculture.

5.. S O I L S :

Soils are developed from sandstone and shale. On lower slopes they are often gravelly due to colluvial deposition from upper slopes.

5.1 Survey Procedure and Technique :

Soil survey was carried out as per the procedure described in the Soil Survey Mannual of the All India Soil and Land Use Survey Organisation. Base map used was sketch map without showing any permanent features within the area in the scale of 1 cm. = 50 mts. Due to inaccessibility of the area and lack of suitable base map, detailed survey was not possible in the area. However, important observations were recorded and delineations of units made wherever it was possible.

5.2 Brief Description of Soils :

Brief descriptions of the soil series identified and mapped are given below :-

PROTHROPUR SERIES :

Comprises very deep, well drained, dark brown soils occurring on moderately steep to steep middle slopes of medium hills. Surface texture is clay loam and sub-soil ranges from clay loam to gravelly clay loam. The soils are under forest and pasture. They are severely eroded. (Ultic Hapludalfs).

GARACHARMA SERIES :

Comprises very deep, well drained, dark yellowish brown soils occurring on strongly sloping lower slopes of medium hills. Surface texture is clay loam (gritty) and sub-soil is gravelly clay. The soils are under forest and pasture and severely eroded (Ultic Hapludalfs).

CALICUT SERIES :

Comprises very deep, moderately well drained, yellowish brown soils occurring on moderately steep lower slopes of medium hills. Surface texture is clay loam and sub-soil gravelly clay. The soils are under forest vegetation and severely eroded (Typic Paleudalfs).

TOYLERABAD SERIES :

Comprises very deep, moderately well drained, dark brown soils occurring on steep to very steep top slopes of medium hills. Surface texture is loam and subsoil clay loam. The soils are under pasture and are severely eroded (Ultic Hapludalfs). Detailed soil series descriptions are in Appendix-I.

6.. MAPPING UNITS :

Mapping was done at soil series association level. Five such associations are tentatively mapped. The mapping units are described below :-

| Geomorphic unit. | Mapping unit. | Soil series association. | Description. | Present land use. | Area (ha) | Percentage. |
|---|---|---|---|---|---|---|
| 1. | 2. | 3. | 4. | 5. | 6. | 7. |
| Medium hill slope. | PT | Prothropur-Toylerabad. | | $F_1$, $F_2$ and P. | 15.49 | 38.0 |
| | | | Prothropur series comprises very deep, well drained dominantly fine loamy in control section (25-100 cm.) on F(15-25%) and G(25-33%) slopes, severely eroded. | | | |
| | | | Toylerabad series comprises very deep, moderately well drained, dominantly fine | | | |

| 1. | 2. | 3. | 4. | 5. | 6. | 7. |
|---|---|---|---|---|---|---|
| | | | skeletal in control section (25-100 cm.) on G(2,5-33%) and H(33-50%) slopes, severely eroded. | | | |
| Medium hill slope. | TG | Toylerabad-Garacharma. | | $F_1, F_2$ P. | 2.93 | 7.0 |
| | | | Toylerabad series is same as above described in Prothropur-Toylerabad association. | | | |
| | | | Garacharma series comprises very deep, well drained dominantly fine skeletal in control section (25-100 cm) on E(10-15%) slopes, severely eroded. | | | |
| Medium hill slopes. | GC | Garacharma-Calicut. | | $F_1, F_2$ | 7.06 | 18.0 |
| | | | Garacharma series is same as above described Toylerabad-Garacharma association. | | | |
| | | | Calicut series comprises very deep, moderately well drained dominantly fine skeletal | | | |

| 1. | 2. | 3. | 4. | 5. | 6. | 7. |
|---|---|---|---|---|---|---|
| | | | in control section (25-100 cm.) on D(5-10%) slopes, severely eroded. | | | |
| Medium hill slope. | PC | Prothropur-Calicut. | | $F_1, F_2$ P. | 10.62 | 26.0 |
| | | | Prothropur series is same as in the Prothropur-Toylerabad association. | | | |
| | | | Calicut series is same as in the Garacharma-Calicut association. | | | |
| -do- | PG | Prothropur-Garacharma: | | $F_1, F_2$, P. | 4.37 | 11.0 |
| | | | Prothropur series is same as in the Prothropur-Toylerabad association. | | | |
| | | | Garacharma series is same as in the Toylerabad-Garacharma association. | | | |

7.. SOIL CHARACTERISATION :

Soils are mostly medium to fine textured and gravelly. Clay content increases with depth and ranges from 20 to 51%. Partly weathered sandstone parent material contributes to soil separates >2 mm. and are present throughout the profile in different proportions ranging from 10 to 50 percent. This affects the moisture regime of the soils. Soil reaction is very strongly acid ranging from pH 4.6 to 4.8. Organic matter in the surface soil is high and decreases with depth. Cation exchange capacity ranges from 9.6 to 22 m.e./100 g. which is low to medium. Available phosphate is low while Av. Potash is medium range.

Water holding capacity is medium and moisture equivalent is mostly low. Chemical analysis data are furnished in Appendix-II.

Soils need very careful management for maintaining sustained yield of economic agricultural and other cash crops. Addition of N.P.K. fertilizers and organic manures must be ensured.

INTERPRETIVE GROUPINGS :

8.. SOIL GROUPS ACCORDING TO PLANT ADAPTATION :

Soils that have similar properties and qualities from the stand point of plant adaptation and use have been classified under different groups. The grouping is used mainly for determining the plants most suitable for a particular area when the limiting factors are known. The groups are defined below.

Group-A : Soils limited to droughtiness and graveliness.

Soils are very deep, well drained, fine skeletal occurring on hill slopes. Available water capacity is low and soils are poor in productivity. These soils are best suited to permanent vegetation viz. horticultural and plantation crops and pasture. Land above 33% slope may be kept under Farm forestry. Intensive soil conservation measures are suggested. This group is represented by Toylerabad, Calicut and Garacharma series.

Group-B : Soils limited to droughtiness :

Soils are very deep, well drained, fine loamy in texture occurring on hill slopes. Soils are low in productivity and subjected to droughtiness. They are suitable for horticultural and permanent crops. Field crops may be given a trial. Intensive soil conservation measures are suggested. This group is represented by Prothropur series.

9.. SOME POINTS FOR CONSIDERATION :

1. Agriculture is the main occupation of the people of the Island. Families settled in the Island earn their lively hood on agriculture mainly. Rice cultivation is done in valley lands which often come under land capability Class-II. Experience has now shown that valley land soils ideally suited for paddy cultivation are very limited in extent in the Island. By the increasing population, the demand for increased production from the existing available flat

land is the need of the hour. The isolated nature of the island from the main land of India ~~mait~~ call for urgent need of self-sufficiency of the Island at least in rice which is the main crop of the Island and supply food for the population. The most appropriate strategy would be intensification of rice cultivation and other field crops rather than extension of the area for which little scope exists at the moment. It was with this objective in view the very idea of establishing ICAR Research Station was initiated originally. The possible proposition of conducting paddy research in the terraced fields is not considered practical at present due to various reasons. Even for this, suitable Class-III land is not adequately available for the purpose in the proposed site.

2. Agriculture depends entirely on rainfall and the scope of irrigation facility is limited. Experience in other parts of the Island shows that sub-soil seepage is excessive in areas having sand-stone sub-surface geology. The proposed site is predominantly of sand-stone origin and water retention capacity is likely to be adversely affected. The possibility of construction of a dam after considerable expenditure on the existing seasonal ~~x~~ water course needs thorough investigation. Water being an essential requisite for the Research Station for various experiments, regular supply of water throughout the year for the research work including field experiments, laboratory and for the requirements of staff who are expected

to be stationed at the proposed site, ~~this may be given~~ should get due consideration. General water scarcity during summer months is of common occurrance in the area. The Dhanekhari water supply scheme might be able to supply water to the staff at the centre for the domestic consumption. By the increase of the density of population and denudation, water scarcity is bound to be a problem in the future, particularly in the vicinity of Port Blair. The site under report does not have any perennial source of water supply, as such impounding of run-off collected through the seasonal streams is the main source. Assured supply of water for all farm activities must be ensured before embarking on the establishment of the Centre at this site.

3. The soils of the farm are suitable for plantation crops, horticultural crops and pasture development under rainfed condition. It may be noted that for spices and plantation crops ICAR has already established a centre at Sippighat in South Andaman which is near to the proposed site of ICAR Farm. It may also need further examination that whether another Centre for the same type of crops is required more or less in the same location.

4. Communication facility is by road transport for which the existing foot path of about 1.5 km. from the Forest Dept. Chowki needs construction which will also involve consideration expenditure to make the proposed site accessible to vehicles throughout the year.

Perhaps it might have the dual purpose of Research and demonstration if a site could be obtained on the main road.

It is, therefore, suggested that a more suitable site with different types of lands particularly paddy soil (Land capability class II) with adequate potential for water resource and communication facility may be ideal for the proposed site.

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## L E G E N D :

| Mapping Symbol: | Soil series association: | Symbol: | Present land Use : |
|---|---|---|---|
| PT | Prothropur-Toylerabad. | $F_1$ | Thin forest. |
| | | $F_2$ | Moderately dense forest. |
| TG | Toylerabad-Garacharma. | P | Pasture. |
| GC | Garacharma-Calicut. | | Slope (%) : |
| PC | Prothropur-Calicut. | D | 5-10 |
| | | E | 10-15 |
| | | F | 15-25 |
| PG | Prothropur-Garacharma. | G | 25-33 |
| | | H | 33-50 |

* * *

# A P P E N D I X - I :

Descriptions of soil series.

PROTHROPUR SERIES :

Comprises very deep, well drained soils occurring on moderately steep to steep middle slopes of medium hills. The pedons exhibit dark brown medium textured A horizon grading to yellowish brown moderately fine textured gravelly B horizon. The soils are derived from sand stone and shale parent material. They are severely eroded and under forest and pasture.

Prothropur series is a member of loamy skeletal mixed Iso-hyperthermic family of Ultic Hapludalfs.

Typifying Pedon : Prothropur clay loam - forest.

(colours are for moist soil unless otherwise noted).

| Horizon: | Depth: (cm.) | Description: |
|---|---|---|
| A1 | 0-14 | Dark brown (7.5YR 4/4) clay loam; moderate fine subangular blocky; firm, sticky and slightly plastic; frequent very fine, common medium roots; coarse fragment 10-15 percent; many very fine pores; clear smooth boundary. |
| B1t | 14-51 | Yellowish brown (10YR 5/4) clay loam (gritty); weak medium granular; friable, firm, sticky and plastic; few very fine roots; few fine pores; thin patchy clay films on ped faces; coarse fragment, clear boundary. |

| Horizon: | Depth: (cm.) | Description: |
|---|---|---|
| B2t | 51-102 | Yellowish brown (10YR 5/6) gravelly clay loam; moderate, medium, subangular blocky; firm, very sticky, very plastic; thin patchy clay skin on ped faces; common coarse prominent mottles of dark gray (10YR 4/1) colour; coarse fragments 35%; moderate permeability; clear boundary. |
| C1 | 102+ | Decomposed sand stones and shales. |

Range in characteristics :

The thickness of the solum is very deep and varies between 100 and 110 cm. Clay content varies from 30 to 35 percent within a depth 15 cm. to 100 cm. The texture of fine earth in A horizon varies from clay loam to sandy clay loam and the colour of the moist soil is generally 7.5YR with value from 4 to 5 and chroma 1 to 2. The texture of the fine earth in B horizon varies from clay loam to clay and colour from light yellowish brown (10YR 6/4) to yellowish brown (10YR 5/6). Coarse fragment in B horizon ranges between 30 and 40 percent. The percentage of base saturation in the argillic horizon is below 60.

Competing series and their diffentia :

Competing series are Garacharma and Toylerabad series. Pothropur series differs from Garacharma and Toylerabad having lesser amount of clay in series control section.

Use and vegetation :

Forest vegetation and pasture.

Drainage and permeability :

Well drained with moderate permeability.

Distribution and extent :

Fairly extensive.

Type location :

Prothropur village, South Andaman Tahsil, Andaman and Nicobar Islands.

GARACHARMA SERIES :

Comprises very deep, well drained soils occurring on strongly sloping lower slope of medium hills. The pedons have dark yellowish brown, medium textured A horizon grading to yellowish brown fine textured gravelly B horizon. The soils are severely eroded and are under forest and pasture.

Garacharma series comprises members of fine skeletal mixed hyperthermic family of Ultic Hapludalfs.

Typifying Pedon : Garacharma clay loam - fallow.

(colours are for moist soil unless otherwise noted).

| Horizon: | Depth: (cm.) | Description: |
|---|---|---|
| A1 | 0-12 | Dark yellowish brown (10YR 4/4) clay loam (gritty); weak medium subangular blocky; moist firm, wet sticky and |

| Horizon: | Depth: (cm.) | Description: |
|---|---|---|
| | | slightly plastic; few micro pores; few fine strong brown (7.5YR 5/6) mottlings; coarse fragments 10-15% very few, very fine roots; very fine to fine pores; moderately rapid permeability; gradual wavy boundary. |
| B21t | 12-30 | Light yellowish brown (10YR 6/4) gravelly clay; fine granular; soft, slightly sticky, slightly plastic, few fine roots; very fine pores, coarse soft fragments 45 percent; moderate permeability; clear, wavy boundary. |
| B22t | 30-49 | Yellowish brown (10YR 5/6) gravelly clay; moderate, fine, subangular blocky; friable, sticky, plastic; coarse fragments 45-50 percent; few very fine roots; thin patchy clay film on ped faces; moderate, gradual smooth boundary. |
| B3 | 49-103+ | Yellowish brown (10YR 5/4) very gravelly clay; moderate fine, subangular blocky; friable, sticky; coarse fragments 45-50 percent. |

Range in characteristics :

Soils are very deep. Clay content varies from 33 to 48 percent within a depth of 15 to 100 cm. The texture of fine earth in A horizon varies from loam to clay loam and the colour of the moist soil is normally in hue 10YR with value from 4-5 and chroma 4-5. The texture of fine earth in B horizon varies from gravelly clay loam to gravelly clay ~~loam~~ and colour from light yellowish brown to yellowish brown in hue of 10YR with moist value 5 and chroma 4 to 6.

Competing series and their differentia :

Competing series are Prothropur and Toylerabad series. Garacharma series differs from Prothropur in having more clay in series control section and differs from Tylerabad for having gravelly sub-soil.

Use and vegetation :

Forest and pasture.

Drainage and permeability :

Well drained with moderate permeability.

Distribution and extent :

Fairly extensive.

Type location :

Prothropur village, South Andaman Tahsil, Andaman and Nicobar Islands.

CALICUT SERIES :

Comprises very deep, moderately well drained soils occurring on moderately steep lower slopes of medium hills. The soil profile exhibits yellowish brown moderately fine textured A horizon grading to dark brown, fine textured gravelly B horizon underlain by weathered sand stone and colluvial materials. Soils are severely eroded and under forest.

Calicut series comprises a member of fine skeletal mixed hyperthermic family of Typic Paleudalfs.

Typifying Pedon : Calicut loam.

(colours are for moist soil unless otherwise noted).

| Horizon: | Depth: ( cm.) | Description: |
|---|---|---|
| A1 | 0-11 | Yellowish brown (10YR 4/3) clay loam; moderate, fine subangular blocky (gritty) friable, sticky, plastic; coarse fragments 5-10%; fine to medium, few coarse roots; many very fine pores; wavy boundary. |
| B21t | 11-26 | Dark brown (7.5YR 4/4) clay; moderate fine, subangular blocky; friable sticky, plastic; coarse fragments 10-15%; few, fine roots; common very fine to fine pores; thin patchy clay film on ped faces, gradual smooth boundary. |

| Horizon: | Depth: (cm.) | Description: |
|---|---|---|
| B22t | 26-38 | Strong brown (7.5YR 5/6) gravelly clay; moderate fine, subangular blocky; sticky, plastic; coarse fragments 25-35 percent; few very fine roots; common very fine to fine pores; thin patchy clay film on ped faces; gradual smooth boundary. |
| B3t | 38-100 | Brown (7.5YR 5/4) gravelly clay, moderate, medium subangular blocky; friable, very sticky, very plastic; very fine roots; few thin discontinuous clay skin on ped faces, coarse fragments 20 to 27 percent; many fine pores; moderate permeability. |
| C1 | 100+ | Weathered sand stones |

Range in characteristics :

Soils are very deep. Clay content varies from 44 to 50 percent within the depth of 15-100 cm. The texture of the fine earth in A horizon varies from clay loam to clay and the colour for moist soil is normally in hue 10YR with value from 4-5 and chroma 4-5. The texture of the fine earth in B horizon varies from clay to gravelly clay and the colour ranges in hue 10YR and 7.5YR with medium moist value and chroma between 4-6.

Competing series and their differentia :

Nil.

Use and vegetation :

Under forest.

Drainage and permeability :

Fairly extensive.

Type location :

Prothropur village, South Andaman Tahsil, Andaman and Nicobar Islands.

TOYLERABAD SERIES :

Comprises very deep, moderately well drained soils found to occur on steep top slopes of medium hill. The soil profile exhibits dark brown medium textured A horizon grading to dark yellowish brown to brown moderately fine textured B horizon. Soils are severely eroded and are under pasture.

Toylerabad series is a member of fine mixed hyperthermic family of Ultic Hapludalfs.

Typifying Pedon : Toylerabad clay loam - fallow. (colours are for moist soil unless otherwise noted).

| Horizon: | Depth: (cm.) | Description: |
|---|---|---|
| A1 | 0-10 | Dark brown (10YR 4/3) loam; weak, fine granular; friable; slightly sticky and plastic; common, very fine and few |

| Horizon: | Depth: (cm.) | Description: |
|---|---|---|
| | | pores; very fine to fine roots, moderate permeability; gradual wavy boundary. |
| B1 | 10-22 | Dark yellowish brown (10YR 4/4) clay loam; distinct strong brown (7.5YR 5/6) mottles; moderate, medium granular; friable, sticky and plastic; very few, very fine roots; fine pores; moderately rapid permeability. |
| B21t | 22-47 | Dark brown (10YR 4/3) clay loam; moderate, medium granular; friable and slightly sticky; many fine and medium roots; thin patchy clay films on peds; few fine pores; clear, smooth boundary. |
| B22t | 47-101 | Yellowish brown (10YR 5/6) clay; moderate, medium subangular blocky; firm and slightly sticky; few fine and medium roots; thin patchy clay film on ped faces; few fine inped pores. |

Range in characteristics :

The thickness of the solum is very deep and ranges between 100-102 cm. The clay content varies from 20 to 43 percent. The texture of the fine earth in A horizon is loam to clay loam. The colour of the soil in A horizon ranges from light brown to dark brown. The colour for moist soil is normally in hue 10YR with value from 4-5 and chroma 2-3.

The textnre of fine earth in B horizon varies from clay loam to clay and colour from dark yellowish brown to brown.

Competing series and their differentia :

The competing series are Prothropur and Garacharma. Toylerabad series differs from Pothropur series having more clay in series control section and from Garacharma not having gravelly subsoil.

Use and vegetation :

Pasture.

Drainage and permeability :

Moderately well drained with more permeability.

Distribution and extent :

Fairly extensive.

Type location :

Prothropur village in South Andaman Tahsil, Andaman and Nicobar Islands.

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## APPENDIX-II :

### ANALYTICAL DATA OF SOIL SERIES :

( Percentage constituents on oven dry basis )

| Sl. No. | Soil series. | Depth (cm.) | Gravel 2mm. | pH (1:2.5) | Organ. carbon. | Sand. | Silt. | Clay. | W.H.C. | M.E. | T.E.B. | C.E.C. | Base saturation. | Av. $P_2O_5$ (Kg/ha.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. |
| 1. | Prothropur: | | | | | | | | | | | | | |
| | | 0-14 | 15.0 | 4.74 | 1.17 | 65.5 | 11.8 | 22.7 | 27.92 | 10.55 | 7.6 | 13.64 | 55.7 | 20.8 |
| | | 14-51 | 30.0 | 4.60 | 0.80 | 52.5 | 16.8 | 30.7 | 35.37 | 13.31 | 8.8 | 16.16 | 54.4 | |
| | | 51-102 | 35.0 | 4.80 | 0.45 | 47.5 | 16.8 | 35.7 | 41.52 | 17.03 | 10.4 | 18.20 | 57.1 | |
| 2. | Garacharma: | | | | | | | | | | | | | |
| | | 0-12 | 15.0 | 4.86 | 1.44 | 56.5 | 20.1 | 23.4 | 31.15 | 13.10 | 5.6 | 10.0 | 56.0 | 13.44 |
| | | 12-30 | 20.0 | 4.70 | 0.75 | 46.5 | 16.8 | 36.7 | 47.10 | 18.67 | 8.8 | 16.4 | 53.6 | |
| | | 30-49 | 35.0 | 4.78 | 0.43 | 33.5 | 18.1 | 48.4 | 54.81 | 24.11 | 11.8 | 20.08 | 58.7 | |
| | | 49-103 | 50.0 | 4.72 | 0.31 | 44.4 | 22.1 | 33.3 | 43.63 | 16.92 | 8.0 | 14.64 | 54.6 | |
| 3. | Calicut : | 0-11 | 10.0 | 4.62 | 2.04 | 40.4 | 22.3 | 37.3 | 48.11 | 19.28 | 10.0 | 19.2 | 52.08 | 20.44 |
| | | 11-26 | 15.0 | 4.79 | 0.87 | 28.4 | 21.3 | 50.3 | 58.31 | 25.18 | 12.4 | 22.4 | 55.30 | |
| | | 26-38 | 35.3 | 4.74 | 0.42 | 29.4 | 20.3 | 50.3 | 59.06 | 25.66 | 12.0 | 21.8 | 55.04 | |
| | | 38-100 | 36.6 | 4.67 | 0.21 | 32.4 | 23.3 | 44.3 | 53.53 | 21.89 | 10.8 | 20.0 | 54.00 | |
| 4. | Toylerabad: | | | | | | | | | | | | | |
| | | 0-10 | Nil | 4.88 | 0.90 | 66.4 | 13.3 | 20.3 | 26.50 | 10.09 | 5.6 | 9.6 | 58.30 | 11.14 |
| | | 10-22 | " | 4.60 | 0.52 | 58.1 | 12.5 | 29.4 | 35.41 | 13.83 | 7.2 | 13.4 | 53.70 | |
| | | 22-47 | 20.0 | 4.78 | 0.42 | 58.1 | 12.5 | 29.4 | 35.98 | 14.15 | 7.6 | 13.8 | 55.07 | |
| | | 47-101 | 30.0 | 0.31 | 0.41 | 16.5 | 43.4 | 51.44 | 20.31 | 10.80 | 10.8 | 10.96 | 56.90 | |

W.H.C. = Water holding capacity.
M.E. = Moisture equivalent.

## APPENDIX III :

## C L I M A T O L O G I C A L

## T A B L E :

Station : Port Blair, Lat. 11°40'N. Long. 92°43'E.
Height above M.S.L. 79 Metres.

| Month. | Air Temperature Mean (of) Daily Max. | Daily Min. | Humidity Relative humidity. | Rainfall Monthly total. | No. of rainy days. |
|---|---|---|---|---|---|
| | °C | °C | % | mm. | |
| January I | 29.2 | 22.7 | 70 | 28.9 | 2.1 |
| II | | | 77 | | |
| February I | 29.8 | 21.8 | 71 | 26.3 | 1.7 |
| II | | | 76 | | |
| March I | 31.1 | 22.5 | 69 | 22.5 | 1.8 |
| II | | | 74 | | |
| April I | 31.9 | 24.2 | 70 | 71.2 | 5.9 |
| II | | | 77 | | |
| May I | 30.9 | 24.4 | 77 | 362.5 | 15.1 |
| II | | | 84 | | |
| June I | 29.1 | 24.2 | 83 | 589.5 | 23.5 |
| II | | | 88 | | |
| July I | 28.9 | 24.1 | 84 | 435.5 | 20.5 |
| II | | | 88 | | |
| August I | 28.3 | 24.1 | 84 | 435.9 | 22.5 |
| | | | 88 | | |
| Sept. I | 28.7 | 23.6 | 84 | 516.2 | 20.4 |
| II | | | 89 | | |
| Oct. I | 29.0 | 23.6 | 81 | 329.2 | 16.6 |
| II | | | 89 | | |
| Nov. I | 29.2 | 23.6 | 76 | 205.4 | 11.1 |
| II | | | 85 | | |
| Dec. I | 29.0 | 23.1 | 72 | 157.4 | 6.4 |
| II | | | 80 | | |
| Annual I total or | 29.6 | 23.5 | 77 | 3180.5 | 147.6 |
| mean II | | | 83 | | |
| Number I of years | 27 | 27 | 27 | 27 | 27 |
| II | | | 22 | | |

## P A R T I C I P A N T S :

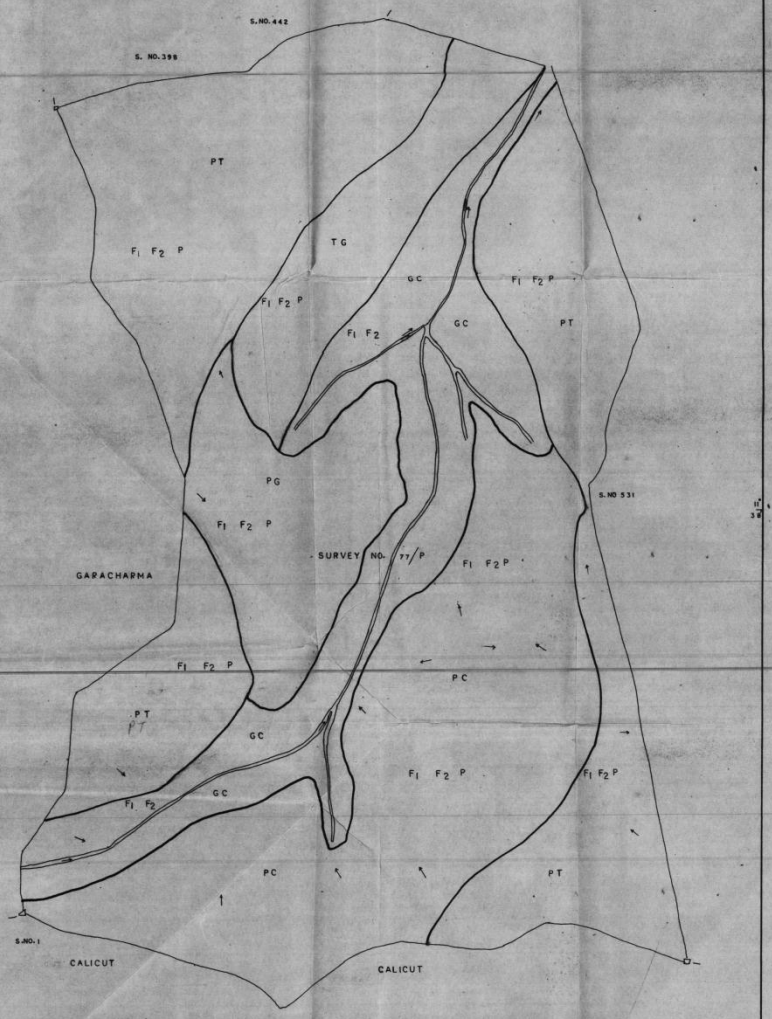
| | |
|---|---|
| SHRI S. DIGAR | CHIEF SCIENTIST (SOIL CORRELATION). |
| SHRI C.J. THAMPI | SCIENTIST S-1(SOIL CHEMISTRY). |
| SHRI A.K. HALDAR | SCIENTIST S-1(SOIL CHEMISTRY). |
| SMT. ARUNA GOSWAMI | SCIENTIST S-1(CARTOGRAPHY). |

* * *

# SOIL MAP OF PROPOSED ICAR FARM AT VILLAGE PROTHROPUR

TAHSIL PORTBLAIR — ANDAMAN AND NICOBAR ISLANDS

0 20 40 60 80 METRES




## L E G E N D

| Geomorphic unit | Mapping unit | Soil series association | Description | Present land use | Area in ha. | Percentage |
|---|---|---|---|---|---|---|
| Medium hill slope | PT | Prothropur Toylerabad | Prothropur series comprises very deep, well drained dominantly fine loamy in control section (25-100 cm) on F (15-25%) and G (25-33%) slopes, severely eroded. | $F_1F_2$ P | 15.49 | 38 |
| | | | Toylerabad series comprises very deep, moderately well drained, dominantly fine in control section (25-100 cm) on G (25-33%) and H (33-50%) slopes, severely eroded. | | | |
| Medium hill slope | TG | Toylerabad Garacharma | Toylerabad series is same as in the above described prothropur Toylerabad association. Garacharma series comprises very deep well drained, dominantly fine skeletal in control section (25-100 cm) on E (10-15%) slopes, severely eroded. | $F_1F_2$ P | 2.93 | 7 |
| Medium hill slope | GC | Garacharma Calicut | Garacharma series is same as in the above described Toylerabad Garacharma association. | $F_1F_2$ | | |
| | | | Calicut series comprises very deep moderately well drained dominantly fine skeletal in control section (25-100 cm) on D (3-10%) slopes, severely eroded. | | 7.06 | 18 |
| Medium hill slope | PC | Prothropur Calicut | Prothropur series is same as in the Prothropur Toylerabad association. | $F_1F_2$ P | | |
| | | | Calicut series is same as in the Garacharma Calicut association. | | 10.62 | 26 |
| Medium hill slope | PG | Prothropur Garacharma | Prothropur series is same as in the Prothropur Toylerabad association. | $F_1F_2$ P | 4.37 | 11 |
| | | | Garacharma series is same as in the Toylerabad Garacharma association. | | | |

References

Present Land Use

F1 : Thin forest

F2 : Moderately dense forest

P : Pasture

Soil boundary PC

Stream

NBSS LUP ICAR Regional centre calcutta

Fig. 2