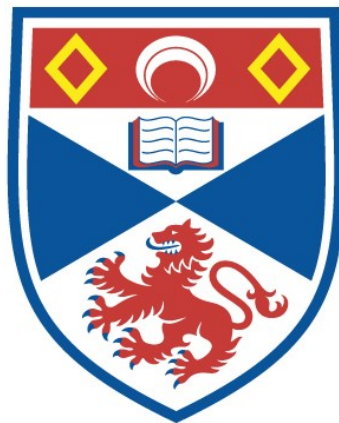


AN ECOLOGICAL SURVEY OF THE VEGETATION OF
THE NORTH MENG0 LOWLANDS, UGANDA

Ian Langdale-Brown

A Thesis Submitted for the Degree of PhD
at the
University of St Andrews



1957

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An Ecological Survey of the Vegetation of
the North Mengo Lowlands, Uganda.

by Ian Langdale-Brown, B.Sc.

A Thesis submitted to the University of St. Andrews
for the Degree of Doctor of Philosophy.



Department of Botany,
St. Salvator's College,
St. Andrews,
April 1957.

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Declaration

I hereby declare that the following Thesis is based on the record of work done by me, that the Thesis is my own composition, and that it has not previously been presented for a Higher Degree.

The research was carried out in Uganda and in the Department of Botany at St. Salvator's College, St. Andrews, under the direction of Dr. J.A. Macdonald.

Career

I first matriculated in the University of St. Andrews in October 1947 and graduated B.Sc. with First Class Honours in Botany in June 1951.

In 1951 I was awarded a Colonial Research Studentship in Ecology under the direction of C.G. Trapnell as follows:

1951-2 at St. Peters Hall, Oxford, while engaged on work at the Imperial Forestry Institute and in the Department of Rural Economy.

1952-3 at the East African Agriculture and Forestry Research Organization, Muguga, Kenya.

In 1953 I was appointed Botanist in the Uganda Department of Agriculture.

In April 1954 I was admitted as a Research Student in the Faculty of Science, in the Department of Botany of St. Salvator's College.

Certificate

I certify that Ian Langdale-Brown has spent 13 terms of research under my direction and that he has fulfilled the conditions of Ordinances 16 and 61 (St. Andrews) and that he is qualified to submit the following Thesis for the Degree of Doctor of Philosophy.

Acknowledgments

I wish to record my deep appreciation of Dr. J.A. Macdonald of the Department of Botany, St. Salvator's College, for supervising the work presented in this Thesis and for the continued interest he has shown in the investigation.

My thanks are due to Dr. P.J. Greenway and members of his staff at the East African Herbarium, Nairobi, Kenya, and to the Curator and staff of Kew Herbarium for facilities for working and for help in confirming and determining the names of herbarium specimens. Individual acknowledgment is made on each sheet in Appendix E.

I am indebted to Dr. E.M. Chenery of Kawanda Research Station, Uganda, for the analyses of soil samples included in Appendix B, and for his stimulating criticism.

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An Ecological Survey of the North Mengo Lowlands,
Uganda.

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I. INTRODUCTION.

A. Review of the Literature.

(1) On the Classification of the Vegetation of East Africa.

Some of the earliest attempts to classify the vegetation of East Africa were made by Stuhlmann (1894, 1895), Busse (1901, 1901a), and Engler (1908, 1910, 1910a). They were based on De Candolle's (1820) system of botanical regions typified by the occurring families, genera, and species. Engler (in Knox 1911) divided the whole of Africa into four great floristic regions: Mediterranean, North African and Indian Desert, African Forest and Steppe, South West Cape. East Africa forms part of the third region, African Forest and Steppe, which was divided into four provinces: Sudanese Park Steppe, North East African Highlands and Steppe, West African Guinea Forest, East and South African Steppe. It was intended to subdivide these provinces into districts, and finally, localities. Chevalier (1915 -17) described and delimited the districts of West Tropical Africa, but no subdivision was attempted in East Africa. This system aided botanical exploration by making comparisons between known and unknown lands possible. However, it was of little use in the broad reconnaissance surveys and ecological work which followed the first world war, owing to the size and nature of the units defined and the amount of work that would be required to obtain units with constant habitat relationships.

A number of systems aiming at a degree of uniformity in the types distinguished were published about the turn of the century. The first of these arranged the various types of vegetation according to their physiognomy. Warming (1895) rejected this because he regarded the grouping of vegetation of like ecology of greater importance than the separation of physiognomically similar vegetation. He defined thirteen "ecological" types according to their water relations. This is primarily an edaphic classification as it is based on relative dryness, physical or physiological, of the soil. On the other hand, Schimper (1898) put forward a primarily climatic classification. He divided vegetation into three latitudinal groups; Tropical, Temperate, and Arctic, and two physiographic groups: Montane and Aquatic. Each was divided into Woodland, Grassland, and Desert, according to coincident differences in precipitation and physiognomy; subdivisions of the formation types, Tropical Woodland etc., being based on strictly ecological criteria.

Shantz (1923) recognised Schimper's three main classes, Woodland, Grassland and Desert, in his account of the vegetation of Africa and subdivided them, on a mixture of taxonomic, climatic, edaphic, and physiognomic criteria, into 21 formations. Chipp (1926) developed the idea of physiognomic - ecologic classification "to meet the needs of travellers and to provide them with a means of recording the vegetation they encountered." He recognised 13

vegetation types which he grouped into Closed Forest; Parkland; Grassland; and Maritime, Swamp, and Aquatic Vegetation. Much of the subsequent botanical work in East Africa has been based on this classification. It did not cover all the types encountered however, and numerous variations of this and other physiognomic - ecologic systems were applied with a resulting increase in nomenclature and confusion. Boughey (1953) gives a measure of the present situation by quoting 39 synonyms for Mountain Rain Forest. Burtt-Davy (1938) reclassified tropical woody vegetation to meet the need for fuller descriptions and more precise definitions of forest types, and to provide a standard set of terms to be used throughout the tropical territories of the British Colonial Empire. It was left to Greenway (1943) to extend the physiognomic - ecologic system to cover all the types of vegetation known in East Africa. Greenway divided vegetation into seven "Main Types" with numerous types and sub-types. The seven Main Types are Forest, Woodland, Wooded Grassland, Grassland, Permanent Swamp Vegetation, Bushland Thicket and Scrub, and Semi-Desert Vegetation.

The association, the fundamental unit of vegetation in all these physiognomic - ecologic systems, is a floristic subdivision based on the presence of certain species, and normally recognised by and named after the most abundant of these species. There has been much criticism of these

systems on the ground that floristic differences are fundamental and that it is illogical to group floristic units according to any other criterion. The value of this argument depends on the reasons for classifying vegetation. Clearly, if the object is an absolute description of vegetation, irrespective of its ecological affinities, there is no alternative but to embark on the very lengthy processes involved in the methods of the European plant sociologists. However, the object of classifying the vegetation of East Africa has been to express a general idea of the vegetation in relation to its habitat for use in reconnaissance surveys and, as a background to more detailed studies of phytosociology and ecology using statistical methods.

Greenway's classification is much easier to apply than previous physiognomic - ecologic systems, and is of the greatest use in the rapid recognition and description of units in the field. It is possible that a purely floristic classification would permit a more searching correlation of communities and habitats, and that the associations distinguished would have a higher degree of ecological reality. The field observations of the present investigation have been made in such a way as to allow classification by both systems in order to compare their relative merits.

(ii) On the Distribution of Vegetation in East Africa.

The modern botanical exploration of East Africa began with the observations and plant collections of the nineteenth century travellers. While this work was still in progress attempts were made to classify the vegetation on a regional basis, using floristic criteria. Engler (1910a) reviewed the flora of Africa giving separate attention to each floristic region. These attempts were discontinued after the first world war because it was not possible to extend the classification very far as the requisite data was not available and would have taken a considerable time to accumulate; and because German interest in the area lapsed. Shantz (1923) summarised previous work on the vegetation of Africa in the light of a journey from Capetown to Cairo, and produced a map of Africa showing the distribution of different plant formations. This was a feat of compilation and interpolation, and though unreliable in many details, it did provide a unifying basis for further work. Uganda is shown on this map as mainly High grass - low tree savanna, with Mountain grass in the south-west, Acacia - tall grass (N.E.), and localised Tropical rain forest, Temperate rain forest and Marsh grass. The High grass - low tree savanna should be split into two: an inner belt contiguous with the areas of Tropical rain forest and consisting of evergreen relicts scattered throughout a grassland largely dominated by

Pennisetum purpureum, and an outer belt of broad leaved deciduous trees and perennial grasses. Alternatively, if climax formations were being mapped, the area shown as Tropical rain forest should be much larger. Most of the area shown as Mountain grass is no higher than the country under High grass - low tree savanna and is of similar topography, is much drier than described, and though the species listed for this formation do occur in this geographical area they are not typical of it. This paper was followed by a series of reconnaissance surveys describing and recording the distribution of the different vegetation types.

Chipp (1929) describes the vegetation of the Imatong mountains on the borders of the Sudan and Uganda. In two later papers (1930 and 1931) he describes the forests and plants of the Sudan and the vegetation of Northern Tropical Africa as a whole. The latter includes a map showing the distribution of Closed Forest, Grass - Woodland, Thorn Scrub, and Ephemeral grass - herbs - Desert. These are his climatic types. He also recognises edaphic types, swamps and swamp forests, and physiographic types within them. He notes that "there can be little vegetation outside the Closed Forest which man has not modified in some form or other and the Closed Forest itself in the last few decades has experienced such an attack that it is only a question of time before it has been transformed and largely destroyed unless different

counsels prevail." Phillips (1930, 1931) gives accounts of various communities found in Tanganyika and an outline of the distribution of vegetation in that territory. Burt-Davy (1931, 1935, 1938) describes and delimits the forest vegetation of tropical Africa and puts forward a physiognomic-ecologic system of classification of tropical woody vegetation. Snowden (1933) outlines the altitudinal zonation of vegetation in the extreme south west of Uganda. Other papers of this period (e.g. Greenway 1933, Eggeling 1935, Rea 1935, Dale 1939, and Burt 1942) describe the vegetation of areas in East Africa in greater or lesser detail, with or without reference to habitat conditions.

Trapnell's "Soils, Vegetation and Agriculture of Northern Rhodesia" (1937, 1943) records a very considerable amount of data within the framework of a reconnaissance survey. Maps on the scale 1: 1,000,000 show the distributions of soils and vegetation types. The vegetation is divided into 7 principal groups - Evergreen Woodlands, Grasslands, etc. - which are subdivided on edaphic, topographic and floristic grounds to give 28 types. Eight soil types and some sub-types are described and related to similar soils in East and South Africa. Areas of like soil and vegetation are referred to as soil-vegetation units. The significance of these units is apparent when we consider that soil differentiation has been going on for a very long time in Africa, and that the products of any one rock could develop

into a wide range of soils depending on the intensity of factors which also affect the vegetation. Milne (1940) emphasises that soil characters receive full expression in the vegetation only in the simplest cases. Grantham and Pilson (1952) working in Tanganyika note that "in drier or semi-arid climates soils intimately reflect the geology, and vegetation the soils; while in wetter or temperate climates the connexions are less."

Michelmore (1939) suggests that the upland grasslands of Africa may represent a gap between two floras: the African closed forest flora adapted in parts to great heat and in parts to considerable cold but nowhere to a severe dry season; and the African savanna flora which is adapted to a severe dry season and to great or moderate heat, but never to extreme cold or dampness of soil. Langouw (1954) discussing the Surinam savanna proposes that this vegetation owes its origin to edaphic factors, while fire may play a part in its maintenance. The existence of large areas of stable non-climatic climax vegetation indicates that a reappraisal of the ecological importance of the climate could be profitable.

Thomas (1941) stresses that the influence of man and stock has completely altered the vegetation over much of Uganda. He considers that Uganda grasslands, other than those high on mountains, are a result of man's destruction of closed forest. He postulates that once the forest had been destroyed, the balance of the chemical and biological soil

processes was upset, and the soil became too impoverished to support the growth of trees. Milne (1937, 1940) and Lebrun (1938) describe similar cases in Tanganyika, Trinidad, and the Belgian Congo. Thomas concludes that "the supply of nutrients and the influence of man and stock appear to be of greater importance than the climate in controlling the distribution of grass species in Uganda". Edwards and Bogdan (1951) relate Kenya vegetation to climate, altitude, and the fire factor. In an earlier paper (Edwards (1940) observes "the soils of Kenya are extremely variable and, over the greater part of the country are only vaguely known. So far as they are known they appear to show no very distinct relationship to the main vegetational types". Thomas (1943) gives a general description of the vegetation of Karamoja district (North-eastern Uganda) and discusses the factors influencing its distribution.

Greenway (1943) observes that in East Africa different vegetation types frequently occur in close conjunction, sometimes in a manner predictable according to the topography and ground water conditions, sometimes more irregularly and governed by surface geology or the effects of human occupation. Examples are taken from Michelmores (1939) and Trapnell (1937), and topographic vegetation complexes are likened to the catena of soil science (Milne 1935). Braun-Blanquet (1932) refers to the topographic arrangement, interdigitation, and mutual penetration of communities primarily controlled by external

factors. Thomas (1945) delimits and describes the vegetation zones of a number of hillsides in Uganda. Morison et al (1948) give a fairly detailed account of the distributions of soils and vegetation in an area of about 100,000 square miles bordering northern Uganda. It is divided into 3 catena - variants on the basis of the topography. The soils and vegetation of each variant are described sector by sector. They note an absolute correlation between vegetation and soil type down to the level of the soil phase, and repeated patterns of soil-vegetation units throughout the area. Unfortunately the field-work was carried out during a dry season and consequently a large number of species, including nearly all the grasses and herbs, were unidentifiable. Smith (1949) records apparent anomalies in the distributions of various species in the Sudan. An example is Carissa edulis which occurs under 80 mm. annual rainfall in the Red Sea hills, and under 900 mm. on the Dinka plains. Other examples are given and in all cases the variation in rainfall is accompanied by a change in soil texture: heavier rainfall, heavier soil. He concludes that species are versatile in terms of soil texture or rainfall considered individually but have definite requirements in the way of a combined soil texture - rainfall factor.

In his account of the vegetation of Uganda Snowden (1953) makes his first division on altitude: the Vegetation of the Plains and Hills below 1680 m. (5520 ft.) and Mountain

Vegetation above. The former is further classified as Tropical and is divided into 4 formations: Evergreen Forest, Broad-leaved Woodlands, Acacia and Mixed Woodlands, and Deciduous Acacia Woodlands and Thorn Thickets. Mountain Vegetation is divided into 4 groups: Sub-tropical, Temperate, Subalpine, Alpine; communities are grouped within these units but no further formations are distinguished. Thirty six communities are described and the distribution of some of them is represented on a map (1: 2,000,000) by the use of symbols. The following approximate ranges of climatic conditions of the four tropical formations are given:

Evergreen Forest: 125 - 155 cm. rainfall p.a. well distributed with a high humidity; Broad-leaved Woodland: 110 - 140 cm. less evenly spread with a definite dry season, slightly hotter and less humid; Acacia Mixed Woodlands: 85 - 115 cm. with an extensive dry season; Deciduous Acacia Woodlands and Thorn Thicket: 25 - 120 cm. irregular and poorly distributed throughout the year with a severe dry season. The vegetation of North Mengo is classed as part of the Broad-leaved Woodlands Formation. Most of it is mapped as Hyparrhenia filipendula grassland (= a scattered tree grassland). There is a fringe of Hyparrhenia - Themeda with Fan Palms (Borassus aethiopum) shown on the lower ground to the north and north-west and undifferentiated swamp in the larger valleys and around Lake Kioga. Dale (1953) roughly divides Uganda into 4 climatic zones: (a) the subtropical

climate of the Victoria Lake zone and the wetter parts of Western Province, from 3000 to 4500 ft.; (b) the highland areas above 4500 ft.; (c) Karamoja and the dry north-eastern lands; (d) the remainder - the savanna zone between 2000 and 4500 ft. Vegetation distribution follows the same zonation with (a) Evergreen Forest, (b) Montane Vegetation, (c) and (d) Wooded Grasslands of deciduous species in perennial grassland, with compound leaved trees, some annual grasses and scrub in (c) and predominantly simple leaved trees in (d).

A number of papers have been published on the vegetation and soils of small areas of East Africa in connection with their agriculture and forestry (viz. Tothill 1940). These papers contain much information, and while many of them have not been mentioned in this review they have been of value in building up a general picture of ecological relationships in the different parts of Uganda. Papers dealing with points of procedure are briefly reviewed in the sections dealing with the methods used in the reconnaissance and detailed surveys. A full list of all papers is given in the bibliography.

(iii) On Uganda Soils.

Marbut's map of the soils of Africa (Shantz and Marbut 1923) is based on the field observations made by Shantz during his journey from Capetown to Cairo, previous African

publications, and the principles of soils distribution derived from the studies of Russian and North American soils. Various workers have shown that while the factors controlling soils distribution are the same in tropical and temperate regions their relative importance is not. Milne (1936) notes "if we apply hypotheses in turn, supposing that climate or parent material, or surface relief provides the key to soil distribution in East Africa, each may give encouraging results in some part but fails in others. In so far as we can pick out (for example) sub-regions with similar overhead climates we find that they have similar soils only when their topography and drainage systems, their surface geology and the past history of their land forms have a sufficient number of features in common". However he qualifies that by adding "one major factor at an extreme of its range will govern soil development unless the other factors are at an extreme". This interaction of factors is responsible for the most striking feature of the distribution of soils in East Africa: the wide-spread occurrence of soil complexes. The commonest type of complex is that in which different soils are zoned topographically so that a traverse across the topography would cut through each member of the complex in a regular sequence. This type of complex is termed a catena by Milne (1935).

The soils of a large part of Uganda have been mapped in terms of catenas and individual soil types (Milne 1936).

Most of Central Uganda including the area of this survey is represented as the Buganda Catena. Descriptions of profiles from the type locality are given and are briefly as follows:

A. Hill brow series - A grey soil, black when wet, passing through a layer of quartz fragments to a thick bed of rotting rock. B. The red earths (on the hillsides) - a brown top: soil over a very deep, red subsoil. C. The Swamp fringe series - a belt of grey sandy soils with red and yellow mottling at 120 cm. D. The swamp soils - black topsoil over a grey or blueish grey waterlogged clay. Reference is made to "a large area of country which is undulating rather than hilly" in which the "A soil of the typical (Buganda) catena is not present and the B soil occupies both the crowns and the slopes of the ridges". This is probably a description of the North Mengo Lowlands.

B. General Description of the Area.

(i) Location and Extent.

The North Mengo Lowlands are bounded to the north and east by the rivers Kafu and Nile, to the west by the river Mpongo and the Singo Highlands, and extend southwards to approximately latitude $0^{\circ} 45'$ N. The total area is about 6000 square miles.

(ii) Geology and Topography.

"Uganda is part of the great African peneplain, the development of which in this country, in spite of the existence of a few residual hills, had reached a very high state of perfection before elevation to form the present plateau subjected it to the gouging action of consequent streams whereby it was dissected into a number of flat-topped hills. These hills, separated by wide papyrus-choked swamps, are highly typical of the scenery of Uganda" (Wayland 1932). In North Mengo this gouging process has proceeded beyond the stage of flat-topped hills to produce a land-form of very low relief dominated by the end - Tertiary erosion surface.

The region is based on gneissose rocks of the Basement Complex, and the newer granites, overlain in places by quartzites and schists. The topography is undulating throughout. "Hill" tops are rounded, slopes seldom exceed 5° , and the valleys show a rectilinear form. Amplitudes vary from 50 to 200 feet. The elevation ranges from 3400 feet above mean sea level bordering the river in the north to 3600 and 3700 feet on "hill" tops in the south and west, with isolated hills up to 4300 ft.

(iii) Soils.

The soils of North Mengo occur in catenary complexes, the distributions of individual soil types being related to topography and controlled by geological, erosional and

drainage factors.

There are three main soil types:

- (1) A red-brown fine sandy clay loam grading into red fine sandy clay, over sheet and/or pea ironstone.
- (2) Dark grey-brown loamy fine sands over lighter coloured fine sands.
- (3) Dark grey loamy fine sand - fine sandy clay loam over 7 - 10 ft. grey mottled strong brown fine sandy clay underlain by sands and gravels.

These and a number of soils of minor extent occur in catenas of two, three, or four members. A typical catena consists of the three main soil types described above, (i) covering hilltops and hillsides - about 60% of the total area, (ii) lower hillsides (10%), and (iii) valleys (30%).

(iv) Climate.

The mean annual rainfall for the years 1943 - 56 at the different stations in the North Mingo Lowlands ranges from 30.5 to 46.8 inches. Over 90% of this falls in $8\frac{1}{2}$ months between March and December and constitutes the wet season and growing period. June and July normally have less rainfall than other months of the wet season. The year is completed by a hot dry season of about $5\frac{1}{2}$ months duration from December to March, when there is about 3 inches of rain. The lengths and, particularly, the rainfalls of the seasons are very variable.

Data on the humidity, temperatures, winds etc. are not available. By applying Sansom's (1954) correlation of Thermal Efficiency and altitude, noting the mean annual rainfalls and their variability, we may compare the climates of the North Mengo Lowlands with Thornthwaite's (1931) Mesothermal Moist Sub-humid and Megathermal Dry Sub-humid types; the latter being at the lower altitudes.

(v) Vegetation.

The vegetation of North Mengo can be classified in four of Greenway's (1943) "main types":

- (i) Bushland, Thicket and Scrub.
- (ii) Wooded Grassland.
- (iii) Grassland.
- (iv) Permanent Swamp Vegetation.

Plant communities belonging to these main types occur in close conjunction, their distribution being chiefly a function of the topography and its concomitant variables. Certain communities are localised but the outstanding impression is of a vegetation cover changing with the topography with little geographical variation.

Thickets belonging to the first main type occur on hills and may represent the remains of the climatic climax after fire. Thickets also occur widely as intrazonal types on anthills in Wooded Grasslands and Grasslands. Most of the vegetation on hills belongs to the second main type, Wooded Grassland, which consists of a 10 - 40% cover of deciduous

trees scattered fairly evenly throughout a perennial grassland. The valleys support grasslands - main type (iii). Permanent Swamp Vegetation is restricted to the centres of the larger valleys and the Victoria Nile - Lake Kioga water expanse in the north.

II. RECONNAISSANCE.

A. Objects.

The main objects of the reconnaissance were to recognise, describe, and map the different plant communities of a typical part of the North Mengo Lowlands, and to collect preliminary data on the ecology of those communities. It was also planned to compare various methods of surveying the vegetation of large areas, and to make a full scale test of one of them.

B. Methods.

(i) Comparison of Methods.

A rapid appraisal of the North Mengo Lowlands was made before deciding on the methods to be used in this reconnaissance so that local peculiarities would not invalidate operations at a later stage. Different parts were visited by car and on foot and brief notes on the soils, vegetation, topography, and accessibility were made. This appraisal showed the region to be an intimate mosaic of similar

vegetation types with an emphasis on both soil and vegetation variations coincident with the topography. It was decided that in the reconnaissance the types forming this mosaic should be investigated by mapping part of the region only, for to extend operations over the whole would involve the collection of a very large amount of repetitive data. The part chosen included all the plant communities recognised during the appraisal, and was located centrally in relation to the rest of the North Mingo Lowlands (see map in Appendix I).

It has been shown (Buringh, 1954) that very considerable savings in time can be made by the use of aerial photographs in soil survey and land classification. Numerous workers - Stamp (1925) Tansley and Chipp (1926) and Braun-Blanquet (1932) among the earliest - have drawn attention to the value of aerial photographs in surveying vegetation. It was necessary to choose a fairly large area - about 800 square miles - to include all the vegetation types seen during the appraisal. Since the area was large and contained a considerable length of vegetation boundary per unit area and, since vertical aerial photographs of moderate to good quality were available, it was decided to use them to accelerate mapping, so that a larger proportion of the available time could be spent collecting ecological data.

Various survey procedures incorporating the interpretation of aerial photographs have been described elsewhere: Reed (1951), Simonson (1952), Wieslander and Storie (1953), and Buringh (1954).

They fall into two groups: those co-ordinating the interpretation of aerial photographs with ground survey and those relying solely on aerial photographs. A preliminary examination of the aerial photographs of the reconnaissance area was made to find out how much data could be obtained without going into the field. Using a stereoscope it was possible to distinguish a large number of different tones, textures and patterns; to recognise areas of thicket, wooded grassland, grassland and permanent swamp vegetation; and to relate the distribution of these main types (Greenway 1943) to the topography. It was clear, however, that only the broadest types of vegetation are recognisable on aerial photographs of the kind available without reference to the ground, or previous knowledge of similar country. It was therefore necessary to co-ordinate the interpretation of the aerial photographs with ground work in order to make full use of the photographs.

The method of interpolation of ground data by the interpretation of aerial photographs described by Buringh (1954) refers to photo-analysis in combination with field research, but does not state the order in which these operations are carried out. The method most widely used in East Africa (Grantham 1949, Trapnell 1953) is to make traverses through the area under survey, and to extend the use of the data of these traverses by matching the air-photo patterns of visited and unvisited areas. Christian (1952) describes a similar procedure but begins his surveys with a

preliminary examination of the aerial photographs. Traverses are then planned to sample each air-photo pattern. This procedure has the advantage of making it possible to avoid the occurrence of blank areas - areas represented by air-photo patterns not sampled in the field. It was seen that maps of the air-photo patterns could be produced prior to the field work and that, if such a procedure was followed, it would be possible to plan the traverses to sample all the different types of air photo pattern and also to check the botanical validity of those patterns. The latter to be achieved by comparing field notes of widely separated occurrences of each air photo pattern. A further consideration affecting the choice of procedure was that the existing 1:50,000 maps did not show detail sufficiently accurately to be used as base-maps. It was decided to proceed according to the following plan:

1. Interpretation of aerial photographs.
2. Assembly of detail to produce air photo maps.
- 3 and 4. Planning and Execution of traverses.
5. Organization of the data.

(ii) Mapping from Aerial Photographs.

Photographs and Equipment.

The photographs of the reconnaissance area were taken by the R.A.F. between 1947 and 1951. Cameras with $f = 6"$ lenses were used at an average height of 15,500 ft. above the land surface, to give a contact scale of about 1:31,000.

Exposures were timed to give a 2/3 fore and aft overlap, and the flight lines spaced to give a 1/3 overlap of adjacent strips.

The following equipment was used in the air-photo interpretation and mapping: Zeiss Aerotopo mirror stereoscope, Casella lens stereoscope, photostat and sun-print machines, drawing instruments and materials.

Preparation of the Photographs.

The photographs were base-lined in the usual way and then laid out in a rough mosaic. Four tie-points, corresponding to easily recognisable features, were then selected and marked on each photograph. Finally the positions of three main, two secondary, and seven minor trigonometrical points, and a number of map reference points were marked on the photographs (see photographs 1 & 2 Appendix G).

Air-photo Interpretation.

Different patterns were observed, delineated, and numbered during a stereoscopic examination of the aerial photographs. Briefly, the procedure used was to place stereopairs under the mirror stereoscope, make the common base-lines coincide, and draw over the boundaries between different patterns with a wax crayon. Each area was then given a number to relate it to areas of similar pattern. In cases of doubt comparisons were made with previous occurrences of each pattern using the magnifying lens stereoscope, and as each new pattern appeared it was given the next number. Roads

and tracks were also plotted. (See photographs 3 & 4 Appendix G).

Assembly of Detail.

The first step was to produce mosaics of the detail marked on the photographs of each strip. The centre point, transferred centre point and four tie points on the first photograph were traced on to a transparent plastic strip followed by the detail. The tracing was then superimposed on successive photographs, correct orientation being ensured by matching the base lines and tie points first, and then tracing off the additional detail.

The second step was to assemble these strips to produce a semi-controlled mosaic. A rough control was produced by enlarging the existing 1:50,000 maps to 1:31,000 (= photo scale = the scale of the strips). These enlargements showed the relative positions of 12 trigonometrical points and a number of map reference points (mailo beacons and some road-plot points) which had been marked on the photographs and traced on to the strips. The strips were then laid over the enlargements to make these points coincide. Some strips had a control point at either end, others had more, while a few had to be placed by matching the tie points and detail of adjacent strips.

When all the strips were in position (the semi-controlled mosaic), tracings were made to correspond to squares 15' latitude by 15' longitude which were then reduced photostatically to

1 : 50,000. These 1 : 50,000 maps, showing the distributions of the different air photo patterns, were used to plan the field work and to record much of the data of the reconnaissance.

(iii) Field Work.

The field work was designed to sample areas represented by each air-photo pattern and to check the botanical validity of the boundaries on the air-photo maps. The technique employed was based on the system of ecological reconnaissance developed by Trapnell (1937, 1943).

Equipment.

The following equipment was used in the field work: Abney level, aneroid barometer, car compass, Land-Rover with mileometer reading in hundredths, prismatic compass, soil auger and materials for the collection and preparation of plant specimens.

Procedure.

Land-Rover traverses were planned to visit areas represented by each of the air-photo patterns. Continuous observations were made throughout these traverses and a record of the vegetation, soils, and topography was kept against readings of the mileometer in hundredths. Boundaries on the air-photo maps found to have no vegetational counterpart were crossed out, while additional boundaries located during the traverses were plotted with a reference to the traverse and distance from the starting point. Most of these discrepancies

were due to burning. "Burn lines" partly obscured by the regrowth of the vegetation were sometimes mistaken for the sort of tonal difference usually occurring at the boundaries of grassland types. "Missed" boundaries were often discovered during a re-examination of the photographs to traverse areas burnt immediately prior to photography. Other causes were the variations in photography and developing.

In addition to the traverse notes, comprehensive descriptions of the types occurring in each traverse were made. This was done to obtain fuller information in order to characterise the types, and to check the air photo interpretation. Four "ecological survey sheets" were devised to speed up the collection of these data (Appendix K).

(iv) Organisation of the data.

First, the traverse data were correlated with the air-photo maps. The data of areas represented by each of the air photo patterns were then grouped together and summarised. Next these summaries were classified by their vegetation according to Greenway (1943) and some very similar ones merged. Finally, the maps were redrafted to eliminate redundant boundaries, and inventories were drawn up to summarise all the available information on the vegetation types mapped.

C. Results.

The vegetation of 800 square miles of the North Mingo Lowlands was mapped on a scale of 1:50,000. Two maps representing 500 square miles are included in Appendix H. The information of these maps, descriptions of the types distinguished and their ranges of habitat are summarised below.

(1) Classified List of Vegetation Types.

(a) Bushland, Thicket and Scrub Types.

1. *Acacia pennata* - *Euphorbia candelabrum* - *Acacia senegal* Continuous Thicket.
2. *Acacia pennata* - *Euphorbia candelabrum* - *Acacia senegal* Discontinuous Thicket.
3. *Strychnos wakefieldii* - *Teclea* spp. - *Acacia pennata* Continuous Thicket.
4. *Strychnos wakefieldii* - *Teclea* spp. - *Acacia pennata* Discontinuous Thicket.

(b) Wooded Grassland Types.

5. *Loudetia arundinacea* - *Terminalia velutina* *Albizzia zygia* Scattered Tree Grassland.
6. *Loudetia arundinacea* - *Combretum gueinzii* Scattered Tree Grassland.
7. *Andropogon dummeri* - *Albizzia coriaria* - *Terminalia velutina* Scattered Tree Grassland.
8. *Hyparrhenia filipendula* - *Combretum gueinzii* *Albizzia zygia* Scattered Tree Grassland.
9. *Hyparrhenia filipendula* - *Combretum binderanum* Scattered Tree Grassland.
10. Granite Hills - subdivided.

11. *Balanites aegyptiaca* - *Acacia siebariana* -
Hyparrhenia dissoluta Scattered Tree Grassland.
12. *Balanites aegyptiaca* - *Acacia siebariana* -
Chloris gayana Scattered Tree Grassland.
13. Scattered Small Thickets in *Hyparrhenia* spp.
Grassland.

(c) Grassland Types.

14. *Hyparrhenia filipendula* Grassland with Anthill
Thickets.
15. *Hyparrhenia dissoluta* Seasonal Swamp Grassland.
16. *Heteropogon contortus* Grassland with Anthill
Thickets.
17. *Setaria* sp. Grassland with *Acacia* spp. and
Balanites aegyptiaca.
18. *Hyparrhenia nyassae* - *Loudetia simplex*
Seasonal Swamp Grassland.
19. *Themeda triandra* - Seasonal Swamp Grassland
with isolated *Acacia seyal*.

(d) Permanent Swamp Vegetation Types.

20. *Cyperus papyrus* swamp.
21. Floating *Cyperus papyrus*.
22. *Paspalidium geminatum*.

(ii) The Soils.

The soils of the reconnaissance area can be related to 6 types, 3 of which are comparable with the lower members of the Buganda catena (see Milne 1936). General descriptions of these 6 types are given below together with data on their vegetation correlations.

Type A. Well drained, red-brown fine sandy loams to fine sandy clays of varying depth over pea sand, or sheet ironstone (cf. red earths of the Buganda catena).

Location: widespread throughout the area of the reconnaissance except the lake fringe.

Topography: on hilltops and upper hillsides of the low rolling country which makes up the bulk of the North Mengo Lowlands.

Vegetation: types 1 - 9. Two main types of vegetation (Greenway 1943) are associated with these soils: Thicket and Wooded Grassland, (there is evidence that the wooded grasslands are a result of regular burning over a number of centuries). The thickets consist of deciduous, semievergreen and evergreen species in close assemblage, forming a canopy from 15 - 20 ft. The wooded grasslands have a 15 - 40% cover of deciduous trees distributed evenly in grasslands of perennial species.

Type B. Well drained, yellow-brown to dark grey sands to sandy loams of considerable depth (cf. swamp fringe series of the Buganda catena).

Location: universal.

Topography: on the crowns and sides of low rises in the gently undulating country of the lake fringe and on lower hillsides throughout the low rolling country.

Vegetation: in the lake region, soils of this type are associated with scattered tree grasslands having a 15% cover of deciduous trees over perennial grasses. Elsewhere the

vegetation is a mosaic of scattered small thickets (deciduous and semievergreen species) and perennial grasslands with a few isolated trees.

Type C. Seasonally waterlogged soils having a variable depth of dark yellow-brown to grey-brown sand to fine sandy loam over grey mottled brown clay (cf. the swamp soils of the Buganda catena).

Location: widespread throughout the area of the reconnaissance. The soils of the lake fringe have shallower topsoils and the influence of the subsoils is more marked.

Topography: in valley bottoms of both the gently undulating and low rolling country.

Vegetation: seasonal swamp grasslands of perennial species, rich in Cyperaceae, with a few scattered, deciduous trees. Anthill thickets occur within the area of this soil type, however, the soil conditions of the anthills are very different to the surrounding land.

Type D. Seasonally waterlogged black clay.

Location: restricted to an area of about 100 acres in the immediate vicinity of Lwampanga.

Topography: low-lying area in the lake fringe region.

Vegetation: type 17 -- Setaria sp. grassland with Acacia spp. and Balanites aegyptiaca.

Note: this soil is comparable to the calcareous black clays and sandy clays of the bottom lands of the western Rift

Valley noted by Milne (1936). Another occurrence of this soil, some 30 miles west of Uvampanga, was observed to have similar vegetation.

Type E. Permanently waterlogged soils having a topsoil consisting of raw peat with an admixture of sand, and a subsoil of grey mottled brown clay. The topsoil occurs separately, floating at the lake edge.

Location and Topography: found in the north at the lake edge and in the centre of the largest valley (R. Lugogo).

Vegetation: Reed Swamp.

Type F. Rock-strewn, well drained, red-brown to very dark red-brown fine sandy loam to fine sandy clay loam, of very variable depth.

Location: Nakasongola.

Topography: Granite hills.

Vegetation: a mosaic of scattered tree grasslands of deciduous trees and perennial grasses.

(iii) Inventories of the Vegetation Types.

Note: the following abbreviations are used in the species lists to denote relative abundance:

d dominant

cd co-dominant

sd seasonal dominant

a abundant

p present

r rare

l local

These are purely relative terms obtained by compiling the data of individual communities of each type. More accurate analyses of the communities are given in the section dealing with the detailed investigation.

Certain types are noted as occurring in areas which have been burnt regularly for a very long period; the length of that period being at least two hundred years and probably much longer. Three kinds of burning are involved: chance fires, intermittent burns, and the annual or biennial burn. Chance fires are due to natural causes such as lightning, or to man's carelessness. Intermittent burns are intentional and are usually of small extent. An area may be burnt mid-season to obtain a fresh growth of palatable young grass, or to drive game as an aid to hunting. The annual or biennial burn is usually timed to coincide with the end of the dry season to obtain the fiercest possible fires. It is a feature of traditional pasture-management practice in the moister parts of East Africa. More recently it has been used to control the distributions of tsetse flies (Glossina spp.). Anti-tsetse burning in North Mengo represents an intensification of the established practice.

Names of the authorities for all specific names used in this section are given in appendix C - a list of species arranged alphabetically by genera.

(a) Bushland, Thicket and Scrub Types.

1. *Acacia pennata* - *Euphorbia candelabrum* - *Acacia senegal*
Continuous Thicket.

Topography: on hilltops and upper hillsides.

Soil: well drained red-brown fine sandy clay loam
over sheet ironstone.

Vegetation: a close assemblage of deciduous and semi-
evergreen shrubs and small trees with a few larger trees
(notably *Euphorbia candelabrum* and *Acacia senegal*) projecting
through an open canopy at 15 ft.

Species:	<i>Acacia pennata</i>	a
	<i>A. senegal</i>	a
	<i>A. seyal</i> var. <i>multijuga</i>	p
	<i>Acalypha bipartita</i>	p
	<i>Boscia dawei</i>	p
	<i>Bridelia scleroneuroides</i>	p
	<i>Canthium lactescens</i>	p
	<i>Capparis eleagnoides</i>	p
	<i>C. tomentosa</i>	p
	<i>Clematis hirsuta</i>	p
	<i>Cissus rotundifolius</i>	p
	<i>Dichrostachys glomerata</i>	p
	<i>Euphorbia candelabrum</i>	a
	<i>E. tirucalli</i>	p
	<i>Fagara chalybea</i>	p
	<i>F. stuhlmannii</i>	p
	<i>Grewia betulifolia</i>	p
	<i>G. similis</i>	r
	<i>G. trichocarpa</i>	p
	<i>Harrisonia abyssinica</i>	a
	<i>Hoslundia opposita</i>	p
	<i>Jasminum eminii</i>	p
	<i>Lannea stuhlmannii</i>	p
	<i>Landolphia florida</i>	p
	<i>Maerua angolensis</i>	p
	<i>Phyllanthus guineensis</i>	p
	<i>Rhoicissus erythrodes</i>	p
	<i>Rhus natalensis</i>	p
	<i>R. vulgaris</i>	p
	<i>Sansevieria dawei</i>	p
	<i>Strychnos wakefieldii</i>	p
	<i>Teclea nobilis</i>	p

<i>Tricalysia niamniamensis</i>	p
<i>Ziziphus abyssinica</i>	p
<i>Ziziphus mauritiana</i>	p

2. *Acacia pennata* - *Euphorbia candelabrum*- *Acacia senegal*
Discontinuous Thicket.

Areas mapped under this heading consist of thickets, floristically and physiognomically similar to type 1, arranged in mosaic with patches of a scattered tree grassland. These are regarded as sub-types, and are described separately below.

2a. Thicket patches.

Topography: hilltops and upper hillsides.

Soil: well drained red-brown fine sandy loams and fine sandy clay loams over peg and sheet ironstone. There are one or two instances of this type in the lake fringe region on yellowish brown to grey brown sands.

Vegetation: a close assemblage of deciduous and semi-evergreen shrubs and small trees with a few larger trees projecting through an open canopy at 10 - 15 ft.

Species:	<i>Acacia pennata</i>	a
	<i>A. senegal</i>	a
	<i>A. seyal</i> var <i>multijuga</i>	p
	<i>Boscia dawei</i>	p
	<i>Bridelia scleroneuroides</i>	p
	<i>Canthium lactescens</i>	p
	<i>Capparis eleagnoides</i>	p
	<i>C. tomentosa</i>	p
	<i>Clematis hirsuta</i>	p
	<i>Dichrostachys glomerata</i>	p
	<i>Euphorbia candelabrum</i>	a
	<i>Fagera chalybea</i>	p
	<i>Grewia betulifolia</i>	p
	<i>Harrisonia abyssinica</i>	a
	<i>Moslundia opposita</i>	p
	<i>Jasminium eminii</i>	p

<i>Lannea stuhlmannii</i>	p
<i>Rhus natalensis</i>	p
<i>Sansevieria dawei</i>	p
<i>Ziziphus abyssinica</i>	p
<i>Ziziphus mauritiana</i>	p

Other factors: much evidence of burning favouring the scattered tree grassland.

2b. Scattered tree grassland patches.

Topography: hilltops and upper hillsides.

Soil: well drained red-brown fine sandy loams and fine sandy clay loams over pea and sheet ironstone. There are one or two instances of this type on yellowish brown to grey brown sands in the lake fringe region. Soils of 2a and 2b indistinguishable.

Vegetation: a scattered tree grassland with a 15 - 25% cover of deciduous trees from 10 - 20 ft. high, distributed evenly throughout a grassland of predominantly perennial species.

Woody species:	<i>Acacia senegal</i>	p
	<i>A. seyal</i> var <i>multijuga</i>	p
	<i>Albizzia zygia</i>	p
	<i>Combretum binderanum</i>	p
	<i>Combretum gueinzii</i>	p
	<i>Gardenia jovis-tonantis</i>	p
	<i>Lonchocarpus laxiflorus</i>	p
	<i>Stereospermum kunthianum</i>	p
	<i>Strychnos innocua</i>	p

Herb. species:	<i>Ageratum conyzoides</i>	p
	<i>Anthericum</i> sp.	p
	<i>Brachiaria brizantha</i>	p
	<i>B. kotschyana</i>	p
	<i>Cassia mimosoides</i>	p
	<i>Chloris gayana</i>	p
	<i>Cyanotis hirsuta</i>	p
	<i>Eragrostis chalcantha</i>	p
	<i>Euphorbia bongensis</i>	p

Hyparrhenia dissoluta	a
H. filipendula	d
Sporobolus festivus	p
S. pyramidalis	p
Unidentified annuals	p

Other factors: see note under the other sub-type.

3. *Strychnos wakefieldii* - *Teclea* spp. - *Acacia pennata*
Continuous Thicket.

Topography: hilltops.

Soil: deep, well drained red-brown fine sandy clays with minute quartz cubes at 6 - 7 ft. over pea and sheet ironstone.

Vegetation: a close assemblage of deciduous, semi-evergreen and evergreen shrubs forming a closed canopy at 20 ft. with emergent *Euphorbia candelabrum*.

Species: <i>Acacia pennata</i>	a
<i>Acalypha bipartita</i>	p
<i>Albizzia zygia</i>	p
<i>Asystasia gangetica</i>	p
<i>Aloe</i> sp.	p
<i>Bridelia brideliifolia</i>	p
<i>Canthium lactescens</i>	p
<i>Capparis erythrocarpa</i>	p
<i>Carissa edulis</i>	p
<i>Chaetacme aristata</i>	p
<i>Croton macrostachys</i>	p
<i>Euclea latidens</i>	p
<i>Euphorbia candelabrum</i>	p
<i>E. tirucalli</i>	p
<i>Grewia similis</i>	p
<i>Harrisonia abyssinica</i>	p
<i>Hippocratea indica</i>	p
<i>Popowia djurensis</i>	p
<i>Rhus natalensis</i>	p
<i>Ritcheia duchesnei</i>	p
<i>Secamone punctulata</i>	p
<i>Strychnos wakefieldii</i>	a
<i>Synadenium grantii</i>	p
<i>Teclea nobilis</i>	a
<i>Teclea trichocarpa</i>	a
<i>Tricalysia niarnniensis</i>	p

Vangueria apiculata p
 Vernonia brachycalyx p

+ epiphytic mosses and lichens p

4. *Strychnos wakefieldii* - *Teclea* spp. - *Acacia pennata*
 Discontinuous Thicket.

Areas mapped under this heading consist of thickets, floristically and physiognomically similar to type 3, arranged in mosaic with patches of scattered tree grassland. These distinct areas are regarded as sub-types and are described separately below:

4a Thicket patches.

Topography: hilltops and upper hillsides.

Soil: deep, well drained, red-brown fine sandy clays with minute quartz cubes at 6 - 7 ft. over pea and sheet ironstone. Boundary of thicket patch often coincides with outcrop of sheet ironstone.

Vegetation: close assemblages of deciduous, semi-evergreen and evergreen shrubs forming a closed canopy at 15 - 20 ft. with emergent *Euphorbia candelabrum*.

Species:	<i>Acacia pennata</i>	a
	<i>Asystasia gangetica</i>	p
	<i>Canthium lactescens</i>	p
	<i>Capparis erythrocarpa</i>	p
	<i>Cissus rotundifolius</i>	p
	<i>Euphorbia candelabrum</i>	p
	<i>E. tirucalli</i>	p
	<i>Grewia similis</i>	p
	<i>Harrisonia abyssinica</i>	p
	<i>Hippocratea indica</i>	p
	<i>Popowia djurensis</i>	p
	<i>Strychnos wakefieldii</i>	a
	<i>Synadenium grantii</i>	p
	<i>Teclea nobilis</i>	a
	<i>Teclea trichocarpa</i>	p
	<i>Tricalysia niemniensis</i>	p

Vernonia brachycalyx p

+ epiphytic mosses and lichens p

Other factors: much evidence of burning; patches of shallow soil over sheet ironstone act as 'fire-breaks' between areas of scattered tree grassland and thicket. These shallow soils bear a sparse growth of annual grasses and herbs together with a few stunted specimens of the grasses of the (b) sub-type.

4b. Scattered tree grassland patches.

Topography: hilltops and upper hillsides.

Soil: deep, well drained, red-brown fine 'sandy clays with minute quartz cubes at 6 - 7 ft. over pea and sheet ironstone. Soils of 4a and 4b indistinguishable.

Vegetation: a scattered tree grassland with a 15 - 25% cover of deciduous trees from 10 to 20 ft. high distributed evenly throughout a grassland of predominantly perennial species.

Woody species:	<i>Acacia seyal</i> var. <i>multijuga</i>	p
	<i>Bridelia scleroneuroides</i>	p
	<i>Combretum binderanum</i>	p
	<i>C. gueinzii</i>	p
	<i>Lannea kerstingii</i>	p
	<i>Lonchocarpus laxiflorus</i>	p
	<i>Steganotaenia araliacea</i>	p
	<i>Stereospermum kunthianum</i>	p
Herb. species:	<i>Aframomum</i> sp.	p
	<i>Andropogon dummeri</i>	p
	<i>Brachieria brizantha</i>	p
	<i>B. platynota</i>	p
	<i>Cassia absus</i>	p
	<i>Cyanotis hirsuta</i>	p
	<i>Digitaria diagonalis</i>	p
	<i>Eragrostis chalcantha</i>	p

<i>E. cillianensis</i>	p
<i>Hyparrhenia filipendula</i>	d
<i>Loudetia arundinacea</i>	p
<i>Mariscus macer</i>	p
<i>Panicum maximum</i>	p
<i>Setaria sphacelata</i>	p
<i>Sporobolus festivus</i>	p

Other factors: see note under thicket sub-type.

(b) Wooded Grassland Types.

5. *Loudetia arundinacea* - *Terminalia velutina* - *Albizzia zygia*. Scattered Tree Grassland.

Topography: hilltops and upper hillsides.

Soil: deep, well drained, red brown fine sandy clay loams over pebbly sheet ironstone.

Vegetation: a scattered tree grassland with a 25 - 40% cover of deciduous trees from 10 to 40 ft. high distributed evenly throughout a grassland of perennial species dominated by *Loudetia arundinacea*.

Woody species:	<i>Albizzia coriaria</i>	p
	<i>A. zygia</i>	a
	<i>Annona chrysophylla</i>	p
	<i>Butyrospermum parkii</i> var <i>niloticum</i>	p
	<i>Combretum gueinzii</i>	a
	<i>Cussonia arborea</i>	p
	<i>Heeria reticulata</i>	p
	<i>Lonchocarpus laxiflorus</i>	p
	<i>Pavetta crassipes</i>	p
	<i>Securidaca longipedunculata</i>	p
	<i>Steganotaenia araliacea</i>	p
	<i>Terminalia torulosa</i>	p
	<i>T. velutina</i>	a
	<i>Vitex doniana</i>	p
Herb. species:	<i>Acalypha villicaulis</i>	p
	<i>Aframomum</i> sp.	p
	<i>Brachiaria brizantha</i>	p
	<i>B. platynota</i>	p
	<i>Hyparrhenia dissoluta</i>	p
	<i>H. filipendula</i>	p
	<i>Loudetia arundinacea</i>	d

Other factors: this type occurs in areas known to have been burnt regularly for a very long time.

Notes: Terminalia velutina, Albizzia zygia and Combretum gueinzii are the most abundant trees. Terminalia velutina sometimes forms as much as $\frac{3}{4}$ of the woody cover.

6. Loudetia arundinacea - Combretum gueinzii scattered Tree Grassland.

Topography: hilltops and upper hillsides.

Soil: deep, well drained red-brown fine sandy clay loams over sheet ironstone.

Vegetation: a scattered tree grassland with an evenly distributed cover of 25% of deciduous trees ranging from 10 to 30 ft. high. Grassland layer dominated by Loudetia arundinacea and composed of perennial open clump and free-tillering grasses and herbs in the interstices of large clumps of Loudetia arundinacea.

Woody Species:	<u>Acacia seyal</u> var. <u>multijuga</u>	P
	<u>Albizzia coriaria</u>	P
	<u>A. zygia</u>	P
	<u>Annona chrysophylla</u>	P
	<u>Combretum binderanum</u>	P
	<u>C. gueinzii</u>	a
	<u>Cussonia arborea</u>	P
	<u>Hymenocardia acida</u>	P
	<u>Lannea kerstingii</u>	P
	<u>Securidaca longipedunculata</u>	P
	<u>Steganotaenia araliacea</u>	P
Herb. species:	<u>Acalypha villicaulis</u>	P
	<u>Aframomum</u> sp.	P
	<u>Barleria</u> sp.	P
	<u>Beckeropsis uniseta</u>	P
	<u>Borreria stricta</u>	P
	<u>Brachiaria brizantha</u>	P
	<u>B. platynota</u>	P

<i>Cryptolepis oblongifolia</i>	p
<i>Ctenium concinnum</i> var. <i>indutum</i>	p
<i>Cyanotis lanata</i>	p
<i>Digitaria</i> sp.	p
<i>Eriosema cordatum</i>	p
<i>Euphorbia bongensis</i>	p
<i>Hyparrhenia dissoluta</i>	p
<i>H. filipendula</i>	p
<i>Indigofera</i> sp.	p
<i>Justicia</i> sp.	p
<i>Loudetia arundinacea</i>	d
<i>Panicum maximum</i>	p
<i>Senecio disciflorus</i>	p
<i>Sporobolus festivus</i>	p

Other factors: occurs in areas which have been burnt regularly for a long time.

7. *Andropogon dummeri* - *Albizia coriaria* - *Terminalia velutina*. Scattered Tree Grassland.

Topography: hilltops and upper hillsides.

Soil: red-brown fine sandy clay loams of moderate depth over sheet ironstone.

Vegetation: a scattered tree grassland with a 25% cover of deciduous trees ranging from 10 to 40 ft. high scattered evenly throughout a grassland of chiefly free-tillering and open clump perennial species.

Woody species:	<i>Acacia seyal</i> var. <i>multijuga</i>	p
	<i>A. siebariana</i>	p
	<i>Albizia coriaria</i>	p
	<i>A. zygia</i>	p
	<i>Combretum binderanum</i>	p
	<i>C. gueinzii</i>	p
	<i>Hymenocardia acida</i>	p
	<i>Lanea kerstingii</i>	p
	<i>Pavetta crassipes</i>	p
	<i>Steganotaenia araliacea</i>	p
	<i>Terminalia velutina</i>	p

Herb. species:	<i>Andropogon dummeri</i>	d
	<i>Asparagus pauli-guilelmi</i>	p
	<i>Brachiaria brizantha</i>	p

<i>B. platynota</i>	p
<i>Chloris gayana</i>	p
<i>Eragrostis chalcantha</i>	p
<i>Fimbristylis monostachya</i>	p
<i>Helichrysum undatum</i>	p
<i>Hyparrhenia dissoluta</i>	a
<i>Hyparrhenia filipendula</i>	p
<i>Microchloa kunthii</i>	p
<i>Sporobolus festivus</i>	p
<i>S. pyramidalis</i>	p
<i>Vernonia smithiana</i>	p

Other factors: occurs in areas which have been burnt regularly for a long time.

8. *Hyparrhenia filipendula* - *Combretum guenzii* - *Albizzia zygia* Scattered Tree Grassland.

Topography: hilltops and upper hillsides.

Soils: red-brown fine sandy clay loams over sheet ironstone.

Vegetation: a scattered tree grassland with a 25% cover of deciduous trees ranging from 10 to 30 ft. high scattered evenly throughout a grassland of chiefly free tillering and open clump perennial species.

Woody species:	<i>Albizzia coriaria</i>	p
	<i>A. zygia</i>	p
	<i>Combretum binderanum</i>	p
	<i>C. guenzii</i>	a
	<i>Cussonia arborea</i>	p
	<i>Ficus</i> spp.	p
	<i>Lanea kerstingii</i>	p
	<i>Lonchocarpus laxiflorus</i>	p
	<i>Steganotaenia araliacea</i>	p
	<i>Stereospermum kunthianum</i>	p
	<i>Strychnos innocua</i>	p
	<i>Vernonia amygdalina</i>	p

Herb. species:	<i>Aframomum</i> sp.	p
	<i>Andropogon dummeri</i>	sd x
	<i>Asparagus pauli-guilelmii</i>	p
	<i>Brachiaria brizantha</i>	p
	<i>B. platynota</i>	p
	<i>Cassia absus</i>	p

<i>C. mimosoides</i>	p
<i>Digitaria diagonalis</i>	pp
<i>Eragrostis chalcantha</i>	p
<i>Hyparrhenia filipendula</i>	d
<i>Justicia</i> sp.	p
<i>Penicum maximum</i>	p
<i>Thunbergia alata</i>	p
<i>Vernonia violacea</i>	p

Other factors: occurs in areas which have been burnt regularly for a very long time.

Notes: * Andropogon dummeri seasonally dominant 1 - 2 months after burning and beginning of the rainy season, succeeded by Hyparrhenia filipendula.

9. *Hyparrhenia filipendula* - *Combretum binderanum* Scattered Tree Grassland.

Topography: on lower hills and hillsides.

Soil: red-brown fine sandy loams over ironstone.

Vegetation: a scattered tree grassland consisting mainly of Combretum spp. and shrubby species. Total woody cover about 15%, ranging from 6 to 20 ft. high, evenly distributed throughout a grassland of predominantly perennial species.

Woody species:	<i>Acacia seyal</i> var. <i>multijuga</i>	p
	<i>A. sieberiana</i>	p
	<i>Bridelia scleroneuroides</i>	p
	<i>Combretum binderanum</i>	p
	<i>C. ghasalense</i>	p
	<i>C. gueinzii</i>	p
	<i>Cussonia arborea</i>	p
	<i>Gardenia jovis-tonantis</i>	p
	<i>Gymnosporia senegalensis</i>	p
	<i>Hymenocardia acida</i>	p
	<i>Piliostigma thomlingii</i>	p
	<i>Steganotactia araliacea</i>	p

Herb. species:	<i>Andropogon dummeri</i>	p
	<i>Aristida adscensionis</i>	p
	<i>Brachiaria brizantha</i>	p
	<i>B. kotschyana</i>	p
	<i>B. fulva</i>	p
	<i>Chloris gayana</i>	p
	<i>Digitaria diagonalis</i>	p
	<i>D. ternata</i>	p
	<i>Eragrostis chalcantha</i>	p
	<i>E. cilianensis</i>	p
	<i>Hyparrhenia filipendula</i>	d
	<i>Panicum maximum</i>	p
	<i>Setaria trinervia</i>	p
	<i>Sporobolus pyramidalis</i>	p
	<i>Vernonia violacea</i>	p
	Unidentified annual grasses	p

Other factors: occurs in areas which have been burnt regularly for a long time.

10. Granite Hills - subdivided.

Hills of this type are found in the immediate vicinity of Nakasongola. The vegetation forms an intimate mosaic; two important sub-types have been distinguished and are described below.

10a on deep soil.

Topography: level areas or slight slopes on the sides of the granite hills at Nakasongola.

Soil: deep, very dark red-brown fine sandy clay loam broken by granite boulders.

Vegetation: a scattered tree grassland with a 10 - 15% cover of deciduous trees distributed fairly evenly throughout a grassland of predominantly perennial species.

Woody species:	<i>Annona chrysophylla</i>	p
	<i>Bridelia brideliifolia</i>	p
	<i>Combretum binderanum</i>	p
	<i>Combretum gueinzii</i>	p
	<i>Cussonia arborea</i>	p

Euphorbia candelabrum	p
Heeria reticulata	p
Lanea kerstingii	p
Strychnos innocua	p
Terminalia velutina	p

Herb. species: Acalypha villicaulis	p
Afremomum sp.	p
Brachiaria brizantha	p
Cyanotis lanata	p
Digitaria diagonalis	p
Gladiolus psittacinus	p
Hyparrhenia filipendula	d
Sporobolus festivus	p
Striga asiatica	p
Thunbergia alata	p
Vernonia smithiana	c

Other factors: these hills have been burnt regularly for a very long time.

10b. On shallow soils.

Topography: the steeper slopes, and areas where there are concentrations of granite boulders.

Soil: shallow, red-brown fine sandy loam, often occurring in small pockets isolated by granite boulders.

Vegetation: a scattered tree grassland with a 5 - 10% cover of shrubby trees mostly growing on areas of slightly deeper soil. Grassland dominated by Loudetia arundinacea.

Woody species: Bridelia scleroneuroides	p
Combretum binderanum	p
Combretum ghasalense	p
Crossopteryx febrifuga	p
Gymnosporia senegalensis	p
Pavetta crassipes	p
Securidaca longipedunculata	p

Herb. species: Anthericum sp.	p
Brachiaria kotschyana	p
Otenium concinnum var. indutum	p
Indigofera sp.	p
Loudetia arundinacea	d
Sporobolus festivus	p

Other factors: see note under 10a.

Notes: numerous intermediates of these extremes on soils of intermediate depth.

11. *Balanites aegyptiaca* - *Acacia siebariana* - *Chloris gayana* Scattered Tree Grassland.

Topography: low rises in lake-fringe region.

Soil: dark yellowish brown to dark grey-brown sands and sandy loams, well drained.

Vegetation: A scattered tree grassland with a woody cover of about 15% scattered fairly evenly throughout a grassland of open clump species.

Woody species:	<i>Acacia seyal</i>	p
	<i>A. siebariana</i>	p
	<i>Balanites aegyptiaca</i>	p

Herb. species:	<i>Brachiaria kotschyana</i>	p
	<i>Chloris gayana</i>	d
	<i>Hyparrhenia dissoluta</i>	p
	<i>H. filipendula</i>	p
	<i>Panicum maximum</i>	p
	<i>Sporobolus festinus</i>	p
	<i>S. pyramidalis</i>	p

Other factors: occurs in areas which have been burnt regularly for a very long time.

12. *Balanites aegyptiaca* - *Acacia sieberiana* - *Hyparrhenia dissoluta* Scattered Tree Grassland.

Topography: low rises in lake-fringe regions (this type is invariably placed higher in the topography than the preceding type).

Soil: yellowish brown to dark grey sands, well drained.

Vegetation: a scattered tree grassland with an evenly distributed woody cover of about 15%.

Woody species: *Acacia seyal* p
A. senegal p
A. sieberiana p
Balanites aegyptiaca p

Herb. species: *Chloris gayana* p
Digitaria sp. p
Eragrostis ciliaris p
E. ciliaris p
Hyparrhenia dissoluta d
H. filipendula p
Sporobolus festivus p
S. pyramidalis p

Other factors: occurs in areas which have been burnt regularly for a very long period.

Notes: These two types (11 & 12) are very similar in their general physiognomy and have a considerable overlap in their species lists. They have been kept apart as they always occur in the same relative positions in the topography, are always found on slightly different soils (as listed), and the dominants of the grass layer are invariably *Chloris gayana* in type 11 and *Hyparrhenia dissoluta* in type 12.

13. Scattered Small Thickets in *Hyparrhenia* spp. Grassland.

Topography: lower hillsides.

Soil: deep, well drained, dark grey-brown sands.

Vegetation: this type consists of a number of small thickets scattered throughout a grassland of *Hyparrhenia dissoluta*, *H. filipendula* and other perennial species. Some of these thickets are centred on anthills but not all of them. Two sub-types are recognised: 13a the small thickets, and

13b the intervening grassland which has a few trees, scattered at random. However, the soils under the two subtypes are indistinguishable (excepting the anthills).

13a. Scattered small thickets.

Vegetation: close assemblages of deciduous and semi-evergreen shrubs to give an open canopy at about 12 ft.

Species:	<i>Acacia seyal</i> var. <i>multijuga</i>	p
	<i>Boscia dawei</i>	p
	<i>Bridelia scleroneuroides</i>	a
	<i>Capparis erythrocarpa</i>	p
	<i>Clematis hirsuta</i>	p
	<i>Cissus rotundifolius</i>	p
	<i>Dichrostachys glomerata</i>	p
	<i>Euphorbia candelabrum</i>	p
	<i>Fagara</i> sp.	p
	<i>Grewia mollis</i>	a
	<i>Harrisonia abyssinica</i>	a
	<i>Hoslundia opposita</i>	p
	<i>Jasminium emindii</i>	p
	<i>Lanea stuhlmannii</i>	p
	<i>Rhus natalensis</i>	p
	<i>Ziziphus abyssinica</i>	p

Other factors: the combined area of 13a and 13b has been subjected to regular burning for a very long period, in addition the land has been cultivated from time to time on a shifting system.

13b. Grassland.

Vegetation: grassland of mainly perennial species with a few trees.

Woody species:	<i>Albizzia malacophylla</i>	p
	<i>Combretum binderanum</i>	p
	<i>C. gueinzii</i>	p
	<i>Hymenocardia acida</i>	p
	<i>Piliostigma thonningii</i>	p
	<i>Terminalia velutina</i>	p

Herb. species:	<i>Brachiaria brizantha</i>	p
	<i>B. kotschyana</i>	p
	<i>Chloris gayana</i>	p
	<i>C. virgata</i>	p
	<i>Chrysanthellum americanum</i>	p
	<i>Digitaria diagonalis</i>	p
	<i>D. longiflora</i>	p
	<i>D. velutina</i>	p
	<i>Euphorbia bongensis</i>	p
	<i>Fimbristylis monostachya</i>	p
	<i>Hyparrhenia dissoluta</i>	p
	<i>H. filipendula</i>	d
	<i>Imperata cylindrica</i> var <i>africana</i>	p
	<i>Oxalis corniculata</i>	p
	<i>Perotis indica</i>	p
	<i>Phyllanthus nummulariifolius</i>	p
	<i>Setaria sphacelata</i>	p
	<i>Tragus berteronianus</i>	p

(c) Grassland Types.

14. *Hyparrhenia filipendula* Grassland with Anthill Thickets.

Topography: upper valley bottoms and valley sides.

Soil: moderately drained grey-brown fine sandy clay loams over clay in valley, well drained anthills.

14a. Valley vegetation: grassland with a 5 - 10% cover of mixed deciduous trees.

Woody species:	<i>Acacia hebecladoides</i>	p
	<i>A. siebariana</i>	p
	<i>Combretum benderanum</i>	p
	<i>C. ghasalense</i>	p
	<i>Ptilostigma thonningii</i>	p

Herb. species:	<i>Brachieria soluta</i>	p
	<i>Digitaria maitlandii</i>	p
	<i>Eragrostis exasperata</i>	p
	<i>Eulophia subulata</i>	p
	<i>Hyparrhenia filipendula</i>	d
	<i>H. nyassae</i>	p
	<i>Microchloa kunthii</i>	p
	<i>Polygala amboniensis</i>	p
	<i>Sporobolus festivus</i>	p
	<i>Striga asiatica</i>	p
	<i>Vernonia schweinfurthia</i>	p

14b. Anthill thickets

The anthill soil conditions are very different to the surrounding valley - better drained, moister in the dry season and probably a much richer soil due to ant activity.

Species:	<i>Acacia seyal</i> var. <i>multijuga</i>	p
	<i>Bridelia scleroneuroides</i>	a
	<i>Euphorbia candelabrum</i>	p
	<i>Fagara</i> sp.	p
	<i>Grewia mollis</i>	a
	<i>Harrisonia abyssinica</i>	a
	<i>Rhus natalensis</i>	p
	<i>Ziziphus abyssinica</i>	p

15. *Hyparrhenia dissoluta* seasonal swamp Grassland with occasional *Acacia sieberiana*.

Topography: upper valley bottoms and valley sides.

Soil: dark yellowish brown to dark grey-brown sands to sandy loams of varying depth over clay; the texture of the subsoil causing a short period of waterlogging each year.

Vegetation: grassland of free-tillering and open clump perennial species, tree cover generally about 5% and evenly distributed.

Woody species:	<i>Acacia hebecladoides</i>	p
	<i>A. sieberiana</i>	p
	<i>Annona chrysophylla</i>	p
	<i>Combretum binderanum</i>	p
	<i>C. ghasalense</i>	p
	<i>Gymnosporia senegalensis</i>	p
	<i>Pavetta crassipes</i>	p
	<i>Pseudocedrela kotschyi</i>	p

Herb species:	<i>Andropogon eucomus</i>	p
	<i>Brachieria kotschyana</i>	p
	<i>B. soluta</i>	p
	<i>Chloris gayana</i>	p
	<i>Cyanotis hirsuta</i>	p
	<i>Eragrostis chalcantha</i>	p
	<i>Fimbristylis diphylla</i>	p
	<i>Hyparrhenia dissoluta</i>	d
	<i>H. filipendula</i>	p
	<i>H. nyassae</i>	p

Setaria sphacelata	sd	✕
Sporobolus festivus	p	
Themeda triandra	p	
Vernonia schweinfurthia	p	

Other factors: occurs in areas which have been burnt regularly for a long period.

Notes: ✕ Setaria sphacelata is seasonally dominant from 1 - 2 months after burning. The type frequently includes anthills thickets of the type described under 14b.

16. Heteropogon contortus Grassland with Anthill Thickets.

Topography: localised near LLwampanga on a broad valley.

Soil: grey-brown fine sandy loam over clay.

Vegetation: grassland of annual and perennial species dominated by Heteropogon contortus with Hyparrhenia dissoluta and Chloris gayana locally dominant. Widely spaced anthills bear thicket of the type listed for 14b.

Woody species:	<i>Acacia hebecladoides</i>	p	
	<i>A. siebariana</i>	r	
	<i>A. tortilis</i>	p	
	<i>Balanites aegyptiaca</i>	p	
	<i>Euphorbia candelabrum</i>	r	
	<i>Lanea stuhlmannii</i>	r	
Herb. species:	<i>Aristida adscensionis</i>	p	
	<i>Genchrus ciliaris</i>	p	
	<i>Chloris gayana</i>	p	(ld)
	<i>Cynodon dactylon</i>	p	
	<i>Digitaria sp.</i>	p	
	<i>Eragrostis superba</i>	p	
	<i>Eragrostis cilianensis</i>	p	
	<i>Heteropogon contortus</i>	d	
	<i>Hyparrhenia dissoluta</i>	p	(ld)
	<i>Perotis indica</i>	p	
	<i>Tragus berteronianus</i>	p	

Other factors: occurs in an area which has been burnt regularly for a long time.

17. *Setaria* sp. Grassland with *Acacia* spp. and *Balanites aegyptiaca*.

Topography: localised near Mlwampanga on the lower part of a broad valley.

Soil: black clay, seasonally waterlogged.

Vegetation: grassland of mainly perennial species with a few trees. No anthills.

Woody species:	<i>Acacia seyal</i>	p
	<i>A. sieberiana</i>	p
	<i>Balanites aegyptiaca</i>	p

Herb. species:	<i>Brachiaria soluta</i>	p
	<i>Echinochloa pyramidalis</i>	p
	<i>Heteropogon contortus</i>	p
	<i>Hyparrhenia nyassae</i>	p
	<i>Setaria</i> sp.? <i>incrassata</i>	d
	<i>Sorghum rigidifolium</i>	p
	<i>Themeda triandra</i>	p

Other factors: occurs in an area which has been burnt regularly for a long period.

18. *Hyparrhenia nyassae* - *Loudetia simplex* Seasonal Swamp Grassland with Anthill Thickets.

Topography: valley bottoms and the sides of some very broad valleys.

Soil: poorly drained and seasonally waterlogged dark grey fine sandy loam over grey mottled brown clay.

Vegetation: a grassland of predominantly perennial open clump and free-tillering species with a very open cover of mixed deciduous trees. The anthill thickets, growing under very different conditions are regarded as a sub-type (18b).

(18a) Woody species:	<i>Acacia hebecladoides</i>	p
	<i>A. senegal</i>	p
	<i>A. seyal</i>	p
	<i>A. seyal</i> var. <i>multijuga</i>	p
	<i>A. siebariana</i>	p
	<i>Combretum binderanum</i>	p
	<i>Combretum ghasalense</i>	p
	<i>Gardenia jovis-tonantis</i>	p
Herb. species:	<i>Alloteropsis</i> sp. c.f. <i>semialata</i>	p
	<i>Digitaria maitlandii</i>	p
	<i>Fimbristylis monostachya</i>	p
	<i>Hyparrhenia filipendula</i>	p
	<i>H. nyassae</i>	cd
	<i>Loudetia kagerensis</i>	p
	<i>L. simplex</i>	cd
	<i>Microchloa kunthii</i> var.	p
	<i>Murdannia simplex</i>	p
	<i>Scleria</i> sp.	p
	<i>Sporobolus festivus</i>	p
	<i>Vernonia schweinfurthia</i>	p

(18b) Anthill Thickets.

Soil: lighter than 18a and better drained, also moister in the dry season.

Species:	<i>Bridelia scleroneuroides</i>	a
	<i>Euphorbia candelabrum</i>	p
	<i>Fagara</i> sp.	p
	<i>Harrisonia abyssinica</i>	p
	<i>Hoslundia opposita</i>	p
	<i>Rhoicissus erythroides</i>	p
	<i>Rhus natalensis</i>	p
	<i>Ziziphus abyssinica</i>	p

Other factors: combined area of 18a and 18b has been burnt regularly for a very long period.

19. *Themeda triandra* seasonal Swamp Grassland with Isolated *Acacia seyal*.

Topography: valley bottoms of lake fringe area.

Soil: seasonally waterlogged grey clays.

Vegetation: grassland of perennial free-tillering species with a few small clump and open clump grasses.

A very open cover (about 5%) of Acacia seyal var. fistula is characteristic.

Woody species:	<i>Acacia seyal var. fistula</i>	p
	<i>Balanites aegyptiaca</i>	p
Herb. species:	<i>Bothriochloa glabra</i>	p
	<i>B. insculpta</i>	p
	<i>Commelina purpurea</i>	p
	<i>Cymbopogon excavatus</i>	p
	<i>Heteropogon contortus</i>	p
	<i>Hyparrhenia nyassae</i>	p
	<i>Panicum maximum</i>	p
	<i>Setaria sp.? incrassata</i>	p
	<i>Sorghum rigidifolium</i>	p
	<i>Sporobolus pyramidalis</i>	p
	<i>Themeda triandra</i>	d

Other factors: burnt regularly.

(d) Permanent Swamp Vegetation Types.

20. *Cyperus papyrus* Swamp.

Topography: centres of the largest valleys and the lake fringe.

Soil: grey sand with a considerable admixture of raw peat over grey clay, permanently waterlogged.

Vegetation: Reed Swamp.

Species:	<i>Axonopus compressus</i>	p
	<i>Cyperus dives</i>	p
	<i>C. haspan</i>	p
	<i>C. latifolius</i>	p
	<i>C. papyrus</i>	d
	<i>Echinochloa crus-gavonis</i>	p
	<i>E. pyramidalis</i>	p
	<i>Fuirena pubescens</i>	p
	<i>Hemarthria altissima</i>	p
	<i>Leersia hexandra</i>	p
	<i>Panicum repens</i>	p
	<i>Phragmites mauritianus</i>	p
	<i>Polygonum salicifolium</i>	p
	<i>Pycneus mundtii</i>	p
	<i>Saccharum spontaneum var. aegyptiacum</i>	p
	<i>Typha sp.</i>	p

Dryopteris striata p
D. thelypteris p

21. Floating Cyperus papyrus.

Topography: lake edge.

Soil: a thin mat, 2 - 6 ft. thick, of peat with a small admixture of sand, floating at the lake edge, occasionally in midstream.

Vegetation: Reed Swamp.

Species: Cyperus haspan p
C. papyrus d
Dissotis rotundifolia p
Fimbristylis subaphylla p
Fuirena pubescens p
F. umbellata p
Lemna polyrrhiza p
Polygonum salicifolium a
Rhynchospora corymbosa p
Vossia cuspidata a

Dryopteris striata p

22. Paspalidium geminatum .

Topography: lake.

Soil: -

Vegetation: aquatic, consisting of a mosaic of communities indistinguishable on the aerial photographs and so mapped as a unit. Paspalidium geminatum, Vossia cuspidata, Pistia stratiotes and Nymphaea caerulea are all dominant locally. There is little zonation except where this type joins type 21, the transition being dominated by Vossia cuspidata.

Species: Lemna polyrrhiza p
Limnanthemum niloticum p
Nymphaea caerulea ld

<i>Nymphaea heudelotii</i>	p
<i>N. lotus</i>	p
<i>Ottelia ulvifolia</i>	p
<i>Paspalidium geminatum</i>	ld
<i>Pistia stratiotes</i>	ld
<i>Vossia cuspidata</i>	ld

Note: the different parts of the mosaic probably represent stages in the succession leading to *Cyperus papyrus* swamp.

(iv) The Topography.

Two types of topography were distinguished in the reconnaissance area: gently undulating country of the lake fringe region and low rolling country - the remainder. Both are underlain by rocks of the African Basement Complex. They are related as successive stages in the erosion of the mid-Tertiary peneplain. The peneplain surface (the remains of which are notable in South Mengo as flat-topped hills) is not present in either. In the low rolling country red earths cover the tops of round-crowned hills; these soils have been worn away in the lake fringe region to give a 2 member catena with a very low relief.

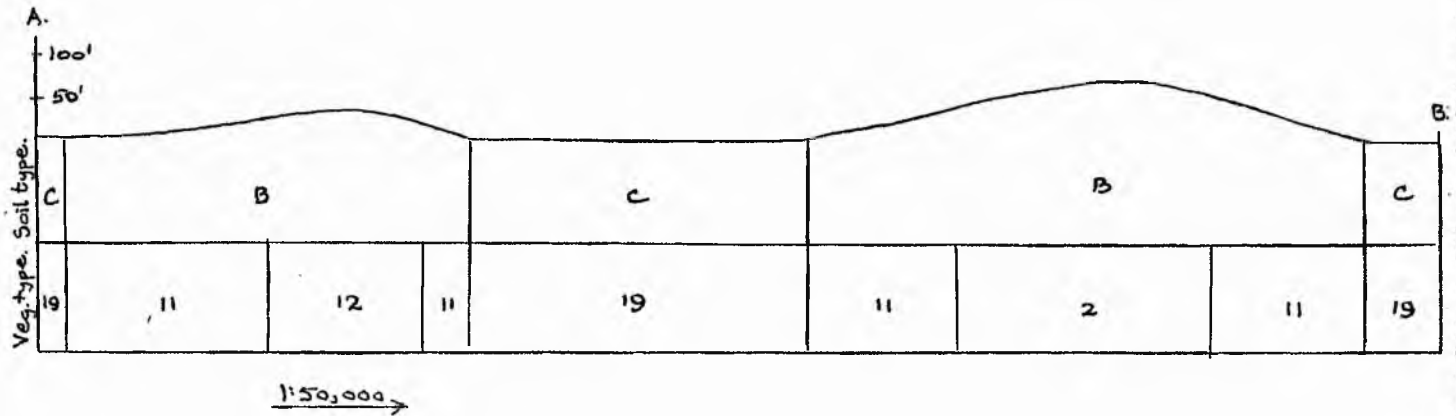
(a) Gently Undulating Country of the Lake Fringe Region.

Amplitude 50 - 100 ft.

Slopes up to 3°

Section AB ref. sheet North A 36 O.I.S.E.

Fig.1 section AB



Some higher hills bear soils of the A type; and are, in effect intrusions of the Low Rolling Country.

(b) Low Rolling Country

Amplitude 100 - 200 ft.

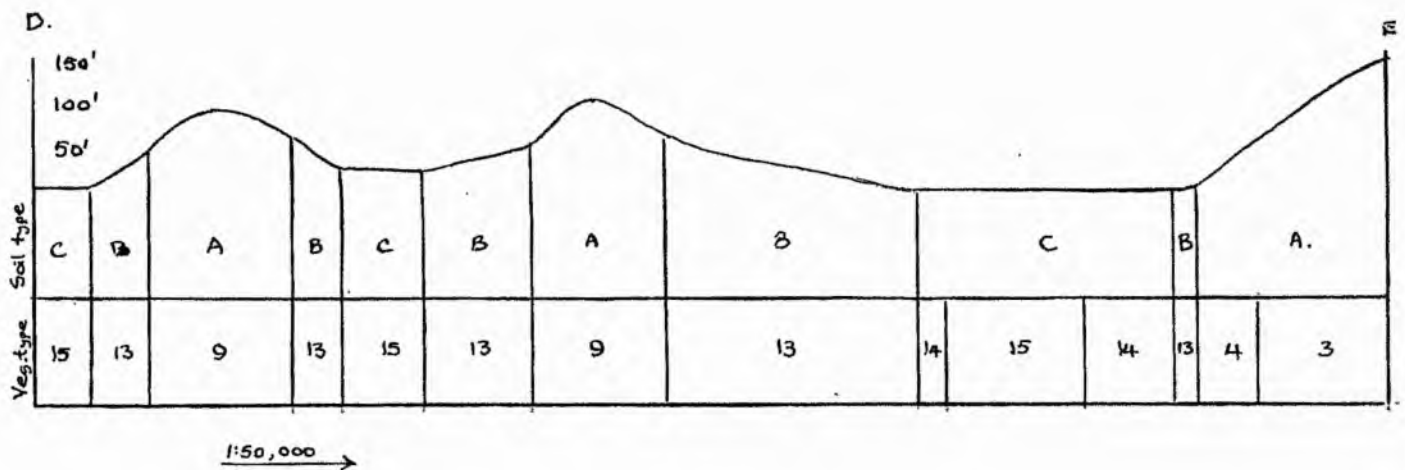
Slopes (a) lower hillsides 2 - 3°

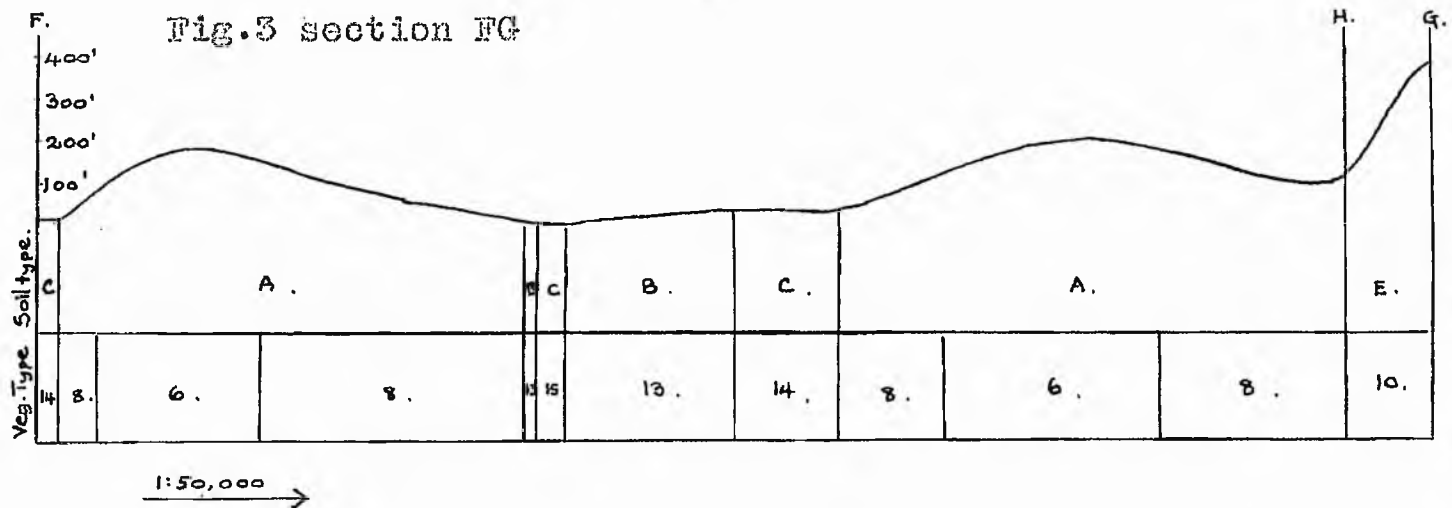
(b) upper hillsides 4 - 5°

Section DE ref. sheet North A.36 O.3.N.E.

Section FG ref. sheet North A.36 O.3.N.E.

Fig.2 section DE





Sections DE, FH, typical of low rolling country; HG granite hills, localised about Nakasongola.

Comparisons of the 1:50,000 vegetation maps and the corresponding sheets of the Uganda Lands Surveys and Mines Department 1:50,000 series emphasise the coincidence of the distribution of vegetation types and topography. It will be seen that the connection is not limited to a few isolated hillsides but is a major feature of the region.

(v) Geographic Data.

(a) Study of the 1:50,000 vegetation maps has revealed varying degrees of geographical localisation among the vegetation types. Types 2, 13 and 15 are found throughout the area mapped, the others are restricted or concentrated in the ways shown below.

Types 1, 3, 4, 11, 12, 16 and 17 restricted to dry land areas in the north.

Types 11 & 12 restricted to the lake fringe region.

Types 16 & 17 restricted to small areas in the immediate vicinity of Lwampanga.

Types 19 & 20 are commonest in the lake fringe region but are not restricted to it.

Types 21 & 22 are restricted to the Victoria Nile - Lake Kioga water expanse.

Types 5, 6, 7, 8, 9, 10, 14, 18 do not occur in the lake fringe region.

Types 5 and 7 are concentrated about Nabuswera.

Type 10 restricted to the granite hills around Nakasongola.

Type 18 restricted to the extreme south.

(b) Elevation.

The elevation varies from 3400 ft. at the lake edge to 4198 ft. at the top of Sungira - the highest of the hills around Nakasongola. The round-crowned hills of the low rolling country all rise to about 3600 ft. Crests in the lake fringe region vary from 3450 to 3500 ft. The vast majority of the area lies between 3400 and 3600 feet above mean sea level.

(vi) Climatic Data.

There is one rainfall recording station in the area of the reconnaissance, at Nakasongola. Three other stations in the North Mengo Lowlands also provide data on the rainfall which can be applied to the reconnaissance area but no temperature or humidity data are available. The three additional rainfall recording stations are at Masindi Port, Kakoge and Galiraya; respectively northwest, south, and east of the reconnaissance area.

Table 1. Rainfall

Station	Year	Dry Season	
	Mean 1943-56 Inches	Mean length days	Mean fall inches
Nakasongola	40.3	106	2.5
Kakoge	46.8	95	2.7
Masindi Port	30.5	106	1.7
Galiraya	37.6	133	3.2

Notes on the rainfall data: Nakasongola recording station is situated in an atypical area of granite hills; the rainfall is probably lower over the surrounding country. Masindi Port and Galiraya are at lake level while Kakoge is at about 3600 ft.

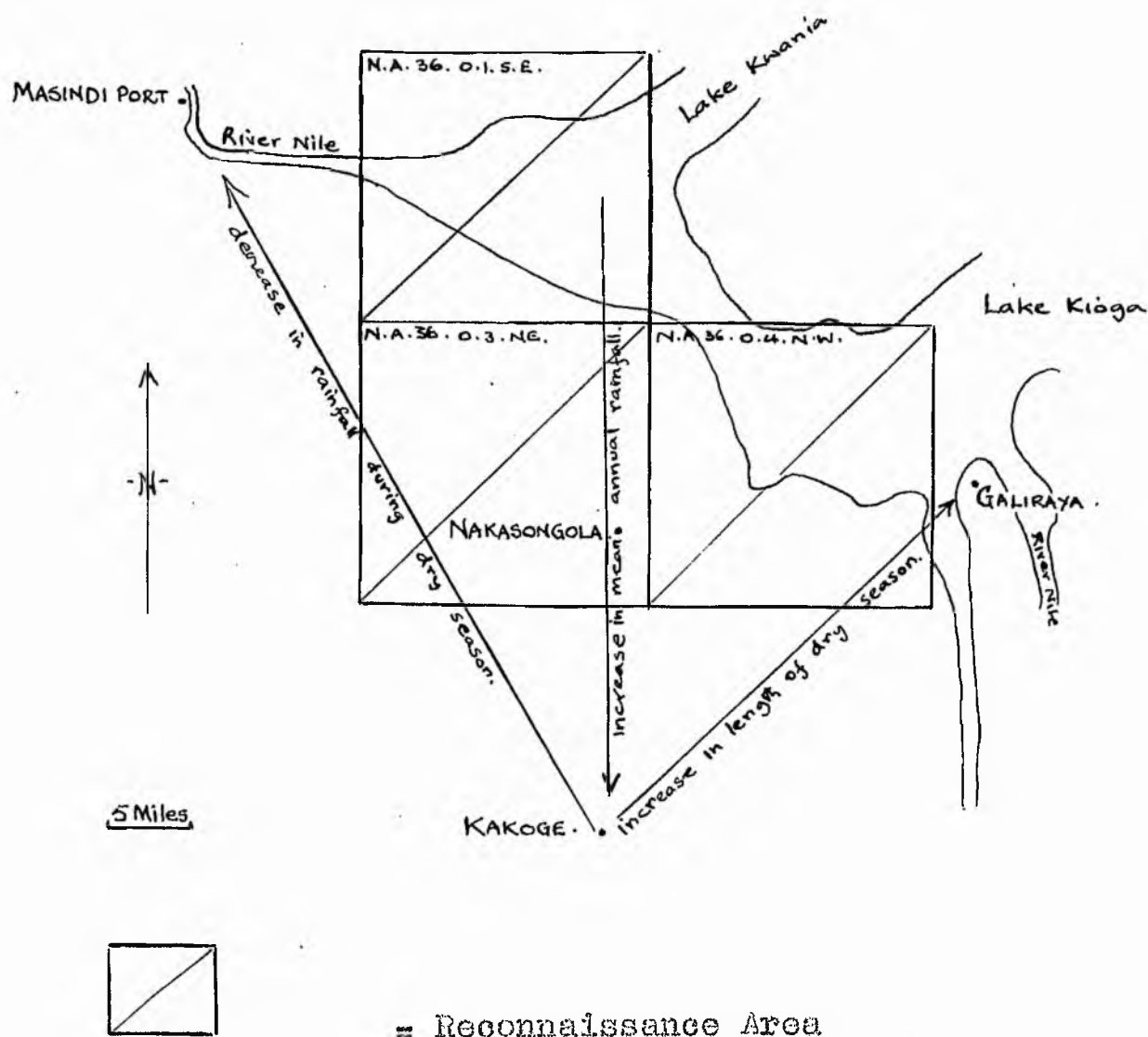
The records of these stations show two main seasons: the Hot Dry Season from December to March and the Wet Season from March to December. The latter can be subdivided into early rains (March - May), cool dry period (June July), and late rains (August - December). The lengths and rainfalls of these seasons are very variable, and the "cool dry period" is often indistinguishable from the rest of the wet season.

No attempt has been made to analyse the data of these stations statistically as the majority of the recordings have been made in a very arbitrary way by untrained staff with little or no supervision.

A rough impression of the variations of climate over the reconnaissance area can be obtained from fig.4. It is to be emphasised that rainfall variability, periodicity, and

intensity, the soils and topography all exert a modifying effect on the influence of the mean annual rainfall.

Fig.4



NA 36 0.1.S.E. & 03.N.E. presented with this thesis, NA 360 4 NW not presented as it largely duplicates the information on the other two sheets.

D. Discussion.

The plant communities of a typical part of the North Mingo Lowlands have been recognised, described and mapped, and data on their ecology have been obtained. It is proposed now to discuss the factors affecting the distributions of these communities.

A comparison of the 1: 50,000 vegetation maps and the Uganda Survey Department maps of the same area (Appendix J) shows a marked parallel between the distribution of vegetation types and the topography, suggesting a dependence of the former on the latter. Topography affects the vegetation through its effects on climate and soils, including drainage. There are two types of topography in the reconnaissance area: gently undulating and low rolling. It has been shown that the former has a lower relief (figs.1, 2 & 3) and receives a lower rainfall (fig.4); this is in agreement with the data of a similar area in the Sudan (Morison, 1948). Climatic data is sparse for the North Mingo Lowlands and no information is available on climatic variations between adjoining hills and valleys. The amplitudes of both types of topography are very small (50 - 200') so variations in the rainfall on different parts of the topography are also likely to be small. It has been noted however, (Vageler 1933, Jacks 1934, Russell 1950) that the effect of topography on rainfall effectiveness is greater in tropical than in temperate areas owing to the greater intensity of the rainfall. Intense

tropical showers cause much run-off; sloping land is consequently more arid than level land under the same rainfall.

Topography has clearly played a major part in the differentiation of the soils of the reconnaissance area as there are neither geological nor appreciable climatic variations coincident with the soils mosaics of this area, or in South Mengo which represents an earlier stage in the development of the topography of the North Mengo Lowlands.

The two types of topography found in the reconnaissance area have rather different soils distributions. The gently undulating country of the lake fringe region typically has two soils (types "B" and "C") although occasional hills have a small cap of the "A" soil. Very roughly the A soil covers 5% of the region, the B soil 60% and the C soil 35%. The B soils cover the low hills and hillsides, C soils the valleys. The low rolling country has a similar sequence of the same 3 soil types with a preponderance of the A soil, roughly 60% A, 20% B and 20% C. The distributions of soils in areas of the two topographic types is shown by figs. 1 - 3. The fact that the same 3 soil types occur in the two sequences suggests that they should not be separated completely. These three soils are also the lower members of the Buganda catena (Milne 1936) which occurs on a related topography over similar rocks. The two sequences are therefore regarded as variants of the Buganda catena. The soils sequence of the low rolling country can be compared to the Buganda catena less its

topmost member, and that in the gently undulating country to the Buganda catena less its top 2 members. These soils sequences will be referred to as the Kalungi and Lwampanga variants of the Buganda catena respectively, after the areas in which they occur. Nakasongola is geographically in the middle of the Kalungi variant but is itself surrounded by a rather different soil mosaic owing to the granite hills.

The distributions of vegetation types tend to be related to individual soils rather than to catena variants; though certain types (11 & 12) have distributions limited to a particular catena variant (Lwampanga). This latter is probably due to coincident variations of the climate.

Vegetation types occur in regular sequences. A sequence of vegetation types on the Lwampanga variant is shown in fig. 1. The full range of vegetation types of that variant seems to be as follows: (from hilltop to valley).

Vegetation :	2.	13.	12.	11.	X	15.	19
Soil			B		X		C

X = soil change and valley edge.

It can be seen from the 1:50,000 vegetation maps that types are frequently "missed out." Occasionally, 'missing types' are represented by a transition zone from 1 to 10 yards wide which could not be shown on these maps.

The number of vegetation types involved in the sequences of the Kalungi variant is much greater. Though a sequence of types in their relative positions from hilltop to valley bottom

could be drawn up it would have little significance as they do not occur that way in nature. There are a large number of types 'competing' for the available space and while transition zones do occur to represent some of the intermediate types, most unbroken slopes do not have more than 4 types from top to bottom. There are innumerable sequences on the Kalungi variant. A number are illustrated by figs. 2 and 3, many others are distinguishable on the 1:50,000 map. Certain features are common to all of these sequences. (a) Thicket and wooded grassland types are limited to hilltops and upper hillsides. (b) Type 13 occurs to the exclusion of all other types on the B soil at lower hillsides. (c) Grassland types are limited to valleys and valley sides. It is proposed to return to this discussion of the topographic distribution of vegetation types after considering the factors controlling the distribution of each of the types and attempting to work out their successional relationships.

The vegetation types have been grouped under headings corresponding to four of Greenway's (1943) Main Types. Each of these main types will be considered in turn and an attempt will be made to assess the factors controlling the distribution of the individual types.

There are 5 important types containing thicket - types 1 - 4 listed under Bushland, Thicket, and Scrub and type 13 sub-type (a). In addition types 14, 15, 16 and 18 also contain thickets. It has been noted, however, that these

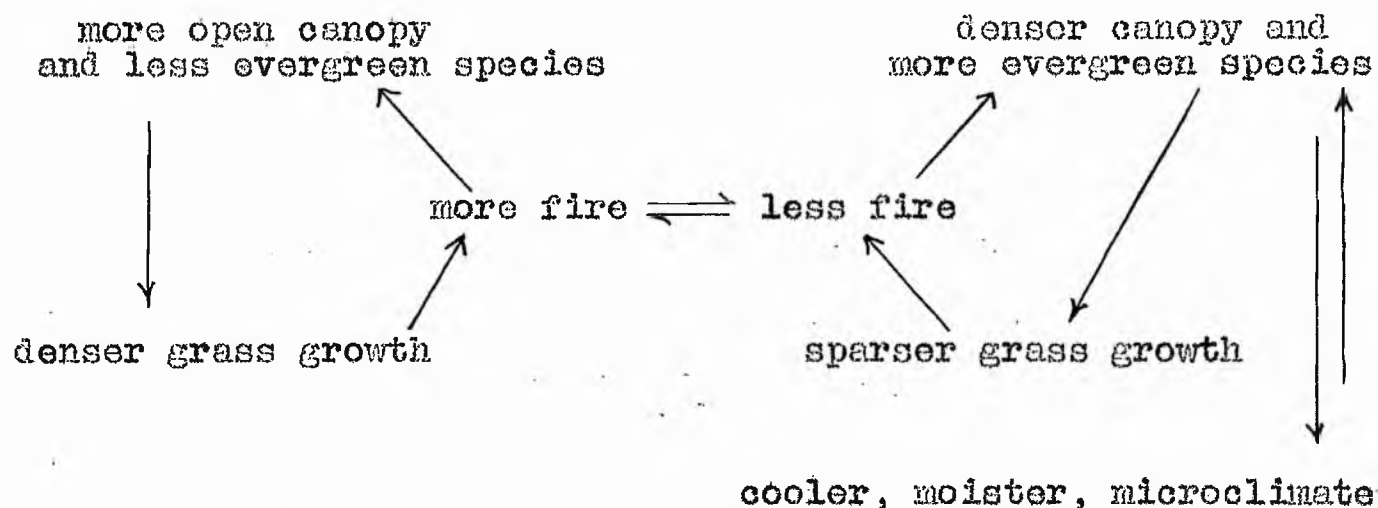
thickets are all on anthills which have very different conditions from the surrounding lands. The five important thicket types fall into two groups: one containing numbers 1, 2 and 13 consisting of discontinuous and continuous thickets of deciduous and semi-evergreen species; the other - numbers 3 & 4 - discontinuous and continuous thickets of mainly semi-evergreen and evergreen species. 53 species were recorded from all these thickets: 21, mostly deciduous, were restricted to types 1, 2 and 13; 16 mostly evergreen, were restricted to types 3 and 4; and 16 were common to both groups. In the following discussion types 1, 2 and 13 will be referred to collectively as deciduous thicket, and types 3 and 4 as evergreen thicket, on account of the differential species.

The species recorded from the anthill thickets of types 14, 15, 16 and 18 are common to the deciduous thickets but only three of them - Euphorbia candelabrum, Harrisonia abyssinica and Rhus natalensis - occur in the evergreen thickets.

The evergreen thickets occur on deeper, moister "A" soils than the deciduous thickets and are localised on certain hilltops and upper hillsides near the Nile - Lake Kioga water expense. Deciduous thickets are found on two soil types: "A" and "B", and on anthill soils. The boundaries of the evergreen thickets 7 - 10 miles N.E. of Nakasongola often coincide with outcrops of sheet ironstone, or are surrounded

by a shallow soil over sheet ironstone supporting a very sparse growth of annual and perennial grasses and herbs. These areas of sparse vegetation clearly act as fire-breaks and protect the thickets from the regular and fierce fires which are a major factor in the ecology of this region. These ironstone outcrops have not been observed in areas of deciduous thicket. Another factor to be considered is the density of the evergreen thickets creating a perceptibly cooler, moister, microclimate. The deciduous thicket canopies are open and there is no comparable microclimate. The effects of fire and canopy density could well be complementary and cumulative:

Fig.5



It seems likely then that deciduous thickets have been produced under the influence of fire, while the evergreen thickets persist in specially favoured areas particularly in regard to protection from fire. The occurrence of patches of evergreen thicket within areas of deciduous thicket suggests that some sort of balance is maintained. Anthill thickets

suffer the severest burning and contain the smallest number of species. Very fierce burning will produce grass-covered anthills but once shrub seedlings are allowed to grow they produce shade; the amount of grass is reduced and the intensity of fires is successively diminished with increases of the thicket. The fact that thicket species have not been found growing away from anthills in imperfectly burnt areas of types 14, 15, 16 and 18 indicates that other factors are also involved in the distribution of thicket species in these types. Some of these species have been found growing away from anthills on well drained red-brown fine sandy clay loams e.g. Acacia seyal var. multiflora, Eridelia scleroneuroides. Since the anthills represent well drained islands in otherwise poorly drained and seasonally waterlogged soils it might be supposed that drainage plays an important part in the distribution of these thickets. However, Thomas (1941) has suggested that the presence of thicket might be connected with the nutrient status of the anthill soils. Consideration of the relative importance of the factors controlling the distribution of anthill thickets will be based on the data of the detailed survey (III).

Eleven types contain wooded grassland: 2, 4, and 5 - 13. All are hill types with soils well drained throughout the year. Type 10 is quite distinct in both soil and vegetation, consisting of a mosaic of scattered tree grassland communities on a corresponding mosaic of deep and shallow soils. The

remainder can be classed in 5 groups according to their vegetation and 2 groups according to their soils.

Table 2.

Types	Vegetation	Soil
13.	1. Scattered small thickets in <i>Hyparrhenia</i> spp. grassland.	B
11, 12.	2. <i>Balanites</i> / <i>Acacia</i> with <i>Hyparrhenia</i> spp. <i>Chloris gayana</i> .	
8, 9, 2(b), 4(b).	3. <i>Combretum</i> spp. with <i>Hyparrhenia filifolia</i> .	A
5, 6.	4. <i>Combretum</i> / <i>Terminalia</i> with <i>Loudetia arundinacea</i> .	
7.	5. <i>Combretum</i> / <i>Terminalia</i> with <i>Andropogon dummeri</i> .	

Group 1.

Type 13 is found on sandy soils on lower hillsides which receive seepage water and so are effectively moister than the hills and upper hillsides which receive rainfall only. Also, these soils are physiologically moister than the valley soils which are alternately waterlogged and very dry owing to the texture of the subsoil. Areas of this type constitute a very large proportion of the cultivated land in the reconnaissance area and the effects of shifting cultivation, cutting and burning are very considerable. The area of this type presents a remarkably uniform appearance and it is likely that most of it has been cultivated within the last 50 years. The balance between the scattered deciduous thickets and the scattered tree grassland is undoubtedly maintained by continuous

cutting and burning. Patches of land which have been protected from fire bear more thicket and an increased number of trees. It is therefore possible that areas of this type would produce continuous deciduous thicket and eventually evergreen thicket if burning and cutting were stopped completely.

Group 2.

Types 11 and 12 - occurs on similar soils under drier conditions. It is restricted to the Lwampanga variant, which receives less rainfall than the Kalungl variant, and occurs on hillsides and hilltops - away from seepage water. Occasional hilltops in this area do have either discontinuous or continuous deciduous thicket. This suggests a similar relationship to that of group 1: scattered tree grasslands maintained by fire. The differences being that thicket is completely eliminated from the types of group 2, and that they exist under drier conditions.

Group 3.

Types 2b, 4b, 8 and 9. The scattered tree grasslands of types 2 and 4 are in equilibrium with thickets. In some areas, for example the evergreen thickets 7 - 10 miles N.E. of Nakasongola which are surrounded by sheet ironstone outcrops and shallow soils, the situation is static, but in most cases boundaries are liable to move back and forth depending on the severity of burning and incidence of seasons over a number of years. There is good evidence to support the hypothesis that the wooded grasslands of the reconnaissance area are fire

communities: the known occurrence of regular fires over a very long period, almost identical ranges of soil and overhead climatic conditions of wooded grassland and thicket areas, and the persistence of islands of thicket in wooded grassland where protected from fire. It is proposed that the scattered tree grasslands occurring in close conjunction with thickets in types 2 and 4 represent the early stages of a succession towards a fire climax. Both are dominated by Hyparrhenia filipendula. Type 4b, the more static of the two, regularly includes clumps of Loudetia arundinacea. The lists of tree species found in the four types of group 3 are very similar and there is much duplication of the herbs and grasses. They occur under drier conditions than types of group 4. The soils of type 9 are lighter and occur on lower and thus drier hills; type 8 occurs typically on hilltops in drier areas and on hillsides which, owing to run-off, are effectively drier than adjoining hilltops, which support types dominated by Loudetia arundinacea. This dryness affects the vegetation directly, and indirectly by controlling the severity of fires through the density of the grass layer. The open grass covers of types 8 and 9 give light burns which favour bush growth and the maintenance of free-tillering and open-tufted grass species.

Group 4 on the other hand, occurs on deeper, moister and heavier soils. These conditions appear to have produced the present types via a more luxuriant grass layer than group 3

leading to progressively fiercer fires. Species with dense clump habits, e.g. Loudetia arundinacea, are better adapted to such conditions than are the free-tillering and open clump species of the previous group. A notable feature of type 5 is the small number of species in the tree layer of any one community. The species list, compiled from a large number of communities of the type, confuses this point. It is usual to find old individuals of 4 or 5 species only in any one community. This is to be compared with the occurrence of younger individuals of a variety of species in the tree layers of most of the communities of type 6 and group 3.

Successions can therefore be traced from types 1 & 3 through 2 & 4 to 6 and finally 5 with regular, fierce fires under conditions favouring a dense growth of grass, and through types 2 & 4 to 8 & 9 by burning under conditions unfavourable to a dense growth of grass.

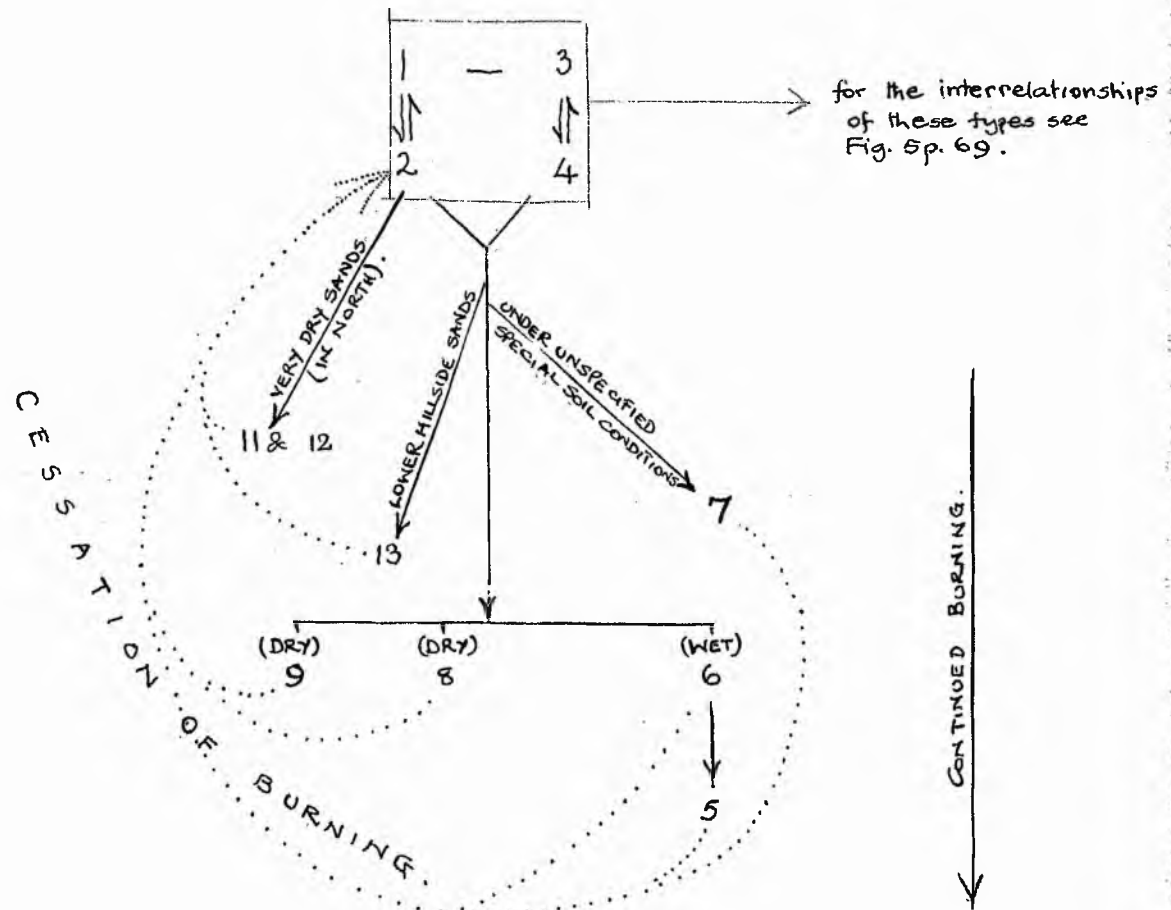
Group 5.

All records of type 7 are associated with medium depth red-brown fine sandy clay loams over a more or less continuous level, sheet ironstone pavement. The type is restricted to hilltops in the area around Nabuswera, and a small area at a little distance from Nabuswera. The soil conditions of types 5 and 6 are much more variable but do not overlap this type, which suggests that the distribution of this type is limited by its soils requirement. Another explanation would be that this vegetation is a seral stage after cultivation, as soils

of this type are cultivated around Nabuswera. However, the distributions suggest that the connection between vegetation and soils is more direct.

It has been seen that a number of factors affect the distribution of wooded grassland types in the reconnaissance area. The interrelationship of these types and their habitats, most of them tentative, since this reconnaissance is by definition exploratory, are set out in fig.6.

Fig.6



Six grassland types were distinguished. They were found in valleys under varying degrees of seasonal waterlogging due to varying depths of sandy topsoils over clay subsoils. Of the 6, 4 are widely distributed, and will be considered first. They are, in order of increasing physiological drought, types 15, 14, 18 and 19. Type 15 was found on deep sandy topsoils over clay and is the least waterlogged, while type 19 occurs on clays with at the most a thin wash of sands at the surface - the most waterlogged. The influence of soils drainage on these types is twofold: there is waterlogging during the wet season and physical drought in the dry season. The effects of the dry season are intensified by the clay subsoil which reduces the amount of subsoil water available to the plants. It is perhaps because of this double effect that there are so many well-defined types occurring under basically similar topographic, edaphic and climatic conditions, and under the same treatments by man and beast. Types 16 and 17 are localised near Lwampanga, on distinct soil types but under similar conditions of waterlogging. All the grassland types have been burnt regularly for a very long time. The tendency to tree growth is not so great as in the hill regions which are generally burnt at the same time and with the same regularity. Michelmore (1938) has put forward the theory that the African savanna flora is not adapted to dampness of soil, noting whereas forest species are often found growing under waterlogged conditions, savanna

species are not. Snowden (1953) puts the lower limit of rainfall for evergreen forest in Uganda at 125 cm. p.a. with no marked dry season. The rainfall of the North Mengo Lowlands varies from 77 to 119 cm. p.a. with a marked dry season. Thus these grassland types appear to be the result of soil conditions within limits set by the climate.

Fiennes (1940) describes the vegetation zones round the north shore of Lake Kioga in some detail. The number of communities described in the present paper is limited to the number that could be distinguished on the aerial photographs. Type 22 "Paspalidium geminatum" is a mixture of communities which were indistinguishable on the aerial photographs. Paspalidium geminatum, Vossia cuspidata, Pistia stratiotes, and Nymphaea caerulea are all dominant in parts but little zonation was noticeable except where this type adjoined type 21. The junction being marked by the overwhelming occurrence of Vossia cuspidata. Type 21 - floating Cyperus papyrus covers a very considerable area of the Nile - Lake Kioga water expanse, and consists of a number of species dominated by Cyperus papyrus growing on a permanently waterlogged semi-floating mat of peat and sand. At the water side this mat is 2-3 ft. thick, at the land side 6 ft. thick. Occasional islands of this type break loose and float downstream. Patches of type 22 have been observed recolonising areas of open water from which type 21 had been ripped by wave action during storms. The succession from type 21 to type 20 is

slow, being dependent on the build up of the lake bed and the accumulation of peat. Narrow transition zones between type 20, Cyperus papyrus swamp, and grassland or wooded grassland types suggest continuations of the hydrosere beyond the stage of type 20. Eggeling (1935) describes successions of the Lake Victoria region leading through Cyperus papyrus swamp to closed evergreen forest. It has already been stated, however, that the climatic conditions of the North Mengo Lowlands exclude evergreen forest. Areas of Cyperus papyrus swamp appear to be progressing towards grassland or wooded grassland types. It is to be emphasised, however, that these last successions take place very slowly and are dependent on changes in the nature of the environment due to erosional and depositional factors.

The data of these successions can now be applied to a consideration of the topographic distribution of vegetation types in the reconnaissance area. The mosaic of types shown on the 1:50,000 vegetation maps can be regarded as a mixture of fire climax and non-fire climax types and successional stages. The following diagrams show the sequences of climax communities envisaged with and without fire, on the two catena variants.

Fig.7. Vegetation sequences on Kalungi variant without fire.

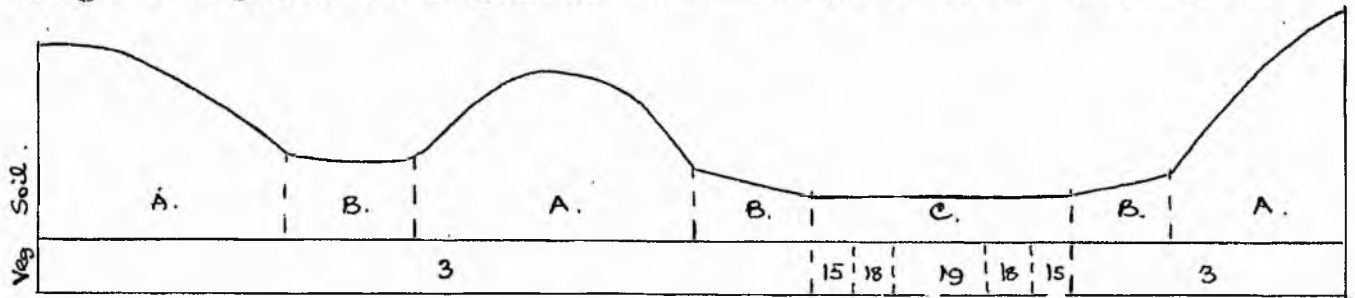


Fig.8. Vegetation sequence on Kalungi variant with fire.

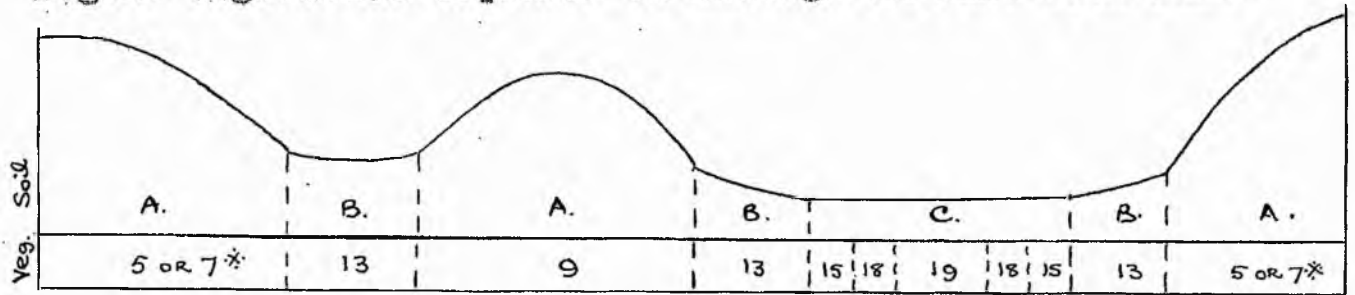


Fig.9. Vegetation sequence on Lwampanga variant without fire.

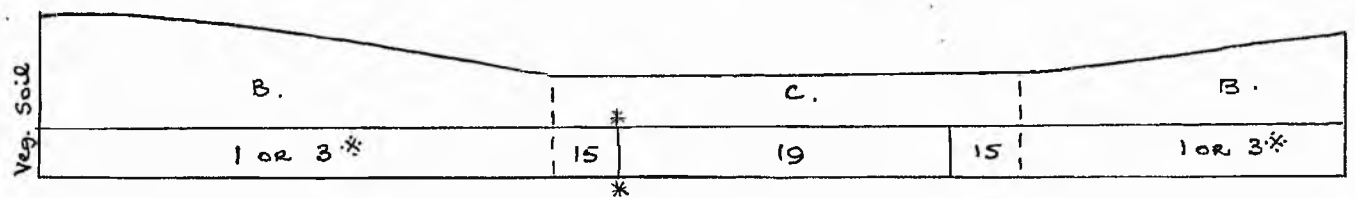
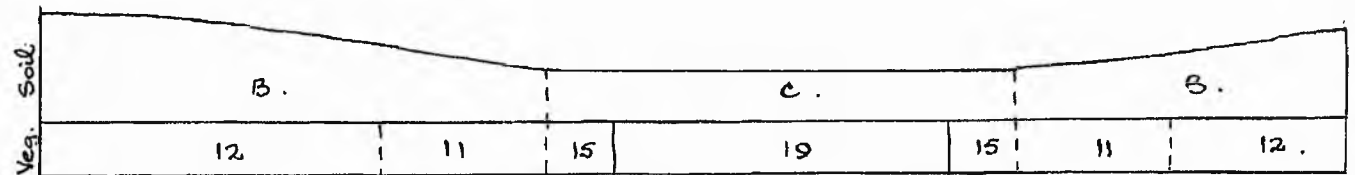


Fig.10. Vegetation sequence on Lwampanga variant with fire.



*	
15	19
*	

* = transition zone.

* under special soil conditions.

E. Conclusions.

The distribution of vegetation types within the North Mingo Lowlands is controlled by topography through its effects on soils type and drainage, and by burning and cutting.

III. DETAILED INVESTIGATION.

A. Objects.

- (i) To study the interrelationships of vegetation and habitat in the North Mengo Lowlands.
- (ii) To analyse the vegetation types mapped during the reconnaissance.
- (iii) To compare the rest of the North Mengo Lowlands with the reconnaissance area.

B. Methods.

This investigation required the collection of data on plant communities and their habitats. Methods of botanical analysis are compared in section B (i). The procedure used to gather data on the habitats is described in section B (ii).

(1) Comparison of Methods of Botanical Analysis.

Commenting on the large number of methods of botanical analysis, Brown (1954) notes that all of them express the importance of the plant species in terms of one or more of only four criteria: frequency of occurrence, number of individuals, area covered, and weight.

Analysis by frequency gives data on the distributions and densities of the species (Kylin 1926, Blackman 1935). As only a straightforward presence - absence distinction has to be made in them, frequency methods should be well-suited

to the dense, matted vegetation which occurs in parts of the North Mingo Lowlands. On the other hand, methods involving counts of individuals would be virtually impossible to apply to such vegetation. Similarly it would be very difficult to measure cover. It was considered, however, that some method of estimating cover might be applicable. Poore (1955 a, b & c, 1956) has shown how the Braun-Blanquet system can be modified for use as a method of investigating the interrelationships of vegetation and habitat. Methods assessing weight have been used to determine the productivity of pastures and hayfields but are unsuitable for studying the ecology of a wide range of communities.

Three methods of analysis by frequency and a method estimating cover were tested. Notes on each method follow.

(a) Analysis by frequency using a 6 ft. pin.

Apparatus. A single pin (Blackman 1935) 6 ft. X $\frac{1}{10}$ inch was used. The length was necessary because of the height of the vegetation.

Procedure. The pin was lowered to stand vertically. All plants touching the pin were identified and recorded as present. The procedure was then repeated. Successive readings were spaced at random.

Results. After only 100 readings it was clear that this was an unsuitable method for the vegetation. The height of the taller grasses (5 - 6 ft.) and an almost constant gentle wind made reading the pin exceedingly difficult. Further,

owing to its length the pin was not rigid. This could have been remedied by using a thicker (stronger) pin but that would affect the results (Goodall 1952).

Various workers (Levy and Madden 1933, Crocker and Tiver 1948) have shown that between 300 and 500 readings are necessary for moderately accurate analysis of grasslands. Brown (1954) notes that the point technique is best suited to short dense swards and that for satisfactory results the work should be restricted to windless days.

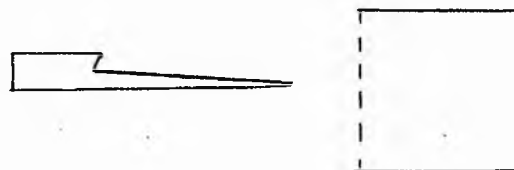
The amount of time taken to make 100 readings (40 minutes) and the frequent wind coupled with the height of the vegetation showed this to be an unsuitable method.

(b) Analysis by frequency using a 6 X 6 inch grid.

Apparatus. A wooden grid, 6 inches square (inside measurement), with one side detachable to facilitate positioning.

Procedure. The grid was placed by throwing a tent peg over the shoulder, sliding the grid into position as shown in fig.11, and fitting the fourth side. All species occurring within the grid were then recorded, and the process repeated. Each analysis consisted of 100 recordings or "throws".

Fig.11. Positioning the grid.



Woody species were assessed by listing the names of the the first 100 individuals seen in the sample area.

Results. This method was tested by making single analyses of 7 sites (300-306) and comparing the results with analyses by frequency using a line (p.91) and estimations of cover-abundance by degrees (p.97). The data obtained by using these three methods are presented site by site in tables 3 - 9.

Table 3. Comparison of Methods (site 300).

Woody Species	%	CAB
<i>Acacia soyal var. fistula</i>	94	1
<i>Balanites aegyptiaca</i>	6	X

Herb. species	% frequency		CAB
	Grid (100)	Line (200)	
<i>Bothriochloa glabra</i>	9	6½	2
<i>B. insculpta</i>	1		X
<i>Burnatia enneandra</i>			XL
<i>Cymbopogon excavatus</i>	1	½	X
<i>Echinochloa pyramidalis</i>			X
<i>Hyparrhenia nyassae</i>		3½	1
<i>Ipomoea aquatica</i>			XL
<i>Ottelia sp.</i>			XL
<i>Setaria atrata</i>	25	25	3
<i>Sorghum rigidifolium</i>			XL
<i>Sporobolus pyramidalis</i>		1	1
<i>Themeda triandra</i>	66	76½	5
No. of herb. species recorded	5	6	12

(The remainder of the data collected during the cover-abundance estimations (CAB) is not included in Tables 3 - 13 as it has no bearing on the present comparisons. The symbols of the cover-abundance estimations refer to Braun-Blanquet's six part scale. They are explained on page 98.)

Table 4. Comparison of Methods (site 301)

Woody Species	%	CAE
<i>Acacia seyal</i> var. <i>fistula</i>	22	X
<i>Balanites aegyptiaca</i>	2	X
<i>Combretum binderanum</i>	61	1
<i>C. ghasalense</i>	12	X
<i>Piliostigma thonningii</i>	3	X
<i>Pseudocedrela kotschyi</i>		X

Herb. Species	% frequency		CAE
	Grid (100)	Line (200)	
<i>Bothriochloa glabra</i>	4	5 $\frac{1}{2}$	1
<i>Cymbopogon excavatus</i>			X
<i>Hyparrhenia nyassae</i>	3		X
<i>Panicum maximum</i>		$\frac{1}{2}$	X
<i>Setaria atrata</i>	18	20	2
<i>Sorghum rigidifolium</i>	2	8 $\frac{1}{2}$	1
<i>Sporobolus pyramidalis</i>		$\frac{1}{2}$	X
<i>Themeda triandra</i>	82	89	5
No. of herb. species recorded	5	6	8

Table 5. Comparison of Methods (Site 302)

Woody Species	%	CAE	
<i>Acacia seyal</i> var. <i>fistula</i>	25		X
<i>Balanites aegyptiaca</i>	1		X
<i>Combretum binderanum</i>	62		1
<i>C. ghasalense</i>	9		X
<i>Piliostigma thonningii</i>	4		X
<i>Pseudocedrela kotschyi</i>	1		X
		% frequency	
		Grid (100)	Line (200)
			CAE
Herb. Species			
<i>Bothriochloa glabra</i>	2	1 $\frac{1}{2}$	1
<i>Commelina purpurea</i>	2		X
<i>Cymbopogon excavatus</i>	3	1	X
<i>Hyparrhenia nyassae</i>	7	3 $\frac{1}{2}$	1
<i>Panicum maximum</i>			X
<i>Setaria atrata</i>	14	13 $\frac{1}{2}$	2
<i>Sorghum rigidifolium</i>	1		X
<i>Sperobolus pyramidalis</i>	2	5	1
<i>Themeda triandra</i>	85	89	5
No. of herb species recorded.	8	6	9

Table 6. Comparison of Methods (Site 303)

Woody Species	%		CAE
<i>Acacia seyal</i> var. <i>fistula</i>	7		X
<i>Combretum binderanum</i>	81		2
<i>C. ghasalense</i>	6		X
<i>Piliostigma thonningii</i>	6		X

Herb. Species	% frequency		CAE
	Grid (100)	Line (200)	
<i>Bothriochloa glabra</i>	6	$\frac{1}{2}$	X
<i>B. insculpta</i>			X
<i>Commelina purpurea</i>	12	5	1
<i>Cymbopogon excavatus</i>			X
<i>Heteropogon contortus</i>	5	$\frac{1}{3}$	X
<i>Hyparrhenia nyassae</i>	2		X
<i>Panicum maximum</i>			X
<i>Setaria atrata</i>	13	$9\frac{1}{2}$	2
<i>Sporobolus pyramidalis</i>	3	4	1
<i>Themeda triandra</i>	80	94	5
No. of herb. species recorded	7	6	10

Table 7. Comparison of Methods (Site 304)

Woody Species	%	CAE
Acacia senegal	6	X
A. seyal var. fistula	18	X
Combretum apiculatum	4	X
C. binderanum	68	1
Harrisonia abyssinica	4	X

Herb. Species	% frequency		CAE
	Grid (100)	Line (200)	
Asparagus pauli-guilelmi		$1\frac{1}{2}$	1
Bothriochloa glabra	10	$20\frac{1}{2}$	2
Brachiaria brizantha		$4\frac{1}{2}$	X
B. dictyoneura	5	$4\frac{1}{2}$	1
Cyanotis hirsuta	2		X
Cymbopogon excavatus	6	$5\frac{1}{2}$	1
Eragrostis chalcantha			X
Fimbristylis monostachya	1		X
Heteropogon contortus	14	$21\frac{1}{2}$	2
Hyparrhenia dissoluta	6	8	1
H. filipendula	1	1	X
H. nyassae	5	4	1
Panicum maximum		$\frac{1}{2}$	X
Setaria atrata	16	$15\frac{1}{2}$	2
Sorghum rigidifolium	1		X
Sporobolus festivus	1		X
S. pyramidalis	9	$6\frac{1}{2}$	1
Stathmostelma rhacodes	1		X
Themeda triandra	68	$56\frac{1}{2}$	4
No. of herb. species recorded	15	13	19

Table 8. Comparison of Methods (Site 305a)

Woody Species	%	CAE
<i>Acacia hebecladoides</i>	10	X
<i>A. senegal</i>	10	X
<i>A. siebarriana</i>	10	X
<i>Combretum apiculatum</i>	17	X
<i>C. binderanum</i>	53	1

Herb. Species	% frequency		CAE
	Grid (100)	Line (200)	
<i>Asparagus sp.</i>		1	X
<i>Becium sp.</i>	1		X
<i>Bothriochloa glabra</i>	7		X
<i>Brachiaria brizantha</i>	11	$4\frac{1}{2}$	1
<i>B. dictyoneura</i>	2	$2\frac{1}{2}$	1
<i>B. kotschyana</i>			X
<i>Chloris gayana</i>	1		X
<i>Cyanotis hirsuta</i>	2	4	1
<i>Cymbopogon afronardus</i>	12	$6\frac{1}{2}$	1
<i>Digitaria scalarum</i>		$1\frac{1}{2}$	1
<i>Eragrostis chapelieri</i>			X
<i>Fimbristylis monostachya</i>	9	$1\frac{1}{2}$	1
<i>Heteropogon contortus</i>	7	5	1
<i>Hyparrhenia dissoluta</i>	73	$66\frac{1}{2}$	5
<i>H. filipendula</i>	34	38	3
<i>Ipomoea sp.</i>	1		X
<i>Panicum maximum</i>	2		X
<i>Setaria atrata</i>	2		X
<i>Sporobolus festivus</i>	6	$5\frac{1}{2}$	1
<i>S. pyramidalis</i>	2		X
<i>Themeda triandra</i>	8	5	1
No. of herb. species recorded	17	12	21

Table 9. Comparison of Methods (Site 306a)

Woody Species	% frequency		CAE
<i>Acacia hebecladoides</i>	7		X
<i>A. senegal</i>	15		X
<i>A. sieberiana</i>	11		X
<i>Combretum binderanum</i>	67		1

Herb. Species	Grid (100)	Line (200)	CAE
<i>Brachiaria brizantha</i>	4	2	X
<i>B. Kotschyana</i>	3		X
<i>Chloris gayana</i>	5	7 $\frac{1}{2}$	1
<i>Eragrostis chalcantha</i>		$\frac{1}{2}$	X
<i>Hyparrhenia dissoluta</i>	74	84	5
<i>H. filipendula</i>	1	1	X
<i>Sporobolus festivus</i>	25	14	2
No. of herb. species recorded	6	6	7

Comment. Considering only herbaceous species, 63 species recordings were made from the seven sites 300 - 306 by this method compared with 85 by the method of estimating cover - abundance described later. There does not seem to be much bias in the selection of species recorded by this method since only the sparser species are missed out. Therefore it should be possible to record a larger proportion of the species present by increasing the size or number of the samples. However, 100 recordings took about 2 hours. Additional time was required for the count of woody species and collection of specimens. Including the time required for site description each site took about 4 hours. If the number of recordings were to be increased to 200, each site would take about 6 hours. Increases in the time spent on each site and the resulting increases in accuracy have to be balanced against a reduction in the number of sites sampled and an increase in error due to the individuality of the sites.

(c). Analysis by frequency using a line.

Apparatus. A 100 foot length of aerial wire marked off to give 50 separate 1 ft. lengths. Pegs.

Procedure. The line was pegged down so that it was stretched about 3 inches above the ground. The end pegs were located by throwing one over the shoulder, and dropping the other end extending the line in the direction in which it

was pointing. Recordings were made of the species in contact with successive 1 ft. lengths of line. The line was pegged out 4 times to give a total of 200 recordings.

Woody species were assessed as before.

Results. This method was first tested by making single analyses of 7 sites (tables 3-9 pp.84-90). It was further tested by making duplicated analyses of 4 more sites (307-310) in conjunction with duplicated estimations of cover-abundance. The data of the latter analyses and estimations are presented in tables 10-13.

Table 10. Comparison of Methods (Site 307).

Woody species	%		CAE	
	A	B	1	2
<i>Bridelia scleroneuroides</i>	17	21	1	1
<i>Combretum binderanum</i>	45	46	2	2
<i>C. ghasalense</i>	3	5	X	X
<i>Gymnosporia senegalensis</i>	5	5	X	X
<i>Hymenocardia acida</i>	8	9	X	X
<i>Terminalia torulosa</i>	22	14	1	1

Herb. species	% frequency using line			CAE	
	200(A)	200(B)	MEAN	1	2
<i>Andropogon dummeri</i>		$\frac{1}{2}$	$\frac{1}{2}$	X	X
<i>Brachiaria brizantha</i>	$15\frac{1}{2}$	15	$15\frac{1}{2}$	2	2
<i>Clerodendron myricoides</i>	$1\frac{1}{2}$	1	$1\frac{1}{2}$	X	X
<i>Cyanotis hirsuta</i>				X	X
<i>Eragrostis chalcantha</i>		$\frac{1}{2}$	$\frac{1}{2}$	X	X
<i>Hyparrhenia dissoluta</i>	27	$27\frac{1}{2}$	$27\frac{1}{2}$	3	3
<i>H. filipendula</i>	65	67	66	4	4
<i>Loudetia arundinacea</i>	$8\frac{1}{2}$	8	$8\frac{1}{2}$	1	1
<i>Setaria sphacelata</i>	3	$2\frac{1}{2}$	$2\frac{1}{2}$	1	1
No. of herb. species recorded	6	8	8	9	9

A & B : Duplicate analyses by frequency using line.

MEAN : $\frac{1}{2} \times A + B$.

1 & 2 : Duplicate estimations of cover-abundance.

Table 11. Comparison of Methods (Site 308).

Woody Species	% frequency using line		CAE	
	A	B	1	2
<i>Acacia seyal</i> var. <i>multijuga</i>	8	12	1	1
<i>Allophylus africanus</i>	10	10	X	1
<i>Eridelia scleroneuroides</i>	9	8	X	X
<i>Carissa edulis</i>	11	11	X	1
<i>Combretum gueinzii</i>	37	35	2	2
<i>Euphorbia candelabrum</i>	4	4	X	X
<i>E. tirucalli</i>	2	3	X	X
<i>Fagara stuhlmannii</i>	2	3	X	X
<i>Harrisonia abyssinica</i>	9	8	X	X
<i>Maerua</i> sp.	8	6	X	X

Herb. Species	% frequency using line			CAE	
	200(A)	200(B)	MEAN	1	2
<i>Andropogon dummeri</i>	4 $\frac{1}{2}$	5	4 $\frac{3}{4}$	1	1
<i>Anthericum spicosum</i>	1 $\frac{1}{2}$	2	1 $\frac{3}{4}$	1	1
<i>Eragrostis brizantha</i>	14 $\frac{1}{2}$	14 $\frac{1}{2}$	14 $\frac{1}{2}$	2	2
<i>B. kotschyana</i>	2	1	1 $\frac{1}{2}$	1	X
<i>Cyanotis hirsuta</i>	1 $\frac{1}{2}$		1 $\frac{1}{2}$	X	X
<i>Eragrostis chalcantha</i>	1	1	1	X	X
<i>Hyparrhenia dissoluta</i>	1 $\frac{1}{2}$		1 $\frac{1}{2}$	X	X
<i>H. filipendula</i>	47 $\frac{1}{2}$	49	48 $\frac{1}{2}$	4	3
<i>Indigofera</i> sp. 1499	2	2 $\frac{1}{2}$	2 $\frac{1}{2}$	1	1
<i>Loudetia arundinacea</i>	44 $\frac{1}{2}$	45 $\frac{1}{2}$	45	3	3
<i>Panicum maximum</i>	1	1 $\frac{1}{2}$	1 $\frac{1}{4}$	X	X
<i>Setaria sphacelata</i>	4	4	4	1	1
<i>Sporobolus pyramidalis</i>	1 $\frac{1}{2}$		1 $\frac{1}{2}$	X	X
No. of herb. species recorded	13	10	13	13	13

Table 12. Comparison of Methods (Site 309).

Woody Species	%		CAE	
	A	B	1	2
<i>Allophylus africanus</i>	13	9	1	1
<i>Acacia seyal</i> var. <i>multijuga</i>	19	18	2	1
<i>Carissa edulis</i>	10	10	X	X
<i>Combretum gueinzii</i>	34	32	2	2
<i>Euphorbia candelabrum</i>	8	11	X	X
<i>Harrisonia abyssinica</i>	9	10	X	1
<i>Maerua</i> sp.	7	9	X	X

Herb. Species	% frequency by line			CAE	
	200(A)	200(B)	MEAN	1	2
<i>Andropogon dummeri</i>	10 $\frac{1}{2}$	12 $\frac{1}{2}$	11 $\frac{1}{2}$	1	2
<i>Anthericum apicosum</i>	4 $\frac{1}{2}$	5	4 $\frac{1}{2}$	1	1
<i>Brachiaria brizantha</i>	16 $\frac{1}{2}$	15	15 $\frac{1}{2}$	2	2
<i>B. diotyoneura</i>	4 $\frac{1}{2}$	5 $\frac{1}{2}$	5	1	1
<i>B. kotschyana</i>	2	3	2 $\frac{1}{2}$	1	1
<i>Eragrostis chalcantha</i>	1	1 $\frac{1}{2}$	1 $\frac{1}{2}$	X	1
<i>Hyparrhenia dissoluta</i>	$\frac{1}{2}$	1	$\frac{1}{2}$	X	X
<i>H. filipendula</i>	28 $\frac{1}{2}$	28	28 $\frac{1}{2}$	3	3
<i>Indigofera</i> sp. 1499	1	1	1	X	X
<i>Ipomoea</i> sp.	$\frac{1}{2}$		$\frac{1}{2}$	X	X
<i>Loudetia arundinacea</i>	59	62 $\frac{1}{2}$	60 $\frac{1}{2}$	4	4
<i>Setaria sphacelata</i>	3 $\frac{1}{2}$	3	3 $\frac{1}{2}$	1	1
<i>Sporobolus pyramidalis</i>	1	1	1	X	X
<i>Wedelia menotriche</i>	$\frac{1}{2}$	1	$\frac{1}{2}$	X	X
No. of herb. species recorded	14	13	14	14	14

Table 13. Comparison of Methods (Site 310).

Woody Species	%		CAE	
	A	B	1	2
<i>Acacia seyal</i> var. <i>multijuga</i>	3	8	X	X
<i>Bridelia scleroneuroides</i>	15	14	X	X
<i>Combretum binderanum</i>	24	23	1	1
<i>C. gueinzii</i>	36	33	1	1
<i>Harrisonia abyssinica</i>	1	1	X	X
<i>Heeria reticulata</i>	6	7	X	X
<i>Strychnos wakefieldii</i>	1	1	X	X
<i>Terminalia torulosa</i>	14	13	1	1

Herb. Species	% frequency by line			CAE	
	200(A)	200(B)	MEAN	1	2
<i>Andropogon dummeri</i>	14	13	13 $\frac{1}{2}$	2	2
<i>Brachieria brizantha</i>	7	5 $\frac{1}{2}$	6 $\frac{1}{2}$	1	1
<i>B. dietyoneura</i>	$\frac{1}{2}$		$\frac{1}{2}$	X	X
<i>Hyparrhenia filipendula</i>	4 $\frac{1}{2}$	6	5 $\frac{1}{2}$	1	1
<i>Indigofera</i> sp. 1499	5	5	5	1	1
<i>Loudetia arundinacea</i>	86 $\frac{1}{2}$	87 $\frac{1}{2}$	87	5	5
<i>Setaria sphacelata</i>	12 $\frac{1}{2}$	11 $\frac{1}{2}$	12	2	2
<i>Sporobolus festivus</i>	2 $\frac{1}{2}$	3	2 $\frac{3}{4}$	1	1
No. of herb. species recorded	8	7	8	8	8

Comment. Considering herbaceous species only, 55 species recordings were made in the sites 300 - 306 compared with 63 by the grid and 65 by the cover-abundance estimation. Again no bias is discernible in the species recorded. 200 recordings took about an hour.

The method was further tested on sites 307 - 310 (Tables 10 - 13). This time 400 recordings in two sets of 200 were made, to enable a comparison between two analyses of the same site to be made, and to compare the species lists obtained with 400 recordings with those of the cover - abundance estimations.

The two sets of 200 for any one site are very similar. The sparser species may be absent from one or the other, but there is only one reversal of order among the more frequent species:

From Table 13 (Site 310).

	A	B
<i>Brachiaria brizantha</i>	7	5½
<i>Hyparrhenia filipendula</i>	4½	6

An increase in the number of recordings would reduce variations of this sort. It can be seen from tables 10 - 13 that the higher number of recordings includes a larger number of species.

A comparison of percentage frequencies based on 400 recordings and estimates of cover - abundance shows that the degrees of cover - abundance *correspond to ranges of percentage frequency, and that the order of importance of the species as assessed by the two methods is the same.

* For definitions see next section.

Table 14. Ranges of percentage frequency corresponding to each degree of cover - abundance * (from the analyses of sites 307 - 310).

Cover - abundance	Percentage frequency
5	87
4	48½ - 66
3	27½ - 48½
2	11½ - 15½
1	1½ - 11½
X	0 - 1½

400 recordings took about 2 hours compared with one hour for each estimation of cover - abundance. It is therefore necessary to consider whether the finer gradations of the percentage frequencies are of value to the present investigation and warrant the extra expenditure of time, or if the results of the cover - abundance estimations would be sufficient. This is discussed after the description of the method of estimating cover - abundance.

(d) Estimation of cover - abundance by degrees.

Procedure. First, 15 - 20 minutes was spent walking about the area noting down all the species present in two lists - woody and herbaceous species - and making general observations. When it seemed that all the species present had been recorded, the height and cover of each layer was estimated. Next, the general physiognomy was classified

* For definitions see next section

according to Greenway (1943) and a note was made of the dominant or most abundant species. The cover - abundance of each species was then estimated and expressed in degrees according to Braun-Blanquet's six-part scale:

- X = sparsely or very sparsely present; cover very small
 - 1 = plentiful but of small cover value.
 - 2 = very numerous, or covering at least 5% of the area.
 - 3 = any number of individuals covering 25 - 50% of the area.
 - 4 = any number of individuals covering 50 - 75% of the area.
 - 5 = any number of individuals covering more than 75% of the area.
- (Braun-Blanquet 1932)

The rough total for each layer was then compared with the previous estimate. Additional notes were made of the month of sampling, the extent of the sampled area, any localisation or zonation of species, and of extremes of density and sociability.

The extent of the sampled areas varied from 1600 to 2500 square yards in grassland, scattered tree grassland, and open woodland, and from 400 to 800 square yards in thicket and swamp. (The primary object of this investigation was to study the interrelationships of vegetation and habitat in the North Mingo Lowlands. It was considered that appreciably smaller samples would be unrepresentative owing to the nature of the vegetation).

Results. See Tables 3 - 13, pages 84-90 & 92-95.

Comment.

A larger number of herbaceous species was recorded by the method of estimating cover - abundance than by frequency analysis. This was probably due to the fact that in the latter much time was taken up making routine observations whilst there was opportunity in the former to examine the community both as a whole and in detail. In addition the estimations covered woody species while it was necessary to make a count of individuals to complete the data of the frequency analyses.

It has been demonstrated (Table 14) that the degrees of cover - abundance of the species of sites 307 - 310 correspond to certain ranges of percentage frequency. There are however, 4 instances of herbaceous species which were rated differently in successive estimations.

Table 15

	A	B	% frequency
From Table 11 (Brachiaria kotschyana	1	X	$1\frac{1}{3}$
(Hyparrhenia filipendula	4	3	$48\frac{1}{4}$
From Table 12 (Andropogon dummeri	1	2	$11\frac{1}{2}$
(Eragrostis chalcantha	X	1	$1\frac{1}{2}$

It is to be noted that the percentage frequencies of all these species are at extremes of the ranges shown in Table 14. Thus it appears that the different estimations reflect an intermediate degree of cover - abundance.

The correlation of degrees of cover - abundance and ranges of percentage frequency does not necessarily mean that the degrees have been applied to the correct ranges of cover -

abundance. However, it does mean that the results obtained by these two methods are comparable.

Further tests on the method of analysis by frequency using a line showed that it was unsuitable for thickets and areas of blown vegetation, and very difficult to apply to swamps. It was therefore decided to use the method of estimating cover - abundance by degrees.

The cover - abundance of certain species appeared to be on the borderline of two degrees. Thus it was difficult to decide whether Hyparrhenia filipendula covered more or less than 50% of the area of site 308. It was decided to overcome this difficulty by stating the two degrees in question thus: Hyparrhenia filipendula. 34. This expresses the cover-abundance of borderline species precisely and increases the significance of the ratings applied to the bulk of the species.

Hope-Simpson (1940) states "the method of assigning frequency symbols subjectively which may be the only method practicable for certain types of work is clearly subject to great errors whose magnitude should be tested under the particular circumstances".

It has been demonstrated that reproduceable results can be obtained for vegetation of the type under investigation by estimating cover - abundance. Furthermore the results obtained in the tests are in agreement with those of a more time-consuming statistical method of analysis which proved to be of limited application.

Much of the error attributed to subjective estimations is due to the use of ill-defined units which are difficult to apply in the field, difficult to interpret, and impossible to check. This was avoided by using Braun-Blanquet's six-point scale of cover - abundance and by making comparisons with diagrams showing different percentage covers.

Other sources of error mentioned by Hope-Simpson (1940) are seasonal fluctuations, annual changes, and the individuality of representative areas. A note of the date of each estimation was made. Thus it should be possible to distinguish between differences which may be due to the seasons and those which definitely are not. All the estimations were carried out in one 12 month period - from September 1955 to August 1956. Finally, although every effort was made to select sample areas representative of each type, a certain error was inevitable because no sample can be completely free of bias. However, this sampling error will not upset the analysis of the interrelations of vegetation and habitat as the latter can be based on comparisons of the data of the individual sample areas without reference to the types.

(ii) Field Procedure.

(a) Choice of Site.

The first sites were chosen as uniform and representative samples of areas of each of the types mapped during the reconnaissance. Subsequent sites, located outside the reconnaissance area, were chosen as uniform and representative

samples of types similar to those mapped during the reconnaissance. It was necessary to choose comparatively large sites in order that they might be both uniform and representative. The sizes of the sites depended on the nature of the vegetation and varied from 400 to 2500 square yards.

(b) Site Description.

The various features of the habitat were observed and descriptions of them were recorded on Field Soil Description Sheets (Appendix K). These sheets were modified slightly to avoid duplicating the recordings of the botanical analyses, and also to cover certain aspects of ecological importance namely grazing, burning, and cultivation histories, and the wild life.

After entering the number of the site and the date the observations were recorded in the following order:

Locality: distance and direction from a point of reference, eg. 1.87 miles south of Nakasongola, N. Mengo.

Elevation: aneroid reading which had to be corrected later for diurnal variation.

Slope: in degrees.

Aspect: in points of the compass, eg. NNE, SW.

Macro-relief:

Micro-relief:

Drainage: Imp.- impeded, inund.- inundated;
SW - seasonally waterlogged,
PW - permanently waterlogged.

Position: hilltop, upper hillsides etc.

Erosion effect: eluvial - colluvial - illuvial,
wash, creep, sheet, gully.

Geological substratum: (where observable).

Grazing: intensity, seasons.

Burning: frequency, time of year.

Cultivation: whether or not; main crops and their quality.

Wildlife: type, abundance.

Weather conditions prior to, and at, sampling.

The Soil Profile:

Depth of each layer in inches and the clarity of its horizons (s = sharp, fs = fairly sharp, d = diffuse, c = continuous).

The colour of each layer was determined by comparing air-dry samples with the standard tints of a Munsell colour chart. Disposal or uniformity was assessed in the field. U = uniform, M = mottled.

Texture (abbreviations: C = clay, L = loam, S = sand, FS = fine sand).

Mineral skeleton: shape, size and abundance.

Structure: granule, crumb etc.

Visible porosity: = = few + + + = many; small = small pores.

Handling consistency: loose, friable, plastic etc.

Organic matter: graded from 5 down to 0. 5 is apparently rich in organic matter, 0 impoverished.

Roots: graded 5 to 0, matted to absent.

Water conditions: D = dry, M = moist, W = wet, S = sodden.

Secondary chemicals and minerals.

Fauna: ants etc.

Carbonate:

Samples of each layer were taken for analysis.

The map references were worked out later. They are in degrees, minutes and seconds east of Greenwich and north of the equator, to the nearest 5 seconds. Thus the reference 322525 013045 (Site 300) = the 5-second square with the point $32^{\circ} 25' 25''$ East $1^{\circ} 30' 45''$ North in the extreme south-west.

(c) Botanical Analysis.

Finally, the vegetation was examined and described using the procedure for estimating cover-abundance by degrees described previously.

(iii) Grouping the Data.

Because a large number of sites were examined it was necessary to group the data to obtain a general picture of community-habitat relationships, and standards for comparisons.

Ideally for considerations of interrelationships the grouping should be based on evaluations of all the factors of community and habitat. Furthermore, each species should be considered as a separate factor. However, since more than 700 species were recorded and since a large number of other factors are involved, such an approach would be excessively time-consuming even if a punch-card system were used.

The data of the reconnaissance (pp.29-63) show correlations between vegetation type and habitat, between flora and soil type, and between flora and physiognomy. It was therefore considered justifiable to make a preliminary

grouping of the sites on the basis of the physiognomy of their vegetation and the soil type. Nine groups were recognised:

Table 16. Groups based on Physiognomy and Soil Type.

Group	Physiognomy	Soil Type
1	Thicket	A
2	Wooded Grassland	A
3	" "	B
4	Grassland	B
5	Wooded Grassland	C
6	Grassland	C
7	Swamp	E
8	Wooded Grassland	F
9	Thicket on anthills, subdivided on parent soil.	

Certain overlapping groups - eg. 3 and 4 - were merged. Next a large table was constructed for each group to show the cover-abundance of the species occurring on each site. The sites in each group were compared with each other and with sites in similar groups. Some groups were sub-divided and numerous sites were reclassified to obtain the highest possible degree of uniformity of communities and habitats.

Finally, 15 groups were distinguished:

Table 17. Groups of Sites.

Group No.	Name of Group or Dominant Species	Physiognomy	Soil
1	Northern Deciduous	Th.	AX
2	Northern Evergreen	Th.	AX
3	Southern Evergreen	Th.	AX
4	Loudetia arundinacea - Albizzia zygia - Combretum spp. - Terminalia velutina.	WG.	A
5	Hyparrhenia filipendula - Acacia seyal var. multijuga - Combretum spp.	WG.	A
6	Miscellaneous Post-Cultivation	G/WG.	A
7	Imperata cylindrica var. africana Post-Cultivation.	G/WG.	B
8	Hyparrhenia dissoluta Post- Cultivation.	G/WG.	B
9	Hyparrhenia filipendula Post- Cultivation.	G/WG.	B
10	Miscellaneous Post-Cultivation	G/WG.	B
11	Cyperus-rich Themeda triandra- -Sorghum rigidifolium	G.	C
12	Themeda triandra	G/WG.	C
13	Hyparrhenia spp.	WG.	C
14	Swamp	Reed Swamp	E
15	Mosaic of Wooded Grassland Communities on Granite Hills		F

Th = Thicket; WG = Wooded Grassland; G = Grasslands;

X = Anthills.

C. Results.

(i) Site Data

The site data of 174 sites are presented in Appendices A, B, F and I. A list of the species found in the North Mingo Lowlands and a taxonomic analysis of the flora have been prepared from the combined data of the reconnaissance and the detailed investigation (Appendices C and D). A set of the herbarium specimens collected during the course of reconnaissance and the detailed investigation is included with Appendix E.

(ii) Climatic Data.

The following table and the entries on the general map (Appendix I) are based on an examination of the daily rainfall records from the wet season of 1942 to the dry season of 1956 for 9 stations in, and in similar country bordering the North Mingo Lowlands.

Some difficulty was experienced in judging the length of the dry season as the wet season "peters out". In some cases the date was fixed after a number of rainy days preceding the first dry spell of ten days or more. In other cases - where the number of dry days between showers gradually increase - a medial date was chosen between the beginning and end of the "tailing-off period". There were no difficulties in fixing the dates of the beginning of the wet season. The rains begin with 2 - 3 wet days followed by intermittent showers at intervals of 2 - 4 days, gradually becoming more frequent. This is quite

distinct from the long dry spell characteristic of the end of the dry season.

This practice is not entirely satisfactory; however, it is useful for obtaining a rough measure of the lengths and intensities of the seasons. Moreover, since the same procedure was used for all the stations it is considered that the results should be comparable.

The variability of the rainfall is shown by the ranges. Data on temperatures, humidities, wind speeds and variations in rainfall between hilltops and valleys were not available.

Table 18. Rainfall in the North Mengo Lowlands.

Station	Dry Season						Wet Season		
	Rainfall (Ins.)			Length (Days)			Rainfall (Ins.)		
	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.
Bale	2.8	6.9	0.1	90	154	65	40.3	56.4	25.0
Butemba	3.7	8.7	0.7	104	130	70	39.7	51.4	26.3
Galiraya	3.2	8.4	0.3	133	184	112	34.4	49.2	24.0
Kakoge	2.7	6.4	0.0	95	198	23	44.1	63.8	30.6
Kijunjubwa	3.3	7.0	0.4	121	186	80	35.5	50.5	25.0
Masindi Port	1.7	5.3	0.0	106	187	62	28.8	37.9	19.6
Nakasongola	2.5	7.3	0.4	106	137	67	37.8	50.3	25.0
Wabusana	3.4	11.2	0.1	85	135	62	40.0	48.3	30.2
Wakyato	3.3	5.4	0.5	103	146	56	33.8	62.9	21.9

Rainfall to nearest $\frac{1}{10}$ inch;

Length of dry season to nearest day.

D. Discussion

(i) Soils.

The data of 174 sites confirm the validities of the soil types "A", "B", & "C", and indicate that these types occur throughout the North Mengo Lowlands. Minor variations within the ranges of conditions given below are associated with differences in the vegetation. They will be discussed in the next section.

Type "A". Red-brown to dark red-brown fine sandy loams and fine sandy clay loams over red fine sandy clay loams and fine sandy clays, on hilltops and upper hillsides. Depth variable, 9 inches to 10 feet, over pea and sheet ironstone. Crumb structure; aeration and drainage good; rooting moderate at the surface grading less below.

Factor	Topsoil	Subsoil
pH	4.80 - 6.08	4.90 - 6.40
Bases	Slightly deficient	Acutely deficient
P ₂ O ₅	Acutely deficient - adequate.	Acutely deficient - deficient.
C	Adequate	Deficient
N	Acutely deficient - adequate	

(Assessments of nutrient status are based on provisional limits worked out by Dr. E.M. Chenery, Senior Chemist, Department of Agriculture, Uganda, from field observations

and pot tests. These provisional limits are quoted in Appendix B.)

Assessments have been made of two layers of each profile: the topsoil and a subsoil sample. The lowest sample of the soil proper (excluding rock and ironstone matrices) being taken for the subsoil. Significant occurrences mid-profile were noted individually.

Type "B". Grey-brown to dark grey fine sands and loamy fine sands over light grey-brown to pale brown fine sandy loams, on lower hillsides and at valley sides. All the profiles sampled were more than 5 feet deep. ^{There is} some aggregation to form crumbs in the heavier soils but structures are mostly single grain. Aeration and drainage good, rooting ^{is} abundant at the surface and is notable at the lowest depths sampled.

Factor	Topsoil	Subsoil
pH	4.88 - 7.32	4.65 - 7.66
Bases	Adequate	Acutely deficient - adequate.
P ₂ O ₅	Acutely deficient - adequate.	Acutely deficient - deficient.
C	Deficient - adequate	Deficient
N	Deficient	

Type "C". Dark grey to very dark grey fine sands to clays over grey-brown to very dark grey fine sandy clay loams to clays, in valleys. Of considerable depth. Topsoil structure

variable, subsoils structureless, poorly aerated and drained and subject to varying degrees of seasonal waterlogging. Rooting abundant in top 4 - 6 inches, rare below 2 ft. in depth.

Factor	Topsoil	Subsoil
pH	5.22 - 6.58	4.40 - 7.84
Bases	Adequate	Adequate
P ₂ O ₅	Acutely deficient - adequate.	Acutely deficient
C	Adequate - abundant	Deficient.
N	Deficient - adequate.	

Samples were taken from the profiles of 11 anthills and the soils surrounding them. They are discussed in conjunction with their vegetation in the next section.

The data of the physical and chemical analyses of samples from 132 profiles are included in Appendix B.

The distribution of the three soils in catenary complexes previously noted for the reconnaissance area was seen to extend over the whole of the North Mengo Lowlands. Three sequences or "catenas" were observed: the Buganda catena in the south; the Kalungi and Lwampanga catenas over the bulk of the North Mengo Lowlands. The Lwampanga catena is restricted to areas of very low relief.

Sequences	Topographic distribution of the soil types			
	Hilltop	Upper Hillside	Lower Hillside	Valley
Buganda catena	Z	A	B	C
Kalungi catena	A	A	B	C
Lwampanga catena	B	B	B	C

The soil (Z) on hilltops in the Bukalasa catena consists of a variable depth of very dark grey-brown fine sandy clay loam over a very dark red-brown fine sandy clay loam on rotting rock. Quartz fragments are frequently present throughout the topsoil. The relief of the Buganda catena is higher than that of the other two. Amplitudes of between 200 and 400 feet, and inclinations of up to 10° are common.

In addition, small areas were seen to have other soil types - eg. the mosaic of soils on the granite hills around Nakasongola, and a catenary complex over an area with sharper relief in the extreme north-west.

The distributions of the catenary complexes and certain soil types are shown on the general map (Appendix I).

(ii) Community - Habitat Interrelationships.

(1) Northern Deciduous Thicket.

Extent variable, canopy open, 10-15 ft. high, 50-100% with emergent trees up to 35 ft. Ground layer sparse - no ferns, mosses or lichens.

There is no one dominant species. The following

species are usually present: Allophylus africanus, Bridelia scleroneuroides, Cissus rotundifolius, Pagara chalybea, F. stuhlmannii, Grewia mollis, Harrisonia abyssinica, Jasminium eminii, and Ziziphus abyssinica.

Communities in this group occur on anthills and shallow "A" soils in the north. The anthill soils are deep, well aerated and drained, have well-developed crumb structures and are consequently friable. Organic matter and rooting are moderate at the surface and are apparent at some depth. The colours and textures of anthill soils are similar to the parent soils; their behaviour is different owing to differences in structure and nutrient status.

The extent of these thickets can be related to the intensity of burning. Site 351a is known to have been burnt annually for the last eight years and annually or biennially previously. Site 351b consists of small thickets barely covering the tops of anthills included in site 351a (photo 5). Thickets in areas which have not been burnt so severely are much larger - eg. site 352b (photo 6). The smaller thickets (sites 351b, 453b, 455b) have a number of species in common which generally occur at the edges of the larger thickets: Allophylus africanus, Bridelia scleroneuroides, Grewia mollis, Harrisonia abyssinica, Ziziphus abyssinica, Z. mauritiana. It is proposed that the species which have only been recorded from the larger thickets are less fire-resistant than those listed immediately above.

The following species were found growing on an anthill in site 453a after very fierce burning: Boerhaavia sp., Brachiaria brizantha, Euphorbia candelabrum, E. hypericoides, Ficus sp., Hyparrhenia filipendula, Panicum maximum, Setaria incrassata and Vernonia gerberaeformis. Other anthills subjected to fierce fires were seen to lack woody growth completely.

The thickets on valley anthills are generally smaller than those on anthills on the hills. The differences between thickets on anthills in different topographic positions are further discussed in conjunction with communities of group 3.

A number of differences between these thickets and the Northern Evergreen Thickets can be seen by comparing their tables and other data (in Appendix A.):

(a) The species common to the smaller Northern Deciduous Thickets are either absent from, or restricted to the edges of the Northern Evergreen Thickets.

(b) The Northern Evergreen Thickets are distinct in that they have dense canopies, numerous ferns, mosses and lichens, and an appreciably cooler and damper microclimate within than without.

(c) The Northern Evergreen Thickets are all of large extent covering a number of anthills and the intervening "A" soil, while the Northern Deciduous Thickets are either large or small.

(d) The Northern Evergreen Thickets occur on deep soils

but are surrounded by ironstone pavement or very shallow soils over sheet ironstone. The only extensive thicket of group 1 sampled is on a shallow soil with no fire breaks (site 362a 23 inches yellow-red fine sandy clay loam over pea and sheet ironstone). The smaller thickets of group 1 are all exposed to fire.

The thicket of site 362a appears to be in equilibrium with fire because of the shallowness of the soil. This restricts grass growth and the intensity of the annual/biennial burn. Areas of deep "A" soils in the north not fire-protected bear communities belonging to one or other of the groups of wooded grasslands (4, 5 or 6).

While other factors may contribute towards the individuality of the two thicket groups found in the north, the balance between them is maintained by fire which is controlled by occurrences of ironstone pavements and shallow soils.

More detailed analyses of the interrelationships of the Northern Deciduous Thickets and their habitats cannot be made as soils analysis data are only available for one of the sites (362a). The additional factors will, however, be considered in relation to the other thicket types.

(2) Northern Evergreen Thicket.

Of large extent, canopy dense 10-20 ft. high, in places 2-layered. Ground layer of ferns, mosses and lichens, shade-loving grasses and *Aloe* sp., also epiphytic mosses and lichens.

There is no one dominant species. The following species are usually present: Acacia pennata, Aloe sp., Canthium lactescens, Capparis erythrocarpa, Cissus rotundifolia, Euphorbia candelabrum, Grewia similis, Haplocoelum foliolosum, Harrisonia abyssinica, Hibiscus sp. 1912, Hippocratea indica, Panicum heterostachyum, Popowia djurensis, Strychnos wakefieldii, Synadenium grantii, Teclea nobilis, T. trichocarpa, Tricalysia niarniamensis, Vernonia brachycalyx together with Pellaea viridis, Usnea, and various unidentified mosses and lichens (see table in Appendix A).

These communities occur on anthills and "A" soils of variable depth. There is generally from 7 to 10 ft. of red-brown fine sandy loam over red fine sandy clay loam on sheet ironstone at the hilltop, less towards the sides. There is often an abrupt change in depth near the thicket edge. These soils are well-structured, aeration and drainage is good, organic matter and rooting are moderate in the topsoil and are apparent at some depth. The analyses of these soils (Appendix B) show topsoil pH of between 5.15 and 5.48, subsoils from 5.00 to 5.62 (hilltop subsoil more acid than topsoil, the reverse the case for the hillside soils), adequate carbon and nitrogen, deficient phosphate.

These thickets are surrounded by sparse grasslands on shallow soils or by ironstone pavements devoid of soil and vegetation. Species of the sparse grasslands include Aeolanthus heliotropiodes, Brachiaria kotschyana, Eragrostis patens, Hyparrhenia filipendula (stunted - mostly about 18 inches

high), Mariscus mollipes, Oldenlandia sp., Pennisetum polystachyon, Setaria pallidifusca and Sporobolus pellucidus. The density of the cover is low, and there is much bare ground between aggregations of individuals. Thus the thickets of group 2 are protected from fire.

The relationship of thickets in this group to fire has been considered already; their relationships to soil, climatic, and other habitat factors will be discussed with the Southern Evergreen Thickets.

(3) Southern Evergreen Thickets.

Of medium extent covering 2 - 3 anthills or more on hillsides and hilltops; valley thickets smaller covering a single anthill up to 20 yards diameter. Canopy fairly dense, 5 - 20 ft. high, with occasional emergent trees up to 40 ft. high. Ground layer of ferns, mosses, shade-loving grasses and Aloe sp. present in varying degree.

There is no one dominant species. The following species are usually present: Aloe sp. A., Carissa edulis, Cissus rotundifolius, Euphorbia candelabrum, E. tirucalli, Harrisonia abyssinica and Rhus natalensis.

The 24 thickets in this group can be classified geographically East-West. The sites in each of the sub-groups have a number of additional species in common.

3a South-West.

(Sites 427, 429, 430, 431, 433, 436, 467) Andropogon plumosus, Euclea schimperi, Euclea sp. 2072, Grewia mollis,

Ipomoea grantii, Rhoicissus erythroides, Teclea nobilis,
Vernonia brachycalyx.

3b South.

(Sites 404, 408, 411, 413, 415, 417) Euclea latidans,
Euclea sp. 2072, Grewia similis, Lantana salvifolia,
Polypodium phymatodes, Rhoicissus erythroides, Ritcheia
duchesnei, Scutia myrtina.

3c South East.

(Sites 458, 460, 462, 464). Grewia mollis, Rhoicissus
erythroides.

3d East.

(Sites 438, 440, 442, 444, 446, 448, 450) Euclea
latidans, Grewia similis, Hippocratea africana, Ritcheia
duchesnei, R. macrocarpa, Secamone platystigma, Teclea nobilis,
T. trichocarpa, Vernonia brachycalyx, Ziziphus pubescens.

These thickets occur on anthills and "A" soils. The anthill soils are similar in colour and texture to the surrounding soils, are deep, well aerated and drained, mostly crumb-structured and friable though some valley anthills have larger aggregates. Organic matter and rooting are abundant in the topsoil and are apparent at some depth. The analyses of these soils (Appendix B) show topsoil pH of between 5.34 and 7.8, subsoils from 4.8 to 8.1; bases, phosphate, carbon and nitrogen are abundant or adequate. The mean values for bases, carbon, and nitrogen are lower for the soils associated with communities in 3a than 3b. However, there is a considerable

overlap of the conditions of these two subgroups. (Subgroups 3c and 3d were not sampled for analysis).

Sites 427, 430 and 431 of group 3a have adequate bases, carbon and nitrogen but deficient phosphate. The remaining sites of group 3a and group 3b have abundant bases, carbon and nitrogen and adequate or abundant phosphate. Acacia hebecladoides was recorded from sites 427 and 431 only - two of the "less fertile" anthills; while the following species were recorded from two or more of the "more fertile" anthills: Acacia campylacantha, Acacia seyal var. multijuga, Acacia sp., Acalypha bipartita, Albizzia malacophylla, Alchornea cordifolia, Antidesma meiocarpum, Asparagus pauli; guillelmii, Aframomum sp. A., Brachiaria brizantha, Bridelia brideliifolia, Capparis acutissima, Clausena anisata, Combretum binderanum, Commelina africana, Dombeya rotundifolia, Euclea latidens, Gloriosa simplex, Grewia similis, Lantana salvifolia, Mariscus macer, Opilia celtidifolia, Panicum maximum, Ptilostigma thonningii, Ritcheia duchesnei, Vangueria acutiloba, V. apiculata and Polypodium phymatodes. Few of these, however, occur on more than 3 out of the 8 "more fertile" anthills. Nevertheless, this list indicates a connection between nutrient status and the species lists of the thickets of sub-groups 3a and 3b.

The "A" soils associated with the Northern Evergreen Thicket (Group 2) are more acid and have less carbon and nitrogen than site 415. Bases are deficient in profiles of

sites 343, 345 and 346. All these sites and site 415 have acute phosphate deficiency.

The Northern Evergreen Thickets also differ in their overhead climate. They are located in an area which receives less rainfall per annum, which is less humid throughout the year, and has a longer and more intense dry season. On the other hand they occur on the first full-height hills south of the Lake Kioga-River Nile water expanse which probably receives a higher rainfall than the surrounding lands. In addition there are the observed daily morning mists which persist until about 9 a.m.

Furthermore, the Northern Evergreen Thickets are of large extent and are protected from fire at their edges by occurrences of shallow soils and ironstone pavements.

These peculiarities of soils, climate, and burning account for the individuality of the Northern Evergreen Thickets. More accurate information on the climate and additional sampling of the soils and vegetation would be required for a detailed analysis of the interrelationships of these communities.

The main division of the Southern Evergreen Thickets is geographical. Certain species, however, are restricted to anthills in valleys whilst others occur only on anthills away from valleys. (Species which occur on one site only have not been considered).

Species restricted to valley anthills: Acacia

campylacantha, A. hebecladoides, Acacia sp., Bridelia scleroneuroides, Commelina africana, Dombeya rotundifolia, Grewia mollis (mostly valley), Mariscus macer, Phoenix reclinata (recorded from 1 site but widely observed), Piliostigma thonningii, Ziziphus abyssinica, Z. mauritiana,

Species restricted to hill anthills: Aframomum sp.A., Bersama abyssinica, Bridelia brideliifolia, Capparis rothii, Ficus capensis, Haplocoelum foliolosum, Ipomoea grantii (mostly non-valley), Opilia celtidifolia, Phyllanthus discoideus, Tinnea aethiopica, Vitex fischeri.

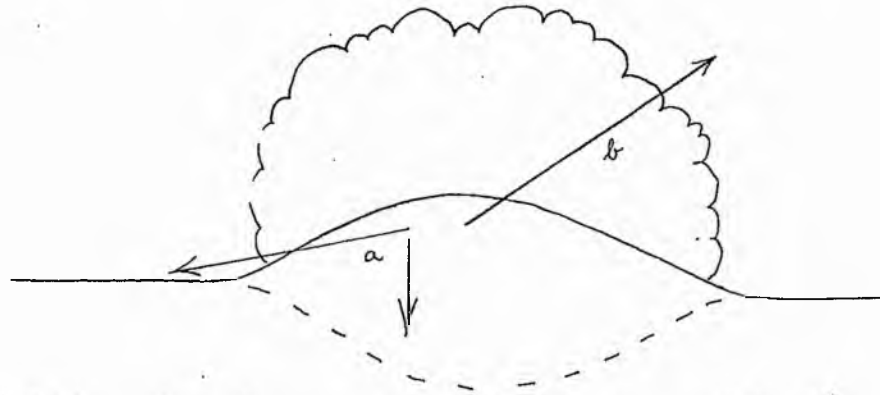
The only other differences between valley and hill anthill sites are the seasonal waterlogging of the surrounding valley soils compared with well drained soils round hill anthills, the size of the thickets and the intensity of burning. There are no significant differences in the base, phosphate, carbon or nitrogen content of their soils, and their pH ranges are almost identical. Textures and structures are similar, though some valley anthills have larger aggregates - nuts and clods - in the lower layers. Drainage and aeration are generally good, but one profile taken from near the edge of a valley anthill (site 404) does show impeded drainage at a depth of 26 inches.

The valley anthills are surrounded by seasonally waterlogged soils yet are themselves well-drained. We are therefore faced with the question of how they are drained.

One possibility is that they are well-drained by virtue

of increased evapo-transpiration from better structured soils and the different vegetation type. This could be coupled with improved drainage due to their microrelief.

Fig.12



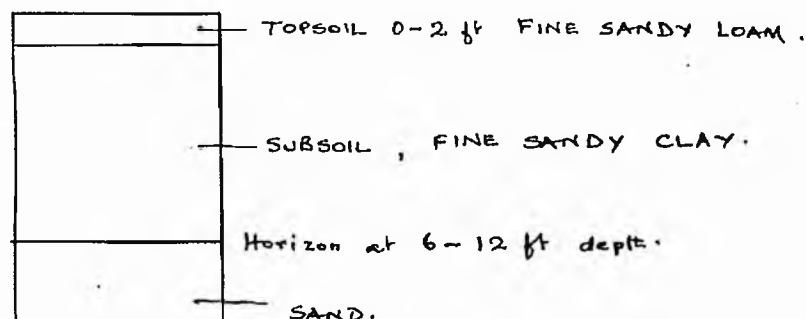
(a) = gravity drainage - partly away from anthill.

(b) = increased evapotranspiration.

However, this does not account for the absence of water logging in anthills at some depth below the level of the surrounding water-table, or the moistness of anthill soils in the dry season.

A number of valleys were observed to have a layer of coarse sand beneath their clayey subsoils:

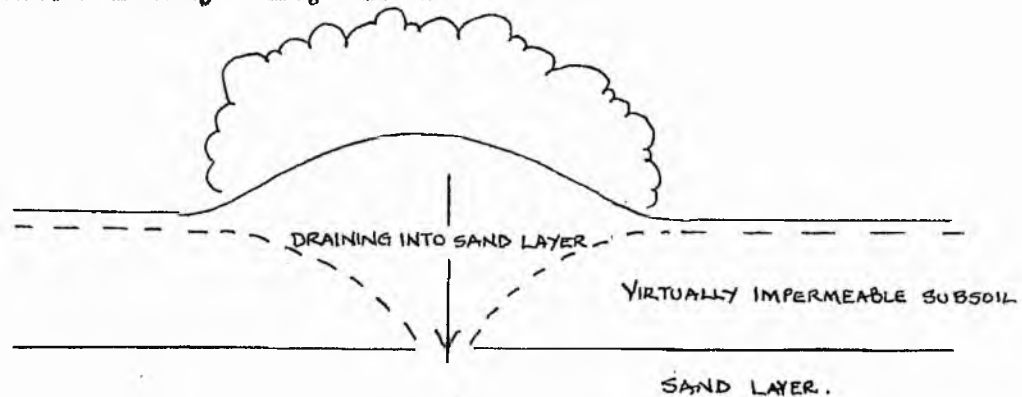
Fig.13



Numerous attempts were made to bore through anthills to see if they drained into this layer. The earliest of them were unsuccessful owing to the depth of soil over the sandy layer.

(see sites 408, 431, 436). Eventually success was achieved by starting a boring at the bottom of a pit dug in an anthill (site 460). The sand layer was reached between 10 and 11 feet below the level of the surrounding valley after boring through a well-drained sandy clay loam.

Fig.14



Woody species are absent from the more severely waterlogged valleys (see group 11). The hill thickets cover a number of anthills and the intervening "A" soil; on the other hand, the valley thickets are restricted to single anthills. This difference is due to the waterlogging of the intervening valley soils.

There are two main reasons why the effects of burning are greater on valley thickets than hill thickets and both are due to the waterlogging of valley soils. First, the valley thickets are restricted to the area of well drained soil and so are more subject to fire as their area/edge ratios are less than those of the larger hill thickets. Second, the valley thickets are unable to fluctuate to and fro:

The species restricted to valley anthills in the south include Bridelia scleroneuroides, Grewia mollis, Ziziphus

abyssinica, and Z. mauritiana - species commonly found in the Northern Deciduous Thicket. The following species, restricted to hill anthills in the south were found in the Northern Evergreen Thicket: Bridelia brideliifolia, Grewia similis, and Haplocoelum foliolosum.

The restriction of thickets to anthills in valleys is due, in part at least, to the waterlogging of the surrounding soils. However, the phenomenon is not limited to the valleys; thickets are also concentrated about anthills surrounded by well drained soils on hillsides and hilltops. Differences between the chemical and physical conditions of the soils of anthills and the surrounding land may be critical.

The analyses of each layer of the 11 anthill profiles sampled (sites 404, 408, 411, 413, 417, 427, 429, 430, 431, 433, 436) show more C, N, P_2O_5 , Ca, Mg and K than the corresponding layers of the surrounding soils (sites 403, 407, 410, 412, 416, 426, 425, 424, 428, 432, 435), with the following exceptions:

404 has less Mg than 403 in the subsoil.

408 has less C than 407 in the topsoil.

427 has less P_2O_5 , Ca than 426 in the topsoil.

427 has less Ca, K, than 426 in the subsoil.

436 has less Mg than 435 in the subsoil.

Also the anthill soils have greater porosity and better developed crumb structures. However, thickets are not restricted to the anthill soils. Group 3 contains thickets

which cover 2 or 3 anthills and the intervening "A" soil, and group 2 contains extensive thickets which grow on anthills and "A" soils alike.

The thickets are much affected by fire and only those thickets which are protected from fire cover extensive areas (group 2). Variations in the intensity of burning from year to year or between different sites lead to variations in the sizes of the thickets. (Sites 310, 336, 360, 361, 372, 375 & 392 are thought to have been burned severely and lack thickets. Variation in the size of other thickets was observed between 1954 and 1956).

It is suggested that anthill thickets owe their continued existence to the effect of anthill relief on conditions at the edge of the thicket when the surrounding vegetation is burned. The anthill acting as a "hard core" from which the thicket can spread after an intense burn. The higher nutrient status of these soils may also be a factor in the re-establishment of thickets after an intense burn.

Major differences between the compositions of the thickets in groups 1, 2 and 3 can be related to climate and the fire factor in conjunction with the occurrence of ironstone pavement fire-breaks. The widespread occurrence of anthill thickets is also considered to be a function of the fire factor.

Differences in the size and minor differences in the composition of the anthill thickets found in the south can be attributed to a combination of the drainage and fire factors associated with the occurrence of seasonally waterlogged valleys.

(4) Loudetia arundinacea - Albizzia zygia - Combretum spp.
Terminalia velutina Wooded Grassland.

Communities in this group are scattered tree grasslands having woody covers of between 5 and 35% of deciduous, mainly tree, species varying from 10 to 40 ft. in height. Albizzia zygia, Combretum binderanum, C. gueinzii and Terminalia velutina are the commonest trees. The following species are also present on a number of sites but are less abundant: Acacia seyal var. multijuga, Annona chrysophylla, Bridelia scleroneuroides, Combretum ghasalense, Cussonia arborea, Hymenocardia acida, Lanea kerstingii, Lonchocarpus laxiflorus, Securidaca longipedunculata, Steganotaenia araliacea, Strychnos innocua and Terminalia torulosa.

The grass layers are dominated by Loudetia arundinacea. This grass forms large clumps - from 1 to 3 feet in diameter - separated by similar-sized spaces, and attains a height of 4 to 6 feet. The other species grow in the spaces between these clumps. The following species were recorded from the majority of the communities in this group: Acalypha villicaulis, Aframomum sp. "A", Andropogon dummeri, Asparagus pauliguilelmii, Brachiaria brizantha, B. platynota, Hyparrhenia filipendula, Panicum maximum.

These communities grow on dark red-brown fine sandy loams and fine sandy clay loams over red fine sandy clay loams and fine sandy clays - Type "A". These soils are well aerated and drained owing to well developed crumb structures and their position on hilltops and upper hillsides. They are underlain

by pea and sheet ironstone. The depth of soil is variable. Site 326 has between 12 and 38 inches of soil over sheet ironstone while a number of other sites - notably 310 and 339 - are so deep that it was impossible to reach the ironstone with an auger. In these cases the position of the ironstone was estimated from murrum pits, or its presence deduced from the nature of ironstone outcrops on the hillsides.

These soils have adequate bases but concentrations of calcium are generally lower than those of magnesium. Carbon is adequate, nitrogen deficient and phosphate acutely deficient. The pH ranges from 4.8 to 5.96 in the topsoils and from 4.92 to 6.05 in the subsoils.

The data of these sites do not support the observations on Terminalia communities made during the reconnaissance. Three sites (327, 357 and 418) in which Terminalia velutina is the most abundant tree have 17, 25 and 14 woody species. The average number of woody species is 15.

Attempts were made to subdivide the group on geographical (climatic), soil, and botanical criteria. Although the communities occur over a wide area no consistent correlation between these factors was possible. Thus the group appears to have a certain unity and there does not seem to be any justification for sub-dividing it on the basis of the species in the tree and shrub layers. The three Terminalia velutina sites (327, 357, 418) have soils with slightly less than average carbon and phosphate but they are well within the

range of conditions of the other sites and so they do not form a distinct group.

The interrelations between communities of this group and their habitats will be further considered in conjunction with those of the Hyparrhenia filipendula - Acacia seyal var. multijuga - Combretum spp. wooded grasslands.

- (5) Hyparrhenia filipendula - Acacia seyal var. multijuga - Combretum spp. Wooded Grassland.

The communities in this group are scattered tree grasslands with woody covers of between 10 and 35% of deciduous species varying from 6 to 40 ft. in height. Acacia seyal var. multijuga, Combretum binderanum, and C. gueinzii are the commonest woody species. The following are also present in the majority of the communities: Albizzia zygia, Bridelia scleroneuroides, Lanea kerstingii, Steganotaenia araliacea, Strychnos innocua.

Hyparrhenia filipendula is the most abundant grass, it does not however, exert the same effect as Loudetia arundinacea does in the group 4 communities owing to its different growth habit. In 5 communities (sites 332, 334, 335, 340, 348) Andropogon dummeri is recorded as the most abundant species. This difference is due to seasonal conditions. All five sites were sampled in the month of January, shortly after burning, and were observed to have 50 - 75% covers of Hyparrhenia filipendula later in the year.

The following herbaceous species were recorded from

the majority of the sites: Acalypha villicaulis, Brachiaria brizantha, Eragrostis chalcantha, Panicum maximum, Sporobolus festivus.

These communities grow on dark red-brown fine sandy loams and fine sandy clay loams over red fine sandy clay loams and fine sandy clays - Type "A". These soils are well aerated and drained, have well developed crumb structures and are found on hilltops and upper hillsides over sheet and pea ironstone. Their depth is variable; site 532 has between 9 and 15 inches of soil on sheet ironstone, sites 318, 424, 441 have more than 6 feet of soil. The average depth of these soils is less than those of the Loudetia arundinacea communities.

Certain of these soils are slightly deficient in one or more of calcium, magnesium, potassium and manganese. Concentrations of calcium are generally higher than those of magnesium. Carbon is adequate, nitrogen deficient and phosphate acutely deficient. The pH ranges from 4.9 to 6.08 in the topsoils and from 4.9 to 6.4 in the subsoils. They are therefore very similar to the soils of the Loudetia arundinacea communities.

It has been stated that these soils are shallower than those of group 4. There is, however, a considerable overlap between the depths of the soils of the two groups. Examination of their tables shows that they contain only 7 species which have a preference for either deep or shallow soils. Moreover, these species are of small cover value and

their distributions are mixed between Hyparrhenia filipendula and Loudetia arundinacea communities. They are (deep soils): Allophylus africanus and Brachiaria viridula. (Shallow soils): Cassia absus, C. mimosoides, Echinops amplexicaulis, Eriosema velutinum and Hyparrhenia sp. We may conclude that soil depth is not responsible for the differences in the vegetation of groups 4 and 5.

Differences in climate can be ruled out also as communities of the two groups are widely distributed and frequently occur within a little distance of each other.

There are differences in the concentrations of bases. The Loudetia arundinacea soils often contain more magnesium than calcium. Certain Hyparrhenia filipendula soils are slightly deficient in calcium, magnesium, potassium and manganese but the concentrations of calcium are generally higher than those of magnesium. There are exceptions to this distinction, notably site 424 which has more magnesium than calcium in the topsoil. However, though this community is dominated by Hyparrhenia filipendula (4), Loudetia arundinacea (2) is recorded as an important constituent.

Further examination of the tables shows that the presence of Loudetia arundinacea in communities dominated by Hyparrhenia filipendula is associated with calcium deficiency. The difference between communities of the two groups may be due, in part at least, to calcium deficiency and magnesium-induced calcium deficiency.

Other differences are the more pronounced shrub layers of the Hyparrhenia filipendula communities and the absence of thicket from anthills in certain Loudetia arundinacea communities (sites 310, 336, 360, 361, 372, 375, 392).

These differences support the hypothesis put forward in the previous discussion, that the two grassland types owe their individuality to different intensities of burning and the difference in growth habit of the two dominant species. However, the data of this investigation indicate that the differences in the density of the grass layers and the intensity of burning are not due to differences in soil moisture.

One possibility is that the Loudetia arundinacea communities owe their origin to calcium deficiency and are maintained by the intense fires which are a direct result of their growth.

Further work would be necessary to confirm this.

(6) Miscellaneous post-cultivation communities on "A" soils.

Communities dominated by a variety of species occur on "A" soils which have been cultivated in the last 20 years. The depths, colours, textures, structures, drainage and aeration of these soils are indistinguishable from those of the soils associated with communities of groups 4 and 5.

Pennisetum purpureum - and Digitaria scalarum - dominated communities are restricted to the higher rainfall regions in the south. . . . The following table shows that

we have an insufficient number of samples to determine the interrelationships of the various post-cultivation communities on "A" soils.

Table 19. Post-cultivation communities on "A" soils.

Site	Dominant	Years post-cultivation	Bases	P ₂ O ₅	C	N
331	<i>Hyparrhenia filipendula</i> - <i>Loudetia arundinacea</i>	20	=	- -	=	-
368	<i>Hyparrhenia filipendula</i> - <i>Brachiaria brizantha</i>	10	MgK-	-	=	=
397	<i>Hyparrhenia filipendula</i>	20	-	-	=	-
434	" "	20	=	=	=	=
350	<i>Brachiaria brizantha</i>	10	Data not available	-	=	=
376	" "	5	MgMn-	=	=	=
380	" "	5	Mn-	=	+	+
386	<i>Brachiaria platynota</i>	10-15	MgK-	-	=	+
401	<i>Digitaria scalarum</i>	2	Mn-	=	=	-
402	<i>Pennisetum purpureum</i>	3	Mn-	-	=	-
406	<i>Imperata cylindrica</i> var. <i>africana</i>	15	=	- -	=	-

+ : high, =: adequate, -: deficient,

- - acutely deficient, ref. Appendix B for definitions

Groups 7, 8, 9 and 10 will be considered together as they have numerous species in common and because they occur under very similar conditions.

These communities occur on "B" soils (see section D (i)).

The ranges of soils conditions for each group are very similar.

The following table is based on the data of the individual sites and summarises the differences between the conditions of each group.

Table 20.

Group	Dominant	Years post-cultivation	Geographic-climatic localisation
7	<i>Imperata cylindrica</i> var. <i>africana</i>	2 - 6	widespread
8	<i>Hyparrhenia dissoluta</i>	5 - 20 +	north-dry
9	<i>Hyparrhenia filipendula</i>	5 - 20 +	widespread
10	(sites 387, 394) <i>Panicum maximum</i> .	3 - 10	South-wet
	(site 409) <i>Cymbopogon afronardus</i>	5	South-wet
	(site 414) <i>Brachieria platynota</i> - <i>Setaria trinervia</i>	5	South-wet
	(sites 381, 382) <i>Hyparrhenia filipendula</i> - <i>Loudetia arundinacea</i> .	20 +	South-wet
	(sites 317, 365, 382) <i>Loudetia arundinacea</i> .	not cultivated	widespread

It has already been noted that the communities of groups 7 and 9 are similar and that they occur under similar conditions. Table 20 shows that both groups are widespread. Communities of the two groups occur close together - sites 371, 381, ref. Appendix I. We may conclude that they exist under similar climatic conditions. Furthermore, these sites are frequently

close to settlements where they are regularly grazed, or cut for thatching. Fire, therefore, is not likely to be critical.

The only basic difference between the two groups is the length of the period post cultivation. Notes were made at certain sites (329, 337) of possible successions based on observations of the species growing on recently abandoned fields, and local reports. The difference in the periods post cultivation confirms the probability of the second half of the succession: open community of annual and perennial grass → Imperata cylindrica var. africana Wooded Grassland → Hyparrhenia filipendula Wooded Grassland.

The Hyparrhenia dissoluta communities occur under drier conditions. However, the differences between communities of groups 8 and 9 are very slight. Hyparrhenia dissoluta occurs in all but one of the Hyparrhenia filipendula communities and is abundant in most of them. Similarly, Hyparrhenia filipendula is an important member of the Hyparrhenia dissoluta communities. These two groups are probably no more than wetter and drier tones of a single type.

The communities dominated by Panicum maximum, Cymbopogon afronardus, Brachiaria platynota - Setaria trinervia, and Hyparrhenia filipendula - Loudetia arundinacea suggest the occurrence of other post cultivation successions in the south.

The three Loudetia arundinacea communities (sites 317, 365, 382) have been included for comparison. They occur on "B" soils which apparently have not been cultivated in living

memory.

It is to be remembered that these successions are conditioned by fire, and that there would be a considerable increase in thicket if burning were stopped. Eventually these sites would probably support thicket similar to the larger anthill thickets.

(7) *Imperata cylindrica* var. *africana* post-cultivation
Grasslands and Wooded Grasslands

The communities of this group are grasslands and scattered tree grasslands with from 5 - 20% woody cover of deciduous species, from 6 to 30 ft. high.

Acacia seyal var. *multijuga*, *Combretum binderanum*,
Gymnosporia senegalensis and *Piliostigma thonningii* are usually present.

The cover of *Imperata*, though high, is not dense, and there is usually much bare ground between shoots. The following herbaceous species occur in the majority of these communities: *Acalypha villicaulis*, *Brachiaria brizantha*,
Digitaria velutina, *Eragrostis tenuifolia*, *Helichrysum undatum*,
Hyparrhenia filipendula, *Imperata cylindrica* var. *africana*,
Panicum maximum, *Pennisetum polystachyon*, *Perotis indica*,
Rhynchelytrum repens *Setaria sphacelata*.

(8) *Hyparrhenia dissoluta* post-cultivation
Grasslands and Wooded Grasslands.

These are grasslands or scattered tree grasslands with from 1 - 15% woody cover of deciduous species

from 6 to 45 ft. high.

The following species are usually present: woody species - Acacia hebecladoides; herbaceous species - Brachiaria brizantha, B. kotschyana, Chloris gayana, Eragrostis chalcantha, Hyparrhenia dissoluta, H. filipendula, Murdannia simplex, Sporobolus festivus.

(9) Hyparrhenia filipendula post-cultivation Grasslands and Wooded Grasslands.

Grasslands and scattered tree grasslands with from 4 to 25% woody cover of deciduous species from 5 to 45 feet high.

The following species are usually present: (woody species) Acacia seyal var. multijuga, Bridelia scleroneuroides, Combretum binderanum, Gymnosporia senegalensis, Hymenocardia acida, Piliostigma thonningii, Stereospermum kunthianum. (Herbaceous species) Acalypha villicaulis, Berkheya spekeana, Brachiaria brizantha, Cyanotis hirsuta, Digitaria diagonalis, Eragrostis chalcantha, Hyparrhenia dissoluta, H. filipendula, Panicum maximum.

Cover abundance assessments, descriptions of the communities of each group and their habitats are given in Appendix A.

(11) Cyperus-rich Themeda triandra - Sorghum rigidifolium Grasslands.

These communities are mostly grasslands, however 3 of them (sites 316, 358 and 359) have woody covers of about 10%

and thus qualify as wooded grasslands.

Woody covers are usually very small and consist of deciduous trees from 6 to 25 ft. high. Piliostigma thonningii is the commonest woody species, yet it occurs in less than half of these communities. Acacia spp. are a noticeable element.

The main grass layer varies from 3 to 5 feet high depending on the dominant species and the time of sampling. The subordinate species exhibit individual growth and do not form additional layers. Some of them are present with the dominant species in the main layer; the bulk of them occur diffusely throughout the community.

Cyperus diloloensis, Sorghum rigidifolium and Themeda triandra are present in nearly all of these communities.

The following species are often present: Andropogon dummeri, A. eucomus, Brachiaria soluta, Cyperus denudatus, Fimbristylis diphylla, Hyparrhenia filipendula, Murdannia simplex, Pycnus nigricans, Setaria sphacelata.

These communities occur on dark grey fine sandy loams over grey fine sandy clay loams and fine sandy clays, in the centres of large valleys in areas of higher rainfall. There is some aggregation into crumbs in the topsoils but the subsoils are structureless and are poorly aerated and drained. The sites examined are usually under water for about two months each year. Rooting is abundant in the top 4 - 6 inches; very rare below 2 ft.

pH varies from 5.4 to 6.58 in the topsoil and from 4.4 to 6.3 in the subsoil. Bases are adequate. Phosphate is adequate in the topsoil but acutely deficient below. Topsoil carbon is abundant, subsoil deficient. Nitrogen is on the borderline of deficiency.

The factors controlling the distribution of group 11 will be discussed when groups 12 and 13 have been described.

The communities in group 11 have been classified according to their dominant species (see table in Appendix A). Only two of the subgroups are distinguishable by the presence of differential species. Comparison of the lists of constant species shows that the sub-groups have much in common.

a. Sites 367, 369, 379.

Dominant: Andropogon eucomus.

Differential: Cyperus phaeorrhizos, Digitaria uniglumis var major, Panicum dregeanum.

Constant: Brachiaria soluta, Cyperus diloloensis, Hyparrhenia filipendula, H. nyassae, Setaria sphacelata, Sorghum rigidifolium, Themeda triandra, Vernonia schweinfurthia.

Physiognomy: Grassland.

b. Sites 316, 373, 390, 412.

Dominant: Themeda triandra.

Differential: nil.

Constant: Piliostigma thonningii, Brachiaria soluta, Cyperus diloloensis, Digitaria maitlandii, Eulophia subalata, Hyparrhenia filipendula, Murdannia simplex, Pycereus nigricans, Rhynchospora brownii, Setaria sphacelata, Themeda triandra, Vernonia schweinfurthia.

Physiognomy: Grassland and Wooded Grassland.

c. Sites 399, 400, 403, 407.

Dominant: Loudetia kagerensis.

Differential: nil.

Constant: Andropogon dummeri, A. eucomus, Brachiaria soluta, Cyperus diloloensis, Digitaria maitlandii, Hyparrhenia filipendula, Sorghum rigidifolium, Themeda triandra.

Physiognomy: Grassland.

d. Sites 356, 358, 385, 393, 398.

Dominant: Sorghum rigidifolium.

Differential: nil.

Constant: Brachiaria soluta, Cyperus denudatus, C. diloloensis, Hyparrhenia filipendula, Imperata cylindrica var. africana, Sorghum rigidifolium, Themeda triandra.

Physiognomy: Grassland and Wooded Grassland.

e. Sites: 324, 388, 457, 459.

Dominants: Sorghum rigidifolium and Leersia hexandra.

Differential: Leersia hexandra.

Constant: Commelina subalata, Cyperus denudatus, C. diloloensis, Digitaria diagonalis, Fimbristylis diphylla, Justicia sp. 1995, Sorghum rigidifolium, Themeda triandra.

Physiognomy: Grassland and Wooded Grassland.

The communities in each sub-group were sampled at various times in the year. The differences between the sub-groups therefore are not due to seasonal effects. Communities of the different sub-groups exist under very similar soil conditions. A range of topsoil pH from 5.9 to 6.58 (compared with 5.4 - 5.98) and the regular occurrence of sodium ions in the profile distinguish 11c from the other sub-groups. However, the

subsoil reactions are indistinguishable and sodium ions occur in 5 out of 14 of the other profiles. (Sites 457 and 459 were not sampled for analysis). The only other difference between the sub-groups is their distribution:

- a West
- b South and West
- c South
- d South and West
- e South and East.

This is similar to the distribution of the Southern Evergreen Thickets. In the absence of other differences this indicates that variations in climate may be critical (ref. map in Appendix I).

More precise data on the composition of these communities and their climates would enable the significance of the sub-groups to be assessed.

(12) *Themeda triandra* Grasslands and Wooded Grasslands.

Grasslands and wooded grasslands, woody cover up to 25% consisting of deciduous species from 6 to 30 feet high. Acacia spp., Combretum binderanum, C. ghasalense, and Piliostigma thonningii occur in a number of these communities but none of them is constant.

The height of the main grass layer varies from 3 to 4 feet. Individuals of other heights do not form well marked layers. Themeda triandra is the dominant and the only constant species. The communities in this group have little

in common. They are however, distinct from the communities in groups 11 and 13 and it is useful to group them together for making comparisons.

These Themeda triandra communities occur on dark grey to very dark grey loamy fine sands to clays over grey-brown to very dark grey fine sandy clay loams to clays. These soils are found in the centres of large valleys in areas of lower rainfall. There is some aggregation into crumbs in the topsoils but the subsoils are generally structureless, and poorly aerated and drained. The soils are seasonally waterlogged to the surface, standing water occurs only occasionally, and then is restricted to small patches. Rooting is abundant in the top 4 - 6 inches; very rare below 2 ft.

pH varies from 5.22 to 5.9 in the topsoil and from 4.84 to 6.0 in the subsoil. Bases are adequate. Phosphate is mostly adequate in the topsoil and acutely deficient below, as in the sites of group 11. Topsoil carbon is adequate, subsoil deficient. Nitrogen is on the borderline of deficiency. The factors controlling the distribution of group 12, as a whole, will be discussed when group 13 has been described.

(12a) Sites 300 - 304 form a well defined group of communities. Furthermore, their soils are distinct from the other Themeda communities, and they occur localised in the north. Their topsoils are heavier and more acid than the others, and they contain less phosphate. Acacia seyal var. fistula, Combretum bindéranum, O. ghasalense, Bothriochloa glabra, Cymbopogon

excavatus, Hyparrhenia nyassae, Panicum maximum, Sorghum rigidifolium, Setaria atrata, Sporobolus pyramidalis and Themeda triandra are constant. Five of these species do not occur on any of the other sites in group 12.

These sites are within half a mile of each other and are really samples from different parts of the same community. However, other valleys in the same area have similar soils and vegetation. This area (lake fringe) receives appreciably less rainfall than the bulk of the North Mengo Lowlands. The existence of this sub-group appears to be related to conditions of severe physiological and physical drought due to low rainfall and the high percentage of clay throughout these profiles.

The other communities have been classified by their composition:

- b sites 370, 378.
- c sites 377, 420, 426, 435.
- d sites 466, 468.

Additional data would be necessary to determine the significance of these groups.

Site 378 however, is of particular interest as it is an example of a "B" soil occurring in a valley bottom, under conditions of seasonal waterlogging and with vegetation generally associated with "C" soils. The effects of seasonal waterlogging thus appear to be greater than those associated with the chemical properties of these two soil types.

(13) *Hyparrhenia* spp. Wooded Grasslands.

The majority of these communities are wooded grasslands; but 4 of them (sites 366, 389, 437, 443) have rather lower covers of woody species and qualify as grasslands. The woody cover is generally about 10% and consists of deciduous

species from 6 to 40 feet high. *Acacia hebecladoides*, *Combretum binderanum*, *C. ghasalense*, and *Piliostigma thonningii* are present in the majority of these communities but none of them is constant.

The heights of the main grass layer vary from 3 to 5 ft. owing to differences in the dominant species and the season of sampling. *Hyparrhenia filipendula* is the only constant species and is dominant in most of the communities. The following species are also present on a number of the sites: *Asparagus pauli-guilelmi*, *Brachiaria brizantha*, *B. soluta*, *Hyparrhenia dissoluta*, *Loudetia simplex*, *Microchloa kunthii*, *Murdannia simplex*, *Setaria sphacelata*, *Sporobolus festivus*, *Themeda triandra*.

Other dominant species are *Hyparrhenia collina*, *H. dissoluta*, *H. nyassae*, *Loudetia simplex*, *Setaria sphacelata*, and *Themeda triandra*.

Attempts were made to distinguish significant sub-groups on the basis of the dominant species and by considering groups of species. The sub-groups so defined had little individuality and no correlation was observed between them and their habitats. It can be seen on the 1:50,000 maps how communities dominated

by different species grade into each other. Thus site 328 (dominant: Hyparrhenia nyassae), site 333 (dominant: H. filipendula) and site 349 (dominant: Loudetia simplex) are located in a continuous area of reconnaissance type 18. A certain amount of variation is due to seasonal effects. Site 351 was sampled in March, about a month after it had been burnt. Previous to burning it supported a dense cover of Hyparrhenia dissoluta. However, the differences between sites 328, 333 and 349 cannot be attributed to seasonal effects as they were sampled within 10 days of each other after similar treatment previously.

Thus the communities in this group distinguished by different dominant species have much in common, occur over similar ranges of conditions and "grade into" each other. This is therefore considered to be a real group despite the variations within it.

These communities occur on dark grey fine sands over grey-brown fine sandy clay loams to clays. These soils are found in the smaller valleys and at valley sides, mostly in areas of lower rainfall. The topsoils have moderately well-developed crumb structures. Seasonal waterlogging rarely extends to the topsoil; standing water was observed on only one of these sites (320). Rooting is abundant at the surface and common to below 3 ft. depth.

The pH of the topsoils vary from 5.34 to 6.04; the subsoils from 4.8 to 7.84. Bases are adequate. Phosphate is

deficient in the topsoil, acutely deficient below. Topsoil carbon is adequate, subsoil deficient. Nitrogen is deficient. Three out of the eleven profiles analysed contained sodium ions.

The outstanding difference between the conditions of groups 11, 12 and 13 is in their degree of waterlogging:

11. Inundated for about 2 months each year.
12. Seasonally waterlogged throughout the profile but only occasionally inundated.
13. Seasonally waterlogged in the lower horizons only. Rarely inundated.

These degrees of waterlogging are correlated with slight differences in texture and structure. They are also associated with the topographic and geographic distribution of the groups:

11. In the centres of large valleys in areas of higher rainfall.
12. In the centres of large valleys in areas of lower rainfall; occasionally in smaller valleys in areas of higher rainfall.
13. In the smaller valleys (valley heads) and at the sides of valleys, mostly in areas of lower rainfall.

It is therefore possible that minor differences in climate are responsible for the differences between the groups. A comparison of the uniformities of groups of communities from areas of similar rainfall with those of groups 11, 12 and 13 showed the importance of topographic, textural, and structural differences, and indicated that waterlogging is the master factor.

14. Swamp.

15. Mosaic of Wooded Grassland Communities on Granite Hills.

Group 14 is restricted to permanently waterlogged "E" soils; furthermore all the vegetation growing under these conditions in the North Mingo Lowlands belongs to this group.

Group 15 is a mosaic of wooded grassland communities similar to those of groups 4 and 5. It is restricted to the granite hills around Nakasongola. Distribution of communities within the mosaic is correlated with soil depth.

Cover abundance estimations, community and site descriptions of communities in these groups are included at the end of Appendix A.

(iii) An Assessment of the 1: 50,000 vegetation maps.

The following table was drawn up by listing the numbers of the sites located within areas of the different types on the 1: 50,000 maps (Appendix H). The third column refers to the group or groups in which these sites are classified in Appendix A.

Table 21.

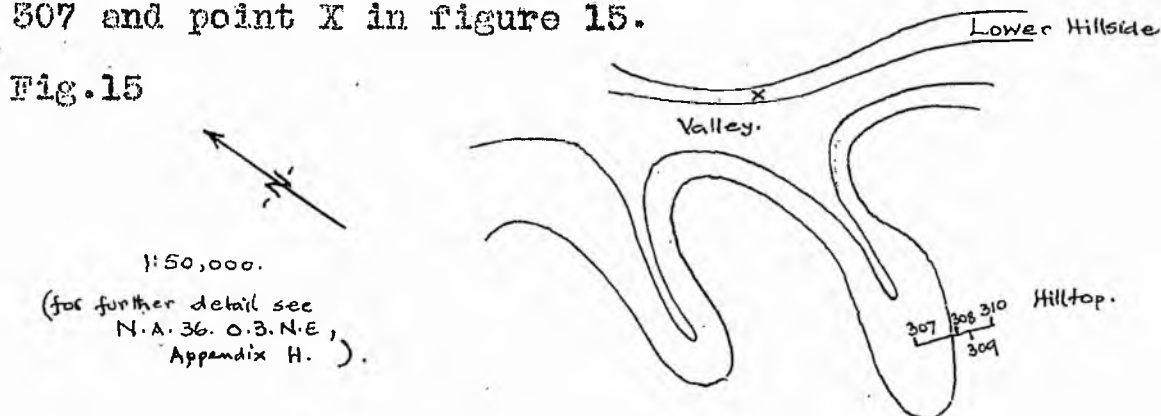
Reconnaissance Type No.	Sites Number	Appendix A Group No.
1	362a	}
2a [#]	339b, 351b, 352b, 353b, 354b 363b	
2b	362b	5
3	343, 346.	}
4a	345	
6	310, (331), 336, 339a, 451	4
8	332, 334, 348, (350), 354a	}
9	330, 340	
10	456	15
13	329, 337, 355	7
	352, 363a	8
	341, 364 (308), (309), (335), (342)	9
14	(307), 338, (344), 347, (353a)	}
15	305, (306), 351	
18	328, 333, 349	}
19	300, 301, 302, 303, 304	

#

2a includes anthill thickets occurring as inclusions within other types, classified with 2a in the reconnaissance. The circled numbers are exceptions and will be dealt with first.

Sites 331 and 350 have been classified in group 6: Miscellaneous Post-Cultivation Communities on "A" soils. They are regarded as stages in successions towards vegetation of reconnaissance types 6 to 8.

Sites 307, 308, 309, 335, 344 and 353a represent errors in air photo interpretation due chiefly to over-reliance on stereoscopic interpretation. Examination of the photographs with a hand lens would concentrate attention on variations in patterns and tone. Thus it would be easier to relate site 307 and point X in figure 15.



- showing the position of site 307 in an upper valley on "B" soil, 308 and 309 on the hillside on "A" soils. The mapping around the heads of a number of other valleys was checked and found to be correct.

Sites 306 and 342, mapped as Hyparrhenia dissoluta seasonal swamp grassland and scattered small thickets in Hyparrhenia spp. grassland are, in fact, closely related types. The differences between the sites and the mapped units may be due to grading between different communities noted earlier in this discussion.

Thus, 8 out of 51 sites are located in anomalous types.

This is a measure of (a) inaccuracies in the mapping (b) the indefiniteness of certain of the types.

The correlation of the classification of the remaining sites (Appendix A) and their distribution in areas of the various reconnaissance types indicates that certain of the reconnaissance types are not significantly different and that they should be merged.

Reconnaissance Types	Appendix A Group
1 and 2a	1
3 and 4a	2
5 and 6	4
2b, 4b, 8 and 9	5
14, 15 and 18	13

Other conclusions from table 21 are:

- (a) The Loudetia arundinacea and Hyparrhenia filipendula Wooded Grasslands (groups 4 and 5) have been distinguished and mapped successfully.
- (b) Communities of the two thicket groups found in the reconnaissance area have been distinguished and mapped successfully.
- (c) Reconnaissance type 13 is really a mosaic of post-cultivation communities.
- (d) Type 19 is a well-defined unit.
- (e) The 1: 50,000 maps could be revised by eliminating the boundaries between types 1 and 2a; 3 and 4a; 5 and 6; 2b; 4b, 8 and 9; 14, 15 and 18, and by renaming type 13 "Mosaic of Post-Cultivation Communities on "B" Soils".

(iv) Comparison of the Reconnaissance Area with the rest of the North Mingo Lowlands.

- (a) The general pattern of topographic distribution of

vegetation and soil types is the same throughout the North Mingo Lowlands.

(b) The mean annual rainfall is higher and the mean length of the dry season is shorter in the south. However, the rainfalls and the lengths of the seasons are very variable, and all parts of the North Mingo Lowlands have a long dry season.

(c) The majority of the communities recognised in the reconnaissance area occur throughout the North Mingo Lowlands. A few communities have limited distributions and their occurrence is correlated with differences in the climate.

B. Conclusions.

(i) Major differences between the compositions of the thickets in groups 1, 2 and 3 can be related to climate and the fire factor in conjunction with the occurrence of ironstone pavement fire-breaks. The widespread occurrence of anthill thickets is also considered to be a function of the fire factor. Differences in the size and minor differences in the composition of the anthill thickets found in the south can be attributed to a combination of the drainage and fire factors associated with the occurrence of seasonally waterlogged valleys.

(ii) The wooded grasslands in groups 4 and 5 are fire-tolerant communities which grow in place of thickets of

groups 1, 2, and 3. The site data support the conclusion in the Reconnaissance Discussion (IID) that the Loudetia arundinacea and Hyparrhenia filipendula communities are controlled by different intensities of burning. It is suggested that the Loudetia arundinacea communities owe their origin to calcium deficiency in the soil and that they are maintained, and spread, by the intense fires which are a direct result of the growth of the dominant species.

(iii) The communities in groups 6, 7, 8, 9 and 10 are the various stages of a number of post-cultivation successions. The following is considered to be a typical succession: open community of annual and perennial grasses → Imperata cylindrica var. africana (group 7) → Hyparrhenia filipendula (group 9).

(iv) Waterlogging due to the interaction of soil texture and structure, the topography, and the rainfall, is the master factor controlling the distributions of communities in groups 11, 12, and 13.

(v) Communities of the various groups defined are easily recognisable in the field and occur under distinct range of habitat conditions.

(vi) Vegetation of the type found in the North Mingo Lowlands can be mapped from 1:30,000 vertical aerial photographs.

(vii) The soils over the bulk of the North Mengo Lowlands belong to one or other of the types "A", "B" and "C". The existence of these types is confirmed by the field data and by the analyses. Further information is required on the other soils.

(viii) Soils "A", "B", and "C" occur in catenas throughout the North Mengo Lowlands.

(ix) Since the relationships between soils and vegetation are known, the distributions of soil types in the reconnaissance area can be deduced from the 1:50,000 vegetation maps.

IV. SUMMARY

The vegetation of an area of 6000 sq.miles was studied in two stages: 1. a reconnaissance survey of a typical part to obtain general information on the distributions of the communities; 2. detailed investigations of a large number of small areas to obtain data on the interrelations of communities and habitats.

The following procedure for mapping vegetation from aerial photographs is described in detail:

1. Stereoscopic interpretation of the aerial photographs.
2. Assembly of the detail to produce semi-controlled mosaics of air-photo patterns.
3. Planning and execution of traverses to sample the vegetation represented by each air-photo pattern.

This procedure was used in the Reconnaissance Survey and maps on the scale 1:50,000 were produced of the vegetation of 800 square miles. It was concluded that the distribution of vegetation types within the reconnaissance area is controlled by topography through its effects on soil type and drainage, and by burning and cutting.

The Detailed Investigation was based on the phytosociological and ecological data of 174 sites located throughout the North Mingo Lowlands. It is shown that the distributions of the different communities found in this region are determined by one or more of the following factors: fire and the occurrence of fire breaks; soil type, nutrient

status, texture, structure, and drainage; cutting and cultivation; climate; and the degree of uniformity imposed on the environment by the dominant species or the vegetation as a whole. While certain factors control the distribution of each community no one factor or group of factors is responsible for the distributions of all the communities in the North Mingo Lowlands.

The distributions of soil types in catenary complexes were noted during the Reconnaissance and were later seen to extend over the whole of the North Mingo Lowlands. The other data of the Detailed Investigation also indicate that the reconnaissance area is typical of the whole region.

Comparisons of the data of sites within each of the types mapped during the reconnaissance shows that some of those types are not significantly different either in respect of their communities or their habitats; and also that certain areas have been mapped incorrectly. However, it is indicated that the 1:50,000 maps could be revised by merging areas of the overlapping types. Modifications to the procedure are suggested to attain greater accuracy.

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VI. APPENDICES.

Appendix A. Site Data.

The sites are arranged in the groups discussed in the Detailed Investigation.

The data on the compositions of communities in groups 1, 2, 3, 4, 5, 7, 8, 9, 11, 12, and 13 are presented in tables at the beginnings of those groups. The data on the compositions of communities in groups 6, 10, 14, and 15, and unclassified sites, are presented separately.

The other data are presented site by site.

The abbreviations used in this Appendix are explained in the Section dealing with the methods of the Detailed Investigation (pp.102 & 103).

The soil texture ratings are based on field observations and are confirmed by the mechanical analyses of selected samples (Appendix B).

The dates refer to site description and soil sampling. The assessments of cover-abundance and the descriptions of the communities were made within a day or two of these dates unless otherwise stated.

Group 1	:	Page 169	Group 9	:	Page 283
" 2	:	" 179	" 10	:	" 296
" 3	:	" 183	" 11	:	" 315
" 4	:	" 208	" 12	:	" 336
" 5	:	" 229	" 13	:	" 350
" 6	:	" 247	" 14	:	" 365
" 7	:	" 270	" 15	:	" 372
" 8	:	" 277	Unclassified Sites:		Page 375.

Group 1. Northern Deciduous Thickets.

	339b	351b	352b	353b	354b	362a	363b	453b	455b
Acacia campylacantha				1					
A. senegal	1								
A. seyal v. multijuga	2			1	1	1	1		
A. pennata		1		3	2	3	1		
Acalypha bipartita					1	2			2
Albizia malacophylla						1			
A. zygia				1	1			1	1
Allophylus africanus		2	2	2	2	2	1	2	2
Aloe sp. "A"	2					2			
Annona chrysophylla	1								
Antidesma melocarpum	1								
A. venosum			1		1				
Bauhinia fassoglensis				1	1				
Boscia dawei							1		
Bridelia brideliifolia	2								
B. scleroneuroides	1	2	2	1	1	2	1	2	3
Canthium lactescens						2	1		
Capparis eleagnoides						1	2		
C. rothii	1								
C. tomentosa						X			
Carissa edulis					2				2
Cissus rotundifolius		1	1	2	1		2	1	2
Clematis hirsuta						X	1		
Combretum binderanum	1			1					
C. gucinzii	1		1	1	1		E		
Commelina benghalensis							E		
Crotalaria sp.						1			
Cussonia arborea	1							2	2
Cyanotis joecunda						1			
Dichrostachys glomerata						1			
Duranta repens			2						
Euclea sp. 2072	2								
Euphorbia candelabrum	2	2			2	2	1		
E. tirucalli				2		1			
Fagara chalybea	2	1	2	3			2		
F. stuhlmannii	2		1	1	1		1		
Fagaropsis angolensis					1				
Gardenia jovis-tonantis	1								
Grewia betulifolia							X		
G. mollis		2	2	3	2		2	2	2
G. trichocarpa							X		
Gynema sylvestre			1						
Gymnosporia buxifolia									1
Gymnosporia sp. 2175					1				
Haplocoelum foliolosum					1				
Harrisonia abyssinica	1	2	2	3	2	2		2	2
Hibiscus sp.						1			
Hoslundia opposita							E		
Ipomoea grantii		1		1	1	X			
Jasminum emini		2	3	2	2	2	X		
Landolphia florida						1	X		
Lanea kerstingii									1
L. stuhlmannii		2				X			
Lantana salvifolia									1
Lonchocarpus laxiflorus	1								
Maerua angolensis						1	X		
Maerua sp.	1	1			1				
Phyllanthus guineensis						1	1		
Pseudarthria hookeri								1	1
Rhoicissus erythroides			1			1		1	2
Rhus vulgaris				3	1	1		1	1
Sansevieria dawei						X			
Setaria incrassata								1	
Sida alba									1
Solanum incanum								1	1
Sporobolus festivus						X			
Steganotaenia araliacea	1			1	1				
Sterculia setigera								2	1
Stereospermum kunthianum	1								1
Strychnos innocua	1								
S. wakefieldii				1	1	2			
Tamarindis indica	1		1				1		
Tarenna graveolens				1					
Teclea nobilis	2		3	2	3				
T. trichocarpa	1		1	2	3	2			
Tricalysia niarnianensis				2		1			
Vernonia brachycalyx				3	2				
Vigna sp.						2			
Vitex donlana				1					
Ziziphus abyssinica	1	2	1		1	1		1	1
Z. mauritiana		1				X		2	2
Z. pubescens			2						

Site 339b. Sampled on 25.1.56. Map Ref. 323700.011950.

Location: 2.50 miles west of Kaswama, North Mingo.

Position: upper hillside. Elevation: 3560 ft. Slope 2° Aspect E.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning, annual/biennial edge only.

Erosion effect: eluvial. Grazing: effect negligible.

Cultivation: not recently. Wildlife: small game, little effect.

- for soil profile see site 339a page 215 Type: A.

Vegetation.

Area sampled	800 sq.yards.	Trees*	10-20'/10%
Date	see above	Shrubs*	5-20'/100%
Number of species	26	Herbs 1*	edge only
Physiognomy	Thicket	" 2	edge only
Included in	339a (S.T.G.)	" 3	10%
		" 4	-

Notes: This community covers about 40% of the combined areas of 339a and 339b. There is no observable difference between the soils of the two communities except near anthills within 339b.

* The height (in feet) and percentage aerial cover of Trees Shrubs and Herbs 1 are given. (Herbs 1 being over 3 ft. high.) Only the percentage aerial covers of Herbs 2, 3 & 4 are given as they are defined by their heights:

Herbs 2	:	1½ to 3 ft. high.
" 3	:	3 inches to 1½ ft. high.
" 4	:	prostrate.

Site 351b. Sampled on 21.5.56. Map ref. 322530 012145.

Location: mile 4.60 Nakasongola - Nabuswera, North Mingo.

Position: anthill in valley. Elevation: 3530 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free Burning: annual, edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile

Type: Anthill on G.

Layer, Depth & Clarity	0 - 9" fs	9 - 84"
Colour and Disposal	Grey-brown U	Grey-brown U
Texture	FSCL	FSCL
Min. Skeleton		
Structure	Crumb	Crumb
Visible porosity	++ small	++small
Handling consistency	fluffy	friable
Organic matter	4	2 - 1
Roots	4	2 - 1
Water conditions	D	M
Sec. Chem. & Minerals		
Fauna		

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	400 sq.yards	Trees	20'/20%
Number of species	14	Shrubs	10-15'/60%
Physiognomy	Thicket	Herbs	1
Included in	351a (S.T.G.)		2
			3
			4

Notes. Severely burnt, thickets small, barely covering anthills.

Site 352b. Sampled on 21.3.56. Map ref. 322520.012145.

Location: mile 4.91 Nakasongola - Nabuswera, North Mengo.

Position: anthill at valley side. Elevation: 3550 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial, edge only.

Erosion effect: complex. Grazing effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile,

Type: Anthill on B.

Layer, Depth & Clarity	0 - 11" fs	11 - 84"
Colour and Disposal	Grey-brown U	Yellow-brown U
Texture	FSCL	FSCL
Min. Skeleton		
Structure	crumb	crumb
Visible porosity	++ small	++ small
Handling consistency	fluffy	friable
Organic matter	4	3 - 1
Roots	4	3 - 1
Water conditions	D	M
Sec. Chem. & Minerals		
Fauna		

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	400 sq. yards	Trees	30' / 20%
Number of species	18	Shrubs	15-20' / 100%
Physiognomy	Thicket	Herbs	1
Included in	352a (S.T.G.)		2
			3
			4

Notes: Anthills large, thickets up to 20 yards diameter & dense.

Site 353b. Sampled on 21.2.56. Map ref: 322505.012145.

Location: mile 5.50 Nakasongola - Nabuswera, North Mengo.

Position: anthill at hilltop. Elevation: 3600 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial, edge only.

Erosion effect: L complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile.

Type: Anthill on A.

Layer, Depth & Clarity	0 - 11" fs	11 - 60" +
Colour and Disposal	dk. red-brown U	Red-brown U
Texture	FSL	FSCL
Min. Skeleton		
Structure	crumb	crumb
Visible porosity	+++ small	+++ small
Handling consistency	friable	friable
Organic matter	4	2 - 1
Roots	4	3 - 1
Sec. Chem. & Minerals		
Water conditions	D	M
Fauna		

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	400 sq.yards.	Trees	20 - 35'/20%
Number of species	28	Shrubs	3 - 15'/90%
Physiognomy	Thicket	Herbs	1
Included in	353a (S.T.G.)		2
			3
			4

Notes. Intermediate zone between 353b and 353a; Acalypha bipartita, A. villicaulis, Chloris gayana, Panicum maximum and tree species listed in this type.

Site 354b. Sampled on 21.2.56. Map ref: 322100.012615.

Location: mile 14.10 Nakasongola - Nabuswera, North Mengo.

Position: anthill at hilltop. Elevation: 3600 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial edge only.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated: Wild life: small game, little effect.

Soil Profile.

Type: Anthill on A.

Layer, depth & clarity	0 - 9" f.s.	9 - 60" +
Colour and disposal	dk. red-brown U	Red-brown U
Texture	FSL	FSCL
Min. skeleton		
Structure	Crumb	Crumb
Visible porosity	++ small	++ small
Handling consistency	friable	friable
Organic matter	3	1 - 0
Roots	3 - 4	2 - 1
Sec. Chem. and Min.		
Water conditions	D	M
Fauna		

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	400 sq. yards	Trees	10-30'/20%
Number of species	29	Shrubs	4-20'/90%
Physiognomy	Thicket	Herbs	1
Included in	354a (S.T.G.)		2
			3
			4

Site 362a. Sampled on 23.2.56. Map ref: 322420.013045.

Location: 8.29 miles west of Iwampanga, North Mungo.

Position: hilltop. Elevation: 3550 ft. Slope - Aspect -

Macrorelief: gently undulating. Microrelief: anthills.

Drainage free to ironstone, then lateral. Burning: light,

sparse grass. Erosion effect: eluvial. Grazing: effect

negligible. Shifting cultivation, years ago. Wild life:

small game, little effect.

Soil Profile

Type: A

Layer, depth & clarity	0-23" d.	23-37 fs	37+
Colour and disposal	5 YR 4.6	5 YR 4.8	5 YR 5.6
Texture	Yellow-red U FSCL	Yellow-red U LFS	Yellow-red U
Min. skeleton			
Structure	Crumb	granule	massive
Visible porosity	++ small	+ small	channels
Handling consistency	soft friable	powders	rocky
Organic matter	3	1	-
Roots	4	2	1
Water conditions	M	D	D
Sec. Chem. and Min.		pea iron	vesicular sheet iron: stone.

Fauna

Ants

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	400 sq.yards	Trees	20-30'/edge
Number of species	34	Shrubs	6-20'/80%
Physiognomy	Thicket	Herbs	1 sparse at edge
Inclusions	362b (S.T.G.)		2 " " "
			3 20%
			4

Site 363b. Sampled on 23.2.56. Map ref: 322405.013050.

Location: 8.39 miles west of Lwampanga, North Mengo.

Position: upper hillside. Elevation: 3520 ft. Slope 3°.

Aspect WSW. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: effects edge only.

Erosion effect: eluvial. Grazing: effect negligible.

Not cultivated. Wildlife: small game, little effect.

Soil Profile.

Type: A

Layer, depth & clarity	0-10" fs.	10-60"+
Colour and disposal	Red-brown U	red-brown U
Texture	FSL	FSL
Min. skeleton		
Structure	crumb	crumb
Visible porosity	+++ small	+++ small
Handling consistency	friable	friable
Organic matter	3	2-0
Roots	3	2-1
Water conditions	D	M
Sec. Chem. & Min		
Fauna		

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	400 sq. yards.	Trees	edge
Number of species	20	Shrubs	5-20' / 90%
Physiognomy	Thicket	Shrubs 1	edge
Included in	363a (S.T.G.)	2	edge
		3	20%
		4	

Notes:

Site 453b. Sampled on 10.7.56. Map ref: 320315.013210.

Location: 0.80 mile ESE Kafu Bridge, North Mengo.

Position: anthill on plain. Elevation: 3400 ft.

Macrorelief: gently undulating. Microrelief: anthills.

Drainage: free. Burning: annual, edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile.

Type: Anthill on B.

Layer, Depth & clarity	0-5" fs	5-60" +
Colour and disposal	Grey-brown U	yellow-brown U
Texture	L	SL
Min. skeleton		
Structure	crumb	crumb
Visible porosity	++ small	++ small
Handling consistency	friable	friable
Organic matter	3	2-0
Roots	3	2-1
Water conditions	D	M
Sec. Chem. & Min.		
Fauna		

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	200 sq. yards	Trees	
Number of species	15	Shrubs	6-25' / 50%
Physiognomy	Thicket	Herbs	1
Included in	453a (G)		2 30%
			3 10%
			4

Site 455b. Sampled on 10.7.56. Map ref: 520435.013150.

Location: 2.00 miles ESE Kafu Bridge, North Mengo.

Position: anthill on plain. Elevation: 3400 ft.

Macrorelief: gently undulating. Microrelief: anthills.

Drainage: free. Burning: annual, edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile.

Type: Anthill on B.

Layer, depth & clarity	0-8" fs	0-60" +
Colour and disposal	grey-brown U	yellow-brown U
Texture	SL	SL
Min. skeleton		
Structure	crumb	crumb
Visible porosity	+++ small	+++ small
Handling consistency	friable	friable
Organic matter	4	3-0
Roots	4	3-1
Water conditions	D	M
Sec. Chem. & Min.		
Fauna		

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation.

Area sampled	400 sq. yards	Trees	edge
Number of species	21	Shrubs	15'/70%
Physiognomy	Thicket	Herbs	1
Included in	455a (G)		2
			3
			4
			edge

Group 2. Northern Evergreen Thickets	343	345	346
<i>Acacia pennata</i>	3	3	3
<i>Aloe</i> sp. "A"	2	2	2
<i>Asystasia gangetica</i>	1		
<i>Boscia dawei</i>		1	1
<i>Brachiaria brizantha</i>		1	
<i>B. kotschyana</i>	1		
<i>Bridelia brideliifolia</i>		1	2
<i>Canthium lactescens</i>	2	2	1
<i>Capparis eleagnoides</i>		1	
<i>C. erythrocarpa</i>	2	2	2
<i>Cissus rotundifolius</i>	2	2	2
<i>Euclea</i> sp.		2	
<i>Euphorbia candelabrum</i>	2	2	2
<i>E. tirucalli</i>		1	1
<i>Fagaropsis angolensis</i>		1	1
<i>Grewia similis</i>	2	2	2
<i>Haplocoelum foliolosum</i>	2	2	2
<i>Harrisonia abyssinica</i>	2	2	2
<i>Hibiscus</i> sp. 1912	2	1	1
<i>Hippocratea indica</i>	2	2	2
<i>Jasminium eminii</i>			1
<i>Maerua</i> sp.		1	
<i>Mariscus macer</i>			1
<i>M. mollipes</i>			1
<i>Oplismenus burmannii</i>	1	1	
<i>Panicum heterostachyum</i>	2	1	1
<i>Popowia djurensis</i>	1	2	1
<i>Ritcheia duchesnei</i>		1	2
<i>Setaria aequalis</i>	1		
<i>Strychnos wakefieldii</i>	3	3	3
<i>Synadenium grantii</i>	X	1	1
<i>Teclea nobilis</i>	2	3	3
<i>T. trichocarpa</i>	3	3	2
<i>Tricalysia niarniamensis</i>	2	2	2
<i>Vernonia brachycalyx</i>	2	1	1
<i>Asplenium</i> sp. 1923	1		1
<i>Pellaea viridis</i>	1	1	1
<i>Pellaea</i> sp.		1	1
Lichen A spec. 1917	2	1	2
Lichen B spec. 1918	2	1	1
Moss A spec. 1915	2	2	2
Moss B spec. 1916	2	1	1
Moss C spec. 1919	2	2	2
<i>Usnea</i> spec. 1920		2	2

Site 343. Sampled on 27.1.56. Map ref: 322920.012440.

Location: 7.00 miles north of Nakasongola, North Mengo.

Position: hilltop. Elevation: 3630 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: fire-protected by ironstone.

Erosion effect: eluvial. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile.

Type: A

Layer, depth & clarity.	0-4" fs	4-17d	17-36c	36-59 fs	59"+
Colour and Disposal.	5 YR 4.6 yellow- red U	2.5 YR 4.6 red U	2.5 YR 4.8 red U	2.5 YR 4.8 red U	2.5 YR 4.8 red U
Texture.	FSCL	FSCL	FSCL	FSCL	FSCL
Min. skeleton.					
Structure.	crumb	crumb	crumb	crumb	crumb
Visible porosity.	++ small	++ small	++ small	++ small	+ small
Handling Consistency.	friable	friable	friable	friable	crumbly
Organic matter.	4	3	2	1	0
Roots.	4	4	3	2	2
Water conditions.	M	M	M	M	M
Sec. chem. & Min.					Cemented pea iron
Fauna	ants	ants	ants		

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	400 sq.yards.	Trees	
Number of species	30	Shrubs	5-20'/100%
Physiognomy	Thicket	Herbs	1
Inclusions see below:			2 20%
			3 20%
			4

Notes: sparse grassland patches occur within the area of this type on shallow soils over sheet ironstone.

Site: 345. Sampled on 27.1.56. Map ref: 323010.012830.

Location: 10.00 miles north of Nakasongola, North Mungo.

Position: upper hillside. Elevation: 3630 ft. Slope: $2\frac{1}{2}^{\circ}$.

Aspect: S. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: fire-protected by ironstone.

Erosion effect: eluvial. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile

Type: A

Layer, depth & clarity.	0-9" fs	9-18 fs	18-34 s	34-120 +
Colour and Disposal	5 YR 5.4 red-brown U	5 YR 4.6 yellow-red U	5 YR 4.6 yellow-red U	5 YR 4.6 yellow-red U
Texture	FSL	FSL	FSL	FSL (matrix)
Min. skeleton		min. quartz	quartz $\frac{1}{8}$ "	
Structure. Visible porosity.	crumb ++ small	crumb ++ small	massive occ. crack	massive channels
Handling Consistency.	powdery	powdery	friable	rocky
Organic matter.	3	2	1	0
Roots.	4	2	1	dead
Water conditions.	D	D	D	D
Sec. chem. & Min.		pea iron	pea iron 50%	vescicular sheet iron
Fauna	ants	ants		

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	400 sq.yards	Trees	edge
Number of species	37	Shrubs	5-25'/100%
Physiognomy	Thicket	Herbs	1
Inclusions see below:			2 5%
			3 10%
			4 20%

Notes: sparse grassland on shallow soils includes: Aeolanthus heliotropoides, Brachiaria kotschyana, Eragrostis patens, Hyparrhenia filipendula (18"), Mariscus mollipes, Oldenlandia sp., Pennisetum polystachyon, Setaria pallidifusca, Sporobolus pellucidus.

Site: 346. Sampled on 27.1.56. Map ref: 323010.012835.

Location: 10.20 miles north of Nakasongola, North Mingo.

Position: hilltop. Elevation: 3650 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: fire protected by ironstone.

Erosion effect: eluvial. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile

Type: A

Layer, depth & clarity.	0-4" d	4-11 d	11-36 c	36-67 fs	67-84 +
Colour and Disposal.	2.5 YR 3.4 dk.red- brown U	2.5 YR 4.6 red U	2.5 YR 5.6 red U	2.5 YR 5.8 red U	2.5 YR 5.8 red U
Texture	LFS	LFS	FSC	FSC	FSC (matrix)
Min. skeleton Structure Visible porosity.	granule +v.small	granule +v.small	min.quartz crumb +v.small	min.quartz crumb +v.small	40% quartz crumb +v.small
Handling consistency.	powdery	friable	friable	friable	friable
Organic matter	3	3	2	1	
Roots	3	3	2	2	1
Water conditions	D	D	M	M	M
Sec.Chem.& Min.					
Fauna	ants	ants			

Weather conditions prior to sampling: wet, at sampling: dry.

Note: sheet ironstone at variable depth 91-126".

Vegetation

Area sampled	400 sq.yards	Trees	edge
Number of species	36	Shrubs	5-25'/100%
Physiognomy	Thicket	Herbs	1
Inclusions:	sparse grassland ϕ		2
			3 5%
			4 20%

Notes: ϕ on shallow soils over sheet ironstone.

Site: 427. Sampled on 12.5.56. Map ref: 320620.005820.

Location: 11.73 miles Wakyato - Ngoma, North Mengo.

Position: anthill in valley bottom. Elevation: 3560 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile.

Type: Anthill on C.

Layer, depth & clarity	0-9" d	9-17 s	17-26 fs	26-35 d	35-44 fs	44-60+
Colour and Disposal	10YR 4.1 dk.grey U	10YR 4.1 dk.grey U	10 YR 5.1 grey U	10YR 4.1 dk.grey U	10 YR 4.1 dk.grey U	10 YR 4.2 dk.grey- brown U
Texture						
Min. skeleton structure	granule	crumb	crumb	crumb	nut	granule
Visible porosity.	+small	+small	+small	+small		
Handling consistency.	friable	friable	friable	friable	crumbly	crumbly
Organic matter	4	2	2			
Roots	4	3	3	1	1	1
Water conditions	D	D/M	M	D	M	D/M
Sec. chem. & Min.						
Fauna						

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	400 sq.yards.	Trees	25'/20%
Number of species	23	Shrubs	6-20'/100%
Physiognomy	Thicket	Herbs	1
Included in	426 (G.)		2 edge
			3 20%
			4

Notes: trees mainly at edge; wide band round anthill continuous with site 428.

Site: 429. Sampled on 12.5.56. Map ref: 320645.005315.

Location: 11.60 miles Wakyato - Ngoma, North Mingo.

Position: anthill on lower hillside. Elevation: 3580 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile

Type: Anthill on B.

Layer, Depth & clarity	0-5" d	5-21 d	21-44 fs	44-72-
Colour and Disposal	10 YR 4.2 Dk. grey-brown U	10 YR 4.3 Brown U	10 YR 5.4 Yellow-brown U	10 YR 6.4 l. yellow-brown U
Texture	FSL	FSL	FSC	SCL
Min. skeleton				min. g.
Structure	crumb	crumb	crumb	granule
Visible porosity	-- small	-- small	- small	
Handling consistency	friable	friable	friable	powdery
Organic matter	3	2	1	
Roots	4	3	2	1
Water conditions	D	M	M	D
Sec. Chem. & Min.			CaCO ₃ conc.	CaCO ₃ conc.

Weather conditions prior to sampling: rain, at sampling: dry.

Vegetation

Area sampled	400 sq.yards	Trees	edge
Number of species	22	Shrubs	6-20/100%
Physiognomy	Thicket	Herbs	1
Included in	425 (S.T.G.)		2 edge
			3 10%
			4

Notes: following species occur at edge: Acacia seyal var. multijuga, Brachiaria brizantha, Bridelia scleroneuroides, Chloris gayana, Clerodendron myricoides, Lansea sp., Panicum maximum, Sporobolus pyramidalis, 2285.

Site: 430. Sampled on 12.5.56. Map ref: 330705.005805.

Location: mile 11.13 Wakyo - Ngoma, North Mingo.

Position: anthill at hilltop. Elevation: 3700 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile.

Type: anthill on A.

Layer, depth & clarity.	0-4" d	4-11 d	11-31 d	31-49 e	49-72+
Colour and disposal.	5 YR 3.4U dk.red.br.	2.5 YR 3.6U dk.red	2.5YR 3.6U dk.red	2.5YR 3.6U dk.red	2.5YR 3.6U dk.red
Texture	FSCL	FSCL	C	C	C
Min. skeleton					
Structure	crumb	crumb	crumb	crumb	crumb
Visible porosity.	+++small	+++small	++small	++small	++small
Handling consistency.	friable	friable	friable	friable	friable
Organic matter	4	2	1		
Roots	4	3	2	1	1
Water conditions	M	M	M	M	D
Sec.Chem. & Min. Fauna					

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	400 sq.yards	Trees	edge
Number of species	27	Shrubs	4-20'/100%
Physiognomy	Thicket	Herbs	1
Included in	424 (S.T.G.)		2 edge
			3 10%
			4

Site 431. Sampled on 14.5.56. Map ref: 520635,005820.

Location: mile 11.67 Wakayato - Ngoma, North Mengo.

Position: anthill at valley side. Elevation: 3570 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile.

Type: Anthill on B.

Layer, depth & clarity	0-8" d	8-19 fs	19-35 fs	35-60 c	60-84+
Colour and disposal	5 YR 4.1 U dk.grey	10 YR 4.1 U dk.grey	10 YR 5.1 U grey	5 Y 6.1 U l.grey	5 Y 6.1 U l.grey
Texture	FSL	FSL	CL	CL	CL
Min. skeleton					
Structure	crumb	crumb	crumb	crumb	crumb
Visible porosity.	++small	++small	++small	++small	++small
Handling consistency.	friable	friable	friable	friable	friable
Organic matter	4	2	1		
Roots	3	3	2	1	
Water conditions	D/M	M	M	D/M	D/M
Sec. Chem. & Min.				CaCO ₃ conc.	CaCO ₃ conc.
Fauna					

Weather conditions prior to sampling: wet, at sampling: dry.

Sample 13340 = concretions from layer 60 - 84".

Vegetation

Area sampled	400 sq.yards	Trees	edge
Number of species	25	Shrubs	4-20'/100%
Physiognomy	Thicket	Herbs	1
Included in	428 (G.)		2 edge
			3 10%
			4

Notes: following species at edge:

Combretum binderanum, Gymnosporia senegalensis,
Piliostigma thonningii, Thunbergia alata, Vitex sp.

Site 433. Sampled on 14.5.56. Map ref: 320615.005850.

Location: mile 12.10 Wakayato - Ngoma, North Mengo.

Position: anthill at hilltop. Elevation: 3650 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile

Type: Anthill on A

Layer, depth & clarity	0-1" fs	1-9 d	9-32 d	32-35+
Colour & Disposal	5 YR 3.4 U dk.red-br.	2.5 YR 3.6 U dk.red	2.5 YR 3.6 U dk.red	2.5 YR 3.6 U dk.red
Texture	fibrous	FSL	FSC	
Min. Skeleton				
Structure	humus	crumb	crumb	massive
Bisible porosity	open	++small	++small	
Handling consistency	fluffy	friable	friable	rocky
Organic matter	5	3	1	
Roots	3	4	3	dead
Water conditions	D	D	M	D
Sec.Chem.& Min.			cemented ironstone	cemented ironstone

Fauna

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	400 sq.yards	Trees	20-25'/20%
Number of species	18	Shrubs	10-20'/100%
Physiognomy	Thicket	Herbs	1
Included in	432 (S.T.G.)		2 edge

Notes edge species: Acacia seyal

var.multipuga, Asparagus pauli-

gulleimii, Combretum gueinzii, Commelina benghalensis, Panicum maximum.

The following species restricted to the larger thickets:

Secamone punctulata, Teclea nobilis, Tricalysia nianniamensis,
Vernonia brachycalyx.

Site 436. Sampled on 14.5.56. Map ref: 320605.005840.

Location: mile 12.35 Wakyato - Ngoma, North Mengo.

Position: anthill in valley bottom. Elevation: 3520 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile

Type: Anthill on C

Layer, depth & clarity	0-2"fs	2-10d	10-17fs	17-33 d	33-45 d	45-64 +
Colour & disposal	10 YR 4.1 dk.grey	2.5 Y 5.2 gr.-br.	2.5 Y 5.2 gr.-br.	2.5 Y 5.2 gr.-br.	2.5 Y 5.2 gr.-br.	2.5 Y 5.2 gr.-br.U
	U	U	U	U	U	
Texture	FSL	FSL	FSL	FSCL	FSCL	FSCL
Min. skeleton					min.Q.	
Structure	crumb	crumb	nut	crumb	crumb	granule
Visible porosity	++small	++small	++small	++small	++small	++small
Handling consistency	friable	crumbly	crumbly	friable	friable	powdery
Organic matter	4	3	1			
Roots	4	3	2	2	1	1
Water conditions	D	D	D	D	D	D
Sec. Chem. & Min.				CaCO ₃ conc.	CaCO ₃ conc.	CaCO ₃ conc.
Fauna						

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	400 sq.yards	Trees	edge
Number of species	27	Shrubs	6-25'/100%
Physiognomy	Thicket	Herbs	1
Included in	435 (G.)		2 edge
			3
			4

Notes: species at edge include: Acacia seyal var. multiflora, Aframomum sp.A., Brachiaria brizantha, Gynura scandans, Hyparrhenia filipendula, Sporobolus festivus, S. pyramidalis, Themeda triandra.

Site 467. Sampled on 2.8.56. Map ref: 321205.005225.

Location: 1.10 mile north west of Wakyato, North Mengo.

Position: anthill in valley. Elevation: 3510 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile.

Type: Anthill on C.

Layer, depth & clarity	0-9" fs	9-27 d	27-72 +
Colour & Disposal	grey-brown U	grey-brown U	grey-brown U
Texture	FSL	FSL	FSCL
Min. Skeleton			
Structure	crumb	crumb	crumb
Visible porosity	+++ small	++ small	++ small
Handling consistency	friable	friable	friable
Organic matter	3	2	1
Roots	4	3	2
Water conditions	D	M	M
Sec. Chem. & Min.			
Fauna			

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	400 sq. yards	Trees	edge
Number of species	18	Shrubs	5-20%/100%
Physiognomy	Thicket	Herbs	1
Included in	466 (S.T.G.)		2
			3
			4

Notes: species at edge include
Panicum maximum and Piliostigma thonningii.

Site 404. Sampled on 14.4.56. Map Ref: 322605.005110.

Location: mile 3.73 Luwero - Wakyato, North Mengo.

Position: anthill at edge of valley. Elevation: 3550 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp. 2 ft. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated: Wild life: small game, little effect.

Soil Profile

Type: Anthill on C

Layer, depth & clarity	0-5" fs	5-11 s	11-21 s	21-26 s	26-48 -
Colour & disposal	7.5 YR 3.1 v.dk. grey U	7.5 YR 4.1 dk.grey U	10 YR 3.1 v.dk. grey U	10 YR 3.1 v.dk. grey U	7.5 YR 4.1 dk.grey M
Texture	FSL	FSCL	SCL	FSCL	FSC
Min. skeleton					
Structure	crumb	clod	block	massive	massive
Visible porosity	++small	+ small	+++small	+++small	+++small
Handling consistency	friable	plastic	crumbly	crumbly	plastic
Organic matter	4	2	1	1	
Roots	4	3	2	2	2
Water conditions	M	M	M	W	W
Sec. Chem. & Min. Fauna					

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	400 sq.yards	Trees	20-35'/20%
Number of species	33	Shrubs	5-15'/100%
Physiognomy	Thicket	Herbs 1	edge
Included in	403 (G.)	2	edge
		3	5%
		4	

Notes: Cymbopogon afronardus, Cassia mimosoides, Kyllinga albiceps, Hyparrhenia filipendula, and Panicum maximum at edge only.

Site 408. Sampled on 17.4.56. Map ref: 322105.005115.

Location: mile 0.84 Kiwoko - Tweyanze, North Mengo.

Position: anthill in valley bottom. Elevation: 3520 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile

Type: Anthill on C.

Layer, depth & clarity	0-7" fs	7-14 fs	14-31 d	31-64 d	64-84 +
Colour & disposal	10 YR 5.1 vdk. gray U	10 YR 4.1 dk. gray U	10 YR 5.1 gray U	10 YR 5.1 gray U	10 YR 6.2 l. gray br. U
Texture	FSL	FSC	FSC	CL	CL
Min. Skeleton		min q.			
Structure	crumb	crumb	block	crumb-nut	crumb
Visible porosity	v. open	++small	open	+small	+small
Handling consistency	plastic	plastic	plastic	crumbly	friable
Organic matter	4	3	2	1	1
Roots	4	2	2	2	1
Water conditions	M	M	D/M	D	D
Sec. Chem. & Min.				CaCO ₃ conc.	CaCO ₃ conc.
Fauna					

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	400 sq. yards	Trees	30-40' / 30%
Number of species	25	Shrubs	5-15' / 100%
Physiognomy	Thicket	Herbs	1 edge
Included in	407 (G.)		2 edge
			3
			4

Notes: Burnt-off thickets colonised by

Panicum maximum. Marked zoning round thickets:

(a) Bothriochloa insculpta, Brachiaria brizantha, Eragrostis tenuifolia, Panicum maximum, Sporobolus pyramidalis, Brachiaria kotschyana, Chloris pycnothrix, (b) Cymbopogon afronardus, (c) Hyparrhenia filipendula, Brachiaria brizantha, Panicum maximum.

Site 411. Sampled on 17.4.56. Map ref: 322055.005125.

Location: mile 1.20 Kiwoko - Tweyanze, North Mengo.

Position: anthill at hilltop. Elevation: 3640 ft.

Macrorelief: low rolling. Microrelief: Anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile

Type: Anthill on A.

Depth & clar.	0-2" s	2-5 s	5-15 fs	15-36 -
Col.	7.5YR3.2	7.5YR4.4	5YR4.3	5YR4.4
Disp.	dk.brown	brown	red brown	red br.
Text.	U	U	U	U
Min.Skel.	PSL	FSL	FSCL	FSC
Struct.	fluffy	crumb	min q.	ang. q. $\frac{5}{8}$ "
Vis.poros.	+++small	++small	++small	+ small
Handl. cons.	fibrous	friable	friable	friable
Org. matter	litter	4	3	1
Roots	4	4	3	2
Water conds.	M	M	M	M
Sec.Chem. & Min.				
Fauna				

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	400 sq.yards	Trees	edge
Number of species	34	Shrubs	5-25'/100%
Physiognomy	Thicket	Herbs	1
Included in	410 (S.T.F.)		2
			3
			4
			edge
			20%

Notes: area round anthill district:

Panicum maximum, Brachiaria platynota, Indigofera sp.,
Cymbopogon afronardus.

Site 413. Sampled on 17.4.56. Map ref: 322140.005405.

Location: mile 4.60 Kiwoko - Tweyanze, North Mengo.

Position: anthill in valley. Elevation: 3520 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile

Type: Anthill on C

Depth & clar.	0-3" fs	3-10 d	10-27 fs	27-72 +
Colour	10YR4.1 dk.grey	7.5YR4.1 dk.grey U	10YR4.1 dk.grey	10YR5.1 grey
Disp.	U	U	U	U
Text.	FSL	FSL	FSCL	FSCL
Min. Skel.				min.q.
Struct.	crumb	crumb	crumb	nut
Vis. por.	+small	+small	+small	+small
Handl. cons.	friable	plastic	plastic	crumbly
Org. matter	4	2	1	
Roots	4	3	2	2
Water conds.	M	M	M	D/M
Sec. Chem. & Min.				
Fauna				

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	800 sq.yards	Trees	edge
Number of species	34	Shrubs	5-15'/100%
Physiognomy	Thicket	Herbs	1 edge
Included in	412 (G.)		2 edge
			3 20%
			4

Notes: immediately round thicket:

Panicum maximum, beyond that Asparagus pauli-guilelmi,
Brachiaria brizantha, Cymbopogon afronardus, Fimbristylis
monostachya, Hyparrhenia dissoluta, H. filipendula, Mariscus
macer, M. Mollipes, Polygala amboniensis, Setaria trinerva,
Sporobolus festivus, S. pyramidalis.

Site 415. Sampled on 18.4.56. Map ref: 322135.005350.

Location: 4.50 miles Kiwoko to Tweyanze, North Mengo.

Position: hillside. Elevation: 3590 ft. Slope: 1°. Aspect NNE.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge, part protected by ironstone.

Erosion effect: eluvial. Grazing: effect negligible.

Not cultivated recently. Wild life: small game, little effect.

Soil Profile.

Type: A

Depth & clar.	0-2" s	2-9 s	9-26 d	26-67 s	67 +
Colour	5YR3.3	5YR3.4	5YR4.6	5YR5.8	
	Dk. red br.	br. cl. red br.	yell-red	yell-red	
Disp.	U	U	U	U	
Text.	SCL	FSCL	FSC	FSC	
Min. skel.					ang. q.
Struct.	fibrous	crumb	crumb	crumb	
Vis. por.	+++small	++small	++small	++small	
Handl.					
cons.	fluffy	friable	friable	friable	
Org. matter	litter	3	2	1	
Roots	5	4	2	2	
Water conds.	M	M	M	M	
Sec. Chem. & Min.				PMn	sheet ironstone at 8-10 ft.

Fauna

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	400 sq. yards	Trees	30'/40%
Number of species	39	Shrubs	5-15'/100%
Physiognomy	Thicket	Herbs	1 edges & clearings
			2 "
			3 20%
			4

Notes: Albizzia spp. emergent,
Combretum gueinzii common at edges.

Site 417. Sampled on 18.4.56. Map ref: 322130.005340.

Location: mile 4.20 Kiwoko - Tweyanze, North Mengo.

Position: anthill at hilltop. Elevation: 3650 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile

Type: Anthill on A

Depth. & clar.	0-2" s	2-11 d	11-39 fs	39-60 +
Colour	5YR3.3 dk.red br.	3.5YR3.4 dk.red br.	2.5YR3.6 dk.red	2.5YR3.6 dk.red
Disp.	U	U	U	U
Text.	FSL	FSCL	FSC	FSC
Min. skel.				min. q.
Struct.	fibrous	crumb	crumb	crumb
Vis. Por.	Open	++ small	++small	+small
Handl.				
cons.	fluffy	friable	plastic	friable
Org. matter	litter	3	3	1
Roots	5	3	2	2
Water conds.	M	M	M	D
Sec. Chem. & Min.				
Fauna				

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	400 sq.yards	Trees	20-30'/70%
Number of species	28	Shrubs	5-15'/100%
Physiognomy	Thicket	Herbs	1 edge
Included in	416 (S.T.G.)		2 edge
			3 20%
			4

Notes: 2 zones round anthill:

(a) Acalypha villicaulis, A. bipartita, Lactuca capensis,
Panicum maximum, (b) Aframomum sp.A., Brachiaria brizantha,
B. decumbens, B. platynota, Commelina africana, Justicia
sp. 1995, Kyllinga aurata, Mariscus macer, M. mollipes,
Solanum incanum.

Site 458. Sampled on 27.7.56. Map ref.: 324205.010045.

Location: mile 10.14 Wabusana - Kalungi, North Mengo.

Position: anthill in valley. Elevation: 3440 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile

Type: Anthill on G.

Depth & char.	0-1" s	1-11 fs	11-48 +
Colour	Brown	dk.red.br.	dk.red br.
Disp.	U	U	U
Text.	fibrous	FSCL	FSCL
Min.Skel			
Struct.	Open	crumb	crumb
Vis.Poros.	"	++small	++small
Handl.Cons.	fluffy	friable	friable
Org.matter	litter	3	2 - 1
Roots	2	4	3 - 1
Water conds.	D	M	M
Sec.Chem.			
& Min.			

Fauna

Weather conditions prior to sampling: wet, at sampling: wet.

Vegetation

Area sampled	400 sq.yards	Trees	10-30'/10%
Number of species	31	Shrubs	5-15'/100%
Physiognomy	Thicket	Herbs	1 edge
Included in	457 (G.)		2 edge
			3
			4

Notes: following species occur in zone

around anthill: Acacia seyal v. multijuga, Acalypha villicaulis, Ageratum conyzoides, Alectra communis, Berkheya spekeana, Brachiaria brizantha, Chloris gayana, Clerodendron myricoides, Cissus bambuseti, Digitaria diagonalis, Emilia sp., Hyparrhenia rufa, Lantana salvifolia, Loudetia arundinaceae, Panicum maximum, Pycnostachys stuhlmanii, Setaria caudata, Sporobolus pyramidalis, Tacca involucrata, Solanum incanum, Thunbergia alata, Vigna sp. 2246.

Site 460. Sampled on 29.7.56. Map ref: 324205.010030.

Location: mile 9.75 Wabusana - Kalungi, North Mengo.

Position: anthill at valley side. Elevation: 3450 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile

Type: Anthill on C.

Depth & clar.	0-11" fs	11-24 +	∅ depth 125"
Colour	grey-brown	grey-brown	light brown
Disp.	U	U	
Text.	FSCL	FSCL	sand
Min. Skel.			
Struct.	crumb	crumb	granule
Vis. Poros.	++small	++small	particle sized.
Handl.			
Cons.	friable	friable	loose
Org. matter	4	2 - 1	0
Roots	4	3 - 2	0
Water conds.	M	M	W
Sec. Chem. & Min.			
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.
Note: ∅ depth below level of surrounding valley,
approximate only.

Vegetation

Area sampled	400 sq. yards	Trees	edge
Number of species	16	Shrubs	5-15'/100%
Physiognomy	Thicket	Herbs	1
Included in	459 (S.T.G.)		2 edge
			3
			4

Notes: following species in intermediate zone at edge: Acalypha bipartita, Ageratum conyzoides, Anthericum spicosum, Annona chrysophylla, Becium obovatum, Bidens sp., Brachiaria brizantha, Bridelia scleroneuroides, Cassia mimosoides, Chloris gayana, Eclipta prostrata, Jussiaea suffruticosa var. linearis, Lantana salvifolia, Leonotis nepetaefolia, Panicum maximum, Setaria caudula, S. sphacelata, Sorghum verticilliflorum, Sporobolus pyramidalis, Triumfetta rhomboidea, Wedelia menotriche, Clerodendron myricoides, Gymnosporia sp. 2175.

Site 462. Sampled on 29.7.56. Map.ref: 524200.010015.

Location: mile 9.40 Wabusana - Kalungi, North Mengo.

Position: anthill on hillside. Elevation: 3520 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile. Type: anthill on A.

Depth & clar.	0-11" fs	11-24 +
Colour	dk. red-brown	red-brown
Disp.	U	U
Text.	FSCL	FSCL
Min. skeleton		
Struct.	crumb	crumb
Vis. Poros.	+++small	+++small
Handl. cons.	v-friable	v-friable
Org. matter	4	2-1
Roots	4	3-2
Water conds.	D/M	M
Sec. Chem.		
& Min.		
Fauna		

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation.

Area sampled	400 sq. yards	Trees	edge
Number of species	17	Shrubs	6-15'/100%
Physiognomy	Thicket	Herbs	1 edge
Included in	461 (S.T.G.)		2 edge
Notes:			3

the following species occur at the
edge: Abutilon mauritianum, Acalypha villicaulis,
Aloe sp. "B", Brachiaria brizantha,
Combretum guenzii, Panicum maximum.

Site 464. Sampled on 29.7.56. Map ref: 324200.010000.

Location: mile 8.90 Wabusana - Kalungi, North Mengo.

Position: anthill at hilltop. Elevation: 3580 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile.

Type: Anthill on A.

Depth & clar.	0-2" s	2-10 fs	10-24
Colour	red-brown	dk.red-brown	red-brown
Disp.	U	U	U
Text.	fibrous	FSCL	FSCL
Min.skeleton			
Structure	(litter)	crumb	crumb
Vis.Poros.	v.open	+++small	++small
Handl.cons.	loose	friable	friable
Org.matter	litter	3	2 - 1
Roots	3	4	3 - 2
Water conds.	D	D/M	M
Sec.Chem.&			
Min.			
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	400 sq.yards	Trees	20-30'/20%
Number of species	17	Shrubs	5-15'/100%
Physiognomy	Thicket	Herbs	1 edge
Included in	463 (S.T.G.)		2 edge
			3
			4

Notes: the following species occur in an intermediate zone between sites 463 and 464:

Aframomum sp.A., Bridelia brideliifolia, Combretum binderanum, Panicum maximum.

Site 438. Sampled on 29,6,56, Map ref: 325315.010815.

Location: 3.57 miles north of Bale, North Mengo.

Position: anthill in valley. Elevation: 3420 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile.

Type: Anthill on G.

Depth & char.	0-2" s	2-15 fs	15-60 +
Colour	v.dk.red-br.	brown-grey	brown-grey
Disp.	U	U	U
Texture	fibrous loam	FSL	FSCL
Min.Skel.			
Struct.	(litter)	crumb	crumb
Vis.Poros.	v.open	++small	++small
Handl.cons.	loose	friable	friable
Org.matter	5	4	3 - 1
Roots	5	4	3 - 1
Water conds.	D/M	M	M
Sec.Chem.			
& Min.			?Ca CO ₃
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	400 sq.yards	Trees 10-30'/25%
Number of species	27	Shrubs 5-20'/100%
Physiognomy	Thicket	Herbs 1 edge
Included in	437 (G.)	2 edge
		3 5-10%
		4

Notes: at edge, *Asparagus* sp.,
Brachieria brizantha, *Panicum* sp.
 Burnt-off thickets: *Bridelia scleroneuroides*,
Harrisonia abyssinica, *Lannea kerstingii*, *Panicum*
maximum, *Pseudocedrela kotschyi*, *Ziziphus abyssinica*.

Site 440. Sampled on 29.6.56. Map ref: 325310.010830.

Location: 3.75 miles north of Bale, North Mengo.

Position: anthill on hillside. Elevation: 3440 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile.

Type: Anthill on B.

Depth & clar.	0-8" fs	8-60 +
Colour	grey-brown	grey-brown
Disp.	U	U
Texture	FSCL	FSCL
Min. skeleton		
Structure	crumb	crumb
Vis. Porosity	+++small	+++small
Handl. Consist.	friable	friable
Org. matter	4	2-1
Roots	3	2-1
Water conds.	M	M
Sec. chem. & Min.		
Fauna		

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	400 sq. yards	Trees	30'/20%
Number of species	35	Shrub	6-15'/100%
Physiognomy	Thicket	Herbs	1 edge
Included in	439 (S.T.G.)		2 edge
			3
			4

Notes: tree species occur mostly at edge.

tree species + Aloe sp. on burnt-off anthills.

Site: 442. Sampled on 30.6.56. Map ref: 325305.010850.

Location: 4.18 miles north of Bale, North Mengo.

Position: anthill at hilltop. Elevation: 3580 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game, little effect.

Soil Profile

Type: Anthill on A

Depth & clar.	0-2" s	2-8 d	8-60 +
Colour	red-brown	dk.red-brown	red-brown
Disp.	U	U	U
Texture	fibrous	FSCL	FSCL
Min.skeleton			
Structure	(litter)	crumb	crumb
Vis.Poros.	open	+++small	++small
Handl.consist.	loose	friable	friable
Org.matter	5	3	2-0
Roots	3	4	3-1
Water conds.	D	M	M
Sec.chem.& Min.			
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	400 sq.yards	Trees	25'/20%
Number of species	33	Shrubs	6-15'/100%
Physiognomy	Thicket	Herbs	1 edge
Included in	441 (S.T.G.)		2 edge
			3
			4

Notes: tree species common at thicket edge; following species found in zone between sites 441 and 442:

Asparagus pauli-guilelmi, Commelina benghalensis,
Emilia sp.1748, Brachieria brizantha, Hyparrhenia
filipendula, Panicum maximum, Phyllanthus nummulariifolius,
Plectranthus sp., Setaria caudula, Combretum gueinzii,
Albizia spp.

Site 444. Sampled on 2.7.56. Map ref: 325300.011240

Location: 6.10 miles north of Bale, North Mengo.

Position: anthill in valley. Elevation: 3425-ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game + Buffalo.

Soil Profile

Type: Anthill on C.

Depth & clar.	0-2" fs	2-9 fs	9-84 +
Colour	brown	red-brown	brown
Disp.	U	U	U
Text.	fibrous	CL	FSCL
Min. skel.			
Struct.	(litter)	crumb	nut
Vis. Poros.	open	+++small	+++small
Handl. cons.	fluffy	friable	friable
Org. matter	5	3	3-1
Roots	2	5	4-1
Water cond.	D	M	D
Sec. Chem. & Min.			
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	400 sq. yards	Trees	15-20' / 20%
Number of species	32	Shrubs	5-15' / 100%
Physiognomy	Thicket	Herbs	1 edge
Included in	443 (G.)		2 edge
			3
			4

Notes: species at edge include: Anthericum sp., Asparagus pauli-guilelmii, Aloe sp.B., Brachiaria brizantha, Cissus bambuseti, Chloris gayana, Commelina benghalensis, Lantana salvifolia, Panicum sp., Plectranthus sp., Solanum incanum.

Site 446. Sampled on 2.7.56. Map ref: 525305.011230.

Location: 6.00 miles north of Bale, North Mengo.

Position: anthill at valley side. Elevation: 3425 + ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small wildlife + Buffalo.

Soil Profile

Type: Anthill on C.

Depth & clar.	0-1" s	1-11 fs	11-60 +
Colour	grey-brown	grey-brown	brown-grey
Disp.	U	U	U
Texture	fibrous loam	FSCL	FSCL
Min. skel.			
Struct.	(litter)	crumb	crumb
Vis. Poros.	v. open	+++small	++small
Handl. cons.	loose	friable	friable
Org. matter	5	3	2-0
Roots	3	4	3-1
Water conds.	D	M	M
Sec. Chem. & Min.			
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	800 sq. yards	Trees	edge
Number of species	28	Shrubs	20-30%/100%
Physiognomy	Thicket	Herbs	1
Included in	445 (S.T.G.)		2
			3 20%
			4

Notes: species at edge include Aloe sp.A., Asparagus pauli-guilelmii, Brachiaria brizantha, Commelina benghalensis, Gladiolus psittacinus, Panicum maximum, Plectranthus sp., Setaria sp.

Burnt-off anthill: Bridelia spp., Combretum guenzii, Harrisonia abyssinica.

Site 448. Sampled on 3.7.56. Map ref: 325305.011220.

Location: 5.80 miles north of Bale, North Mengo.

Position: anthill on lower hillside. Elevation: 3460 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game + Buffalo.

Soil Profile

Type: Anthill on B.

Depth & char.	0-2" s	2-10 fs	10-84 +
Colour	brown	grey-brown	yellow-brown
Disp.	U	U	U
Texture	fibrous loam	FSL	FSCL
Min. skel.			
Structure	(litter)	crumb	nut.
Vis. Poros.	open	+++small	++small
Handl. cons.	loose	friable	friable
Org. matter	5	4	3-0
Roots	3	4	3-1
Water conds.	M	M	D
Sec. Chem. & Min.			
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	400 sq. yards	Trees	edge
Number of species	25	Shrubs	15'/100%
Physiognomy	Thicket	Herbs	1 edge
Included in	447 (S.T.G.)		2 edge
			3 20%
			4

Notes: species at edge include: Aframomum sp. A., Albizia zygia, Annona chrysophylla, Bridelia brideliifolia, Chloris gayana, Cissus bambuseti, Combretum gueinzii, Ossonola arborea, Ficus sp., Gymnosporia senegalensis, Panicum maximum, Pavetta crassipes, Steganotaenia araliacea, Vitex sp.

Site 450. Sampled on 3.7.56. Map ref: 325305.011130.

Location: 5.29 miles north of Bale, North Mengo.

Position: anthill at hilltop. Elevation: 3560 ft.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: edge.

Erosion effect: complex. Grazing: effect negligible.

Not cultivated. Wild life: small game.

Soil Profile

Type: Anthill on A.

Depth & clar.	0-2" s	2-11 fs	11-84 +
Colour	brown	dk.red-brown	red-brown
Disp.	U	U	U
Texture	fibrous loam	FSL	FSCL
Min.skel.			
Structure	(litter)	crumb	crumb
Visible Por.	open	+++small	++small
Handl.cons.	loose	friable	friable
Org.matter	5	4	3-0
Roots	3	4	3-1
Water conds.	M	M	M
Sec.Chem.& Min.			
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	400 sq.yards	Trees	edge
Number of species	30	Shrubs	6-25'/100%
Physiognomy	Thicket	Herbs	1 edge
Included in	449 (S.T.G.)		2 edge
			3
			4

Notes: the following species occur at the edge:

Albizia zygia, Combretum gueinzii, Lamnea sp.,
Panicum maximum, Ptilostigma thonningii,
Plectranthus sp.2135, Setaria caudula, Sida cordifolia,
Waltheria americana.

Group 4. Loudetia arundinacea - Albizzia zygia - Combretum spp. - Terminalia velutina. Wooded Grasslands.

	310	319	323	326	327	336	339a	357	360	361	372	375	383	392	410	416	418	423	451	463	
Woody Species.																					
Acacia hebecladoides								X												X	
A. seyal v. multijuga	X	X	X	X	X	X	X	X						X	X	X			X		
A. sieberiana				X				X													
Acacia sp.								X						X	X						
Albizzia coriaria		X	X	X				X						1	1						
A. grandibracteata								1	1												
A. malacophylla																			X	1	
A. zygia		1	2	X	1	X		2	X	X	X	2	X	1	1	1	1	1	1	1	
Albizzia sp.														X	X						
Annona chrysophylla		X	X	X	X		X	X	X	X	X	X	X	X	X	X				X	
Bersama abyssinica																					
Bridelia brideliifolia						X		X	X	X			X							1	
B. scleroneuroides	X	X	X	X				X	X	X		X								X	
Butyrospermum parkii v. niloticum																				X	
Chlorophora excelsa														1							
Combretum binderanum	1	X	X	2	X	X	X	2	X	X	X	2	1	1	1	1	2	2	1	1	
C. ghasalense				1	X	X		X	1	X										X	
C. gueinzii	1	1	2	X	1	2	X	1	2	2	X			2				X	1	2	
Combretum sp.								X													
Cussonia arborea		1	X		X	X		X									X			X	
Erythrina abyssinica								X	X												
Ficus brachypoda								X													
F. gnaphalocarpa									X	X											
F. natalensis								X	X	X											
F. sycomorus								X	X												
Ficus sp.														X						X	
Gardenia jovis-tonantis			X					X												X	
Grewia mollis												X	X	X				1		X	
Gymnosporia senegalensis														X	X			X		X	
Harrisia abyssinica	X					X															
Heeria reticulata	X								X	X										X	
Hymenocardia acida		X	1	1		X		1	1	1	X	X	1	1	X			1	X	1	
Lanea kerstingii		X	X					X	X	X	X								X	1	
L. stuhlmannii									X		X										
Lonchocarpus laxiflorus						X	X	X	X	X	X	X	1								
Pavetta crassipes						X	X														
Ptilostigma thoningii						X					X				1	X					
Protea madiensis																				X	
Pseudocedrela kotschyi							X														
Rhus vulgaris												X	X	X	X				X	X	
Securidaca longipedunculata				X	X			X	X							1		X		X	
Steganotaenia araliacea	X	X	X	X				X	X					X						X	
Stereospermum kunthianum							X				X	X							X		
Strychnos innocua								2	X	X	X	X			X						
S. wakefieldii	X																				
Terminalia sericea			X																		
T. torulosa	1	X		X				X			X								1	1	
T. velutina		1	1	2				2	X	1	X	X							2	X	
Vitex doniana			X	X	X			X													
V. fisheri								X													
Herbaceous Species.																					
Acalypha villicaulis	1	X	X	X	1	1	X	X	X	X	1	X	1	X	1	X			X	X	
Aeolanthus heliotropioides				X																	
Aframomum sp. "A"		1	2	1			1	X	2	2	2			1	1	X	1	1		1	
Aframomum sp.		1																			
Agathisanthemum globosum																X					
Ageratum conyzoides			2																		
Aloe sp. "B"						X															
Andropogon dummeri	2					1	1	2	2	X	3				1	1	1	1	2		
A. schirensis																X					
Anthericum spicosum																					
A. uyuiense									1	X											
Anthericum sp.																				1	
Asparagus pauli-guilelmii		X				X	1	X	1	X	X	X	X	X	X	X	X	X	X	X	
Asparagus sp.																				X	
Aspilia sp. 1998											1	1		1	1	1	X				
Aspilia sp.																				1	
Barleria sp. 1749		X																			
Becium kirkii						X															
B. obovatum			2																		
Beckeropsis uniseta		X										X									
Berkheya spekeana												X								1	
Brachiaria brizantha	1	3	1	1	1	2	1	1	1	2		3			1	1	1	1	3	2	
B. dictyonera	X							1													
B. eminii								2													
B. fulva				1												1					
B. kotschyana																					
B. platynota			3	3	2	2		1	3	3				3	3	X	3				
Borreria stricta	X																				
Bulbostylis collina																					
v. bockelerianus								1													
Chlorophytum blepharophyllum								X						X							
Chlorophytum sp. 1820					1														X	X	
Chlorophytum sp.																					
Cissus bambuseti																				X	
Coleus sp. 2180				X																	
Commelina africana													1	X							
C. africana v. krobsiana																				X	
C. latifolia			1										1								
Crotalaria sp. 2102														1		X					
Crotalaria sp.			1	1																	
Cryptolepis oblongifolia	1				1	X	X	X								X					
Ctenium concinnum v. indutum															3		X		1		
Cyanotis hirsuta									1	1				X	1	1	X		2	X	
C. lanata	1																				
C. pauciflora			1																		
Cymbopogon afronardus											X	X		X	1						
Cyperus cy																					

Site 310. Sampled on 7.9.55. Map ref: 522240.012605.

Location: 10.00 miles north-west of Nakasongola, North Mengo.

Position: hilltop. Elevation: 3600 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: post burn.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-7"	7-15 fs	15-30 d	30-48 +
Colour	5YR4.3 red-br.	2.5YR3.6 dark red	2.5YR4.6 red	2.5YR4.8 red
Disp.	U	U	U	U
Text.	FSL	FSL	FSC	FSC
Min. skel.				
Structure	granule	crumb	crumb	crumb
Vis. Por.	compacted	++small	++small	++small
Handl. cons.	powdery	friable	friable	friable
Org. matter	4	3	2	1
Roots	4	4	3	3
Water conds.	M	M	M	M
Sec. chem. & min.				
Fauna				

Weather conditions prior to sampling: wet, at sampling: wet.

Note: ironstone at 6-10 ft. depth.

Vegetation

Area sampled	1600 sq. yards	Trees	10-25' / 10%
Number of species	16	Shrubs	6-10' / 5%
Physiognomy	scattered tree grassland.	Herbs 1	5' / 100%
Inclusions	see below	2	30%
		3	20%
		4	

Notes: anthills bare, thickets destroyed by fierce fires ?

Site 319. Sampled on 17.12.55. Map ref: 322805.010220.

Location: 0.50 miles south-east of Kakoge, North Mengo.

Position: hilltop . Elevation: 3600 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: post burn.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-5" fs	5-21 d	21-29 fs	29-60 +
Colour	2.5YR3.4 dk.red-br.	2.5YR4.6 red	2.5YR4.6 red	2.5YR4.6 red
Disp.	U	U	U	U
Texture	FSCL	FSCL	FSCL	FSCL
Min.skel.			q $\frac{3}{8}$ "	q $\frac{1}{8}$ " 30%
Structure	crumb	crumb	crumb	massive
Visible por.	+++small	+++small	++small	+small
Handl.cons.	friable	friable	friable	crumbly
Org.matter	4	3	1	
Roots	4	3	2	2
Water conds.	M	M	M	M
Sec.chem. & Min.				
Fauna	ants	ants		

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled:	1600 sq.yards	Trees	10-35'/15%
Number of species	30	Shrubs	
Physiognomy	scattered Tree Grassland	Herbs	1 5'/100% 2 50% 3 20% 4
Inclusions	Open thickets on anthills - not estimated		

Site 323. Sampled on 20.12.55. Map ref: 322740.010620.

Location: 4.00 miles north of Kakoge, North Mengo.

Position: hilltop. Elevation: 3610 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect = eluvial. Grazing: post burn.

Not settled. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-5" fs	5-20 d	20-31 d	31-60 +
Colour	5YR4.3 red-brown	5YR4.6 yellow-red	2.5YR4.6 red	2.5YR4.6 red
Disp.	U	U	U	U
Texture	FSL	FSOL	FSCL	FSCL
Min. skel.				
Structure	crumb	crumb	crumb	crumb
Vis. Poros.	+++small	+++small	++small	++small
Handl. cons.	v. friable	friable	soft friable	soft friable
Org. matter	3	3	2	1
Roots	4	4	3	2
Water conds.				
Sec. Chem. & Min.			?Mn	?Mn
Fauna	ants	ants		

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-30'/35%
Number of species	30	Shrubs	
Physiognomy	scattered Tree Grassland.	Herbs	1 5'/90%
			2 50%
Inclusions	Anthill thickets - not estimated.		3 30%
			4

Site 326. Sampled on 22.12.55. Map ref: 322705.010430.

Location: 1.25 miles north of Kakoge, North Mengo.

Position: hillside. Elevation: 3560 ft. Slope: 4°. Aspect: NNE.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free to ironstone. Burning: annual/biennial.

Erosion effect: eluvial - colluvial. Grazing: post burn.

Not cultivated. Wild life: small game.

Soil Profile.

Type: A

Depth & clar.	0-7" fs	7-12/38 s	12/35 +
Colour	7.5YR4.2 brown	7.5YR3.2 dk.brown	
Disp.	U	U	
Texture	FSL	FSL	
Min.skel.	q	q $\frac{1}{2}$ -1"	
Structure	crumb	massive	
Vis.Poros.	+small	-	channels
Handl.cons.	friable	crumbly	rock hard
Org.matter	3	2	
Roots	4	2	
Water conds.	M	M	
Sec.Chem.& Min.		pea iron	sheet iron
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	8-25'/20%
Number of species	30	Shrubs	
Physiognomy	Scattered Tree Grassland.	Herbs 1	4-5'/100%
Inclusions	Anthill Thickets - not estimated.	2	50%
		3	10%
		4	

Site 327. Sampled on 22.12.55. Map ref: 322710.010415.

Location: 1.00 mile north of Kakoge, North Mengo.

Position: hilltop. Elevation: 3600 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: mostly post-burn.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-5" fs	5-22 d	22-44 d	44-60 +
Colour	2.5YR3.4 Dk red-brown	2.5YR4.6 red	2.5YR4.6 red	2.5YR4.6 red
Disp.	U	U	U	U
Texture	FSCL	FSCL	FSL	FSL
Min. Skel.				
Structure	crumb	crumb	crumb	crumb
Vis. Poros.	+++small	+++small	+++small	+++small
Handl. cons.	v. friable	friable	soft, friable	soft, friable
Org. matter	4	3	2	1
Roots	4	3	3	2
Water conds.	M	M	M	M
Sec. Chem. & Min.		Mn ?		
Fauna				

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq. yards	Trees	15-35' / 35%
Number of species	29	Shrubs	5-12' / small
Physiognomy	Scattered Tree Grassland.	Herbs	1 4-6' / 100%
Inclusions	Anthill thickets- not estimated.		2 50% 3 10% 4

Site 336. Sampled on 25.1.56. Map ref: 323945.011755.

Location: 0.75 mile north of Kalungi, North Mengo.

Position: hilltop. Elevation: 3590 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: mostly post-burn.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-3" fs	3-11d	11-24 d	24-46 fs	46-53 +
Colour	5YR4.3 red-brown	2.5YR4.4 red-brown	2.5YR4.8 red	2.5YR4.8 red	2.5YR4.8 red
Disp.	U	U	U	U	U
Texture	LFS	LFS	FSCL	FSCL	-
Min. skel.		q		q	q $\frac{1}{8}$ "
Structure	crumb	crumb	crumb	crumb	massive
Vis. Poros.	++small	++small	++small	++small	-
Handl. cons.	friable	friable	friable	friable	crumbly
Org. matter	3	2	1	1	
Roots	4	3	2	1	dead
Water conds.	D	M	M	M	
Sec. Chem. & Min.				pea iron	pea iron
Fauna	ants	ants	ants	ants	

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq. yards	Trees	10-40' / 20%
Number of species	29	Shrubs	6-10' / 5%
Physiognomy	Scattered Tree Grassland.	Herbs	1' 5' / 100%
			2' 50%
			3' 20%
			4'

Notes: *Combretum gueinzii* 25-40' other woody species 10-25'.

Setaria sphacelata occurs in colonies diameter 10 ft.

A few isolated thicket species on anthills.

Site 339a. Sampled on 25.1.56. Map ref: 323700.011950.

Location: 2.50 miles west of Kaswama, North Mengo.

Position: upper hillside. Elevation: 3560 ft. Slope: 2°, Aspect N

Macrorelief: low rolling. Microrelief: anthills (within 339b).

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: mostly post-burn.

Not cultivated. Wild life: small game.

Soil Profile.

Type: A

Depth & clar.	0-5" d	5-11 d	11-36 d	35-69 +
Colour	5YR4.6 yellow-red	2.5YR4.6 red	2.5YR4.8 red	2.5YR4.8 red
Disp.	U	U	U	U
Texture	L	L	FSCL	FSCL
Min. skel.				
Structure	crumb	crumb	crumb	crumb
Vis. Por.	++small	++small	++small	++small
Handl. cons.	powdery	friable	friable	friable
Org. matter	3	2	1	1
Roots	4	3	2	1
Water conds.	D	M	M	M
Sec. Chem. & Min.				
Fauna	ants	ants	ants	

Weather conditions prior to sampling: wet; at sampling: dry.

Vegetation

Area sampled	1600 sq. yards	Trees	10-20'/10%
Number of species	31	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 6'/80%
Inclusions	339b (Thicket)		2 20%
			3 30%
			4

Site 357. Sampled on 22.2.56. Map ref: 322735.010925.

Location: 14.21 miles south of Nakasongola, North Mengo.

Position: hilltop. Elevation: 3600 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: post-burn.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-4" fs	4-18 d	18-43 d	43-48 s	48 +
Colour	5YR4.3 red-brown	5YR4.6 yellow-red	2.5YR5.6 red	2.5YR4.6 red	
Disp.	U	U	U	U	
Texture	FSCL	FSCL	FSCL	FSCL	
Min. skel.				ang. q $\frac{1}{2}$ "	
Structure	granule	crumb	crumb	crumb	massive
Vis. Poros.	+small	+small	+small	+small	
Handl. cons.	powdery	friable	friable	friable	rocky
Org. matter	3	2	1	1	
Roots	4	3	2	2	
Water conds.	D	M	M	D/M	D/M
Sec. Chem. & Min.				pea iron	sheet iron

Fauna

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	15-35' / 35%
Number of species	48	Shrubs	6-10' / 5%
Physiognomy	Scattered Tree Grassland.	Herbs	1 5' / 70%
Inclusions	Anthill thickets - not estimated.		2 30%
			3 20%
			4.

Site 360. Sampled on 22.2.56. Map ref: 322750.011115

Location: 11.64 miles south of Nakasongola, North Mengo.

Position: hilltop. Elevation: 3600 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: mostly post-burn.

Not cultivated. Wild life: small game.

Soil Profile.

Type: A

Depth & clar.	0-5" fs	5-11 s	11 +
Colour	2.5YR3.4 dk.red-brown	2.5YR4.4 red-brown	
Disp.	U	U	
Texture	FSCL	FSCL	
Min.skeleton		q $\frac{1}{8}$ "	
Structure	crumb	massive	vesicular
Vis.Poros.	+small	-	channels
Handl.cons.	friable	crumbly	hard
Org.matter	3	1	
Roots	4	2	
Water conds.	M	M	
Sec.Chem. & Min.		pea iron	sheet iron
Fauna			

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	15-30' / 15%
Number of species	40	Shrubs	6-10' / 5%
Physiognomy	Scattered Tree Grassland.	Herbs	1 5' / 100%
			2 10%
			3 30%
			4

Notes - anthills bare.

Site 361. Sampled on 22.2.56. Map ref: 322750.011115.

Location: 11.60 miles south of Nakasongola, North Mengo.

Position: hilltop. Elevation: 3600 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: mostly post-burn.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-3" fs	3-34 fs	34 +
Colour	2.5YR4.4 red-brown	2.5YR4.6 red	2.5YR4.6 red
Disp.	U	U	U
Texture	FSCL	FSC	FSC
Min. skeleton			
Structure	crumb	crumb	crumb
Vis. Poros.	++small	++small	+small
Handl. cons.	friable	friable	crumbly
Org. matter	4	2	
Roots	4	3	2
Water conds.	M	M	M
Sec. Chem. & Min.			pea iron
Fauna			

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	15-30' / 15%
Number of species	34	Shrubs	6-10' / 5%
Physiognomy	Scattered Tree Grassland.	Herbs	1 5' / 100%
			2 10%
			3 30%
			4

Notes: anthills bare.

Site 372. Sampled on 19.3.56. Map ref: 313945.010330.

Location: mile 14.47 Kiboga gombolola-Butemba, N.W.Mengo.

Position: hilltop. Elevation: 3660 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: mostly post-burn.

Not cultivated. Wild life: small game & Elephant.

Soil Profile

Type: A

Depth & clar.	0-4" d	4-17 d	17-44 c	44-50 fs	50 +
Colour	5YR4.3 red-br.	5YR4.4 red-br.	2.5YR5.8 red	2.5YR4.8 red	5YR4.6 yellow-red
Disp.	U	U	U	U	U
Texture	FSL	FSL	FSL	FSL	CL
Min.skel.	min.q	min.q	min.q		rotting rock
Structure	crumb	crumb	crumb	crumb	massive
Vis.Poros.	++small	++small	++small	++small	+
Handl.cons.	friable	friable	soft friable	soft friable	crumbly
Org.matter	3	2	1	1	
Roots	4	3	2	2	1
Water conds.	D	D	M	M	M
Sec.Chem. & Min.				pea iron	
Fauna					

Weather conditions prior to sampling: wet + dew, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-20%/50%
Number of species	24	Shrubs	
Physlogonomy	Scattered Tree Grassland	Herbs	1 4-6%/100%
			2 10%
			3 40%
			4

Notes: anthills bare.

Site 375. Sampled on 21.3.56. Map ref: 313640.010610.

Location: mile 19.39 Kiboga gombolola-Butemba, N.W. Mengo.

Position: hilltop. Elevation: 3650 ft. Slope: - Aspect: -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: mostly post-burn.

Cultivated a long time ago. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-4" d	4-9 d	9-25 d	25-71 d	71-84 +
Colour	5YR3.3 dk-red-br	5YR3.4 dk-red br	2.5YR3.6 dk red	2.5YR4.6 red	2.5YR4.8 red
Disp.	U	U	U	U	U
Texture	FSL	FSL	FSCL	FSC	FSC
Min. skel.				min. q	q 1/4"
Structure	crumb	crumb	crumb	crumb	crumb
Vis. Poros.	+++small	+++small	++small	++small	++small
Handl. cons.	friable	friable	friable	friable	friable
Org. matter	4	3	2	1	1
Roots	4	4	3	2	2
Water conds.	M	M	M	M	M
Sec. Chem. & Min.					soft murrum pellets

Fauna

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	15-35' / 35%
Number of species	32	Shrubs	6-10' / 5%
Physiognomy	Scattered Tree Grassland.	Herbs	1 5' / 100%
			2 20%
			3 30%
			4

Notes: anthills bare.

Site 583. Sampled on 27.3.56. Map ref: 514445.011240.

Location: 250 yards NNE spot 10.95 miles E. of Butemba,

N.W. Mengo. Position: hilltop. Elevation: 3600 ft. Slope -

Aspect - Macrorelief: undulating. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: mostly post-burn.

Not cultivated. Wild life: small game, elephant seasonal.

Soil Profile

Type: A

Depth & clar.	0-6" d	6-17 d	17-70 s	7P-84 +
Colour	5YR3.3 dr. red-br.	5YR4.6 yellow-red	2.5YR4.6 red	2.5YR4.8 red
Disp.	U	U	U	U
Texture	FSCL	FSCL	FSCL	FSCL
Min. skel.			min q.	q 2".20%
Structure	crumb	crumb	crumb	massive
Vis. Poros.	++small	++small	++small	++small
Handl. cons.	friable	friable	soft friable	hard
Org. matter	3	2	1	
Roots	3	2	2	1
Water conds.	D	D	M	M
Sec. Chem. & Min.				pea iron
Fauna				

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled 1600 sq. yards

Number of species 24

Physiognomy Scattered Tree Grasslands

Trees 10-15'/15%

Shrubs 6-10'/5%

Herbs 1 5-6'/100%

2 20%

3 30%

4

Notes: anthills bare.

Site 392. Sampled on 12.4.56. Map ref: 322750.005950.

Location: mile 9.89 Batuntumula t.o. - Kakoge, North Mengo.

Position: hilltop. Elevation: 3600 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: mostly post-burn.

Cultivated 30-40 years ago. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-4" d	4-14 d	14-27 d	27-42 fs	42-54 +
Colour	5YR3.4 dk.-red br.	2.5YR3.6 dk.red	2.5YR3.6 dk.red	2.5YR4.8 red	2.5YR4.8 red
Dispos.	U	U	U	U	U
Text.	FSL	FSL	FSL	FSCL	FSCL
Min. skel.					ang. q. $\frac{1}{8}$ "
Struct.	crumb	crumb	crumb	crumb	massive
Vis. Poros.	++small	++small	+small	+small	+small
Handl. cons.	friable	friable	friable	friable	brittle
Org. matter	4	3	2	1	
Roots	4	3	3	2	1
Water conds.	M	M	M	M	D
Sec. Chem. & Min.				soft murrum, pellets	pea iron

Fauna

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-20'/40%
Number of species	36	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 4'/100%
			2 20%
			3 10%
			4

Notes: anthills bare.

Site 410. Sampled on 17.4.56. Map ref: 322055.005125.

Location: mile 1.20 Kiwoko - Tweyanze, North Mengo.

Position: hilltop. Elevation: 3640 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: mostly post-burn.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-5" d	5-23 fs	23-47 d	47-65 s	65-74 +
Colour	7.5YR3.2 dk.brown	5YR4.6 yellow-red	5YR4.6 yellow-red	5YR5.6 yellow-red	5YR5.6 yellow-red
Dispos.	U	U	U	U	U
Text.	FSCL	FSCL	FSCL	FSC	FSC
Min.skel.			q $\frac{1}{8}$ "	q $\frac{1}{2}$ "	ang.q 1"
Struct.	crumb	crumb	crumb	crumb	crumb
Vis.Por.	++small	++small	+small	+small	+small
Handl.cons.	friable	friable	friable	friable	friable
Org.					
matter	3	2	1	1	
Roots	4	3	2	2	1
Water					
conds.	M	M	W	M	M
Sec.Chem. & Min.				soft murrem pellets	

Fauna

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards.	Trees	8-20'/20%
Number of species	40	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 5'/100%
Inclusions	411 (A.Th.)		2 10%
			3 20%
			4

Site 416. Sampled on 18.4.56. Map ref: 322130.005340.

Location: mile 4.20 Kiwoko - Tweyanze, North Mengo.

Position: hilltop. Elevation: 3650 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: mostly post-burn.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-4" fs	4-29 d	29-40 d	40-84 +
Colour	5YR3.3 Dk.red-br.	2.5YR3.6 dk.red	2.5YR4.6 red	2.5YR4.6 red
Disposal	U	U	U	U
Texture	FSCL	FSCL	FSC	FSC
Min.skel.				min.g
Structure	crumb	crumb	crumb	crumb
Vis.Por.	++small	++small	++small	++small
Handl.cons.	friable	friable	friable	friable
Org.matter	3	2	2	1
Roots	3	3	2	2
Water conds.	M	M	M/W	M
Sec.Chem. & Min.			soft murrum pellets	soft murrum pellets

Fauna

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation.

Area sampled	2500 sq.yards	Trees	10-35'/25%
Number of species	40	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 5'/100%
Inclusions	417 (A.Th.)		2 20%
			3 40%
			4

Notes: numerous seedlings of
Albizzia zygia.

Site 418. Sampled on 11.5.56. Map ref: 320125.010730.

Location: mile 27.00 Wakayato - Ngoma, North Mengo.

Position: hilltop. Elevation: 3600 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: post-burn.

Not cultivated. Wild life: small game and Elephant.

Soil Profile

Type: A.

Depth & clar.	0-3" fs	3-11 d	11-45 d	45-68 s	68 +
Colour	2.5YR5.4 dk-red-br.	2.5YR3.6 dk.-red	2.5YR4.8 red	2.5YR4.8 red	2.5YR4.8 red
Dispos.	U	U	U	U	U
Text.	FSCL	FSCL	FSCL	FSCL	FSCL
Min. skel.					q 1 x 1 x 1/2"
Struct.	crumb	crumb	crumb	crumb	massive
Vis. Por.	+small	++small	++small	++small	+small
Handl. cons.	friable	friable	friable	plastic	crumbly
Org. matter	3	2	1		
Roots	4	3	2	2	1
Water conds.	M	M	M	M/W	M
Sec. chem. & Min.			?Mn	Mn	pea iron
Fauna					

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	10-25'/25%
Number of species	35	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 5'/70%
Inclusions	Open anthill thickets, some are completely burnt off.		2 100%
			3 10%
			4

Site 423. Sampled on 11.5.56. Map ref: 320040.010850.

Location: mile 28.50 Wakayato - Ngoma, North Mengo.

Position: hilltop. Elevation: 3650 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: mostly post-burn.

Not cultivated. Wild life: small game & Elephant.

Soil Profile.

Type: A

Depth & clar.	0-4" d	4-9 d	9-29 d	29-68 fs	68 -
Colour	5YR4.3 red-br.	5YR4.3 red-br.	5YR4.6 yell-red	2.5YR4.8 red	
Disp.	U	U	U	U	
Text.	LFS	LFS	LFS	FSCL	
Min. skol.					ang q 80%
Struct.	granule	granule	granule	granule	
Vis. Por.	-small	-small	-small	-small	
Handl. cons.	powdery	friable	friable	powdery	
Org. matter	3	2	1		
Roots	2	3	2	1	
Water conds.	M	M	M	D/M	
Sec. Chem. & Min.				Mn	
Fauna					

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	10-30'/15%
Number of species	26	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 6'/100%
Inclusions	Open thickets on anthills - much burnt, mainly		2 20%
	<u>Allophylus africanus</u> , <u>Aloe sp.B.</u>		3 30%
	<u>Bridelia scleroneuroides</u> ,		4
	<u>Hoslundia opposita</u> , <u>Hyparrhenia filipendula</u> ,		
	<u>Solanum incanum</u> .		

Site 451. Sampled on 5.7.56. Map ref:322355.012325.

Location: mile 7.67 Nakasongola - Nabuswera, North Mungo.

Position: hilltop. Elevation: 3600 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: post-burn.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clarity	0-11" fs	11-60 +
Colour	dark-red-brown	red-brown
Disposal	U	U
Texture	FSL	FSCL
Min. skeleton		
Structure	crumb	crumb
Visible poros.	++small	++small
Handling cons.	friable	friable
Org. matter	3	2 - 0
Roots	3	2 - 1
Water conditions	D	M
Sec. Chem. & Min.		
Fauna		

Weather conditions prior to sampling: dry, at sampling: dry.

Note: sheet ironstone at about 8 ft. depth.

Vegetation

Area sampled	2500 sq. yards	Trees	15-35' / 25%
Number of species	32	Shrubs	6-10' / 5%
Physiognomy	Scattered Tree Grassland	Herbs	1 5' / 80%
Inclusions	Open anthill thickets, some almost completely burnt off.		2 40%
			3 30%
			4

Note: spacing Loudetia arundinacea clumps
2-3 ft.

Site 463. Sampled on 29.7.56. Map ref: 524200.010000.

Location: mile 8.90 Wabusana - Kalungi, North Mengo.

Position: hilltop. Elevation: 3580 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: mostly post-burn.

Cultivated about 30 years ago. Wild life: small game.

Soil Profile

Type: A

Depth and clarity	0-5" fs	5-24 +
Colour	red-brown	red-brown
Disposal	U	U
Texture	FSCL	FSCL
Min. skeleton		
Structure	granule	crumb
Visible porosity	-	+ small
Handling consist.	powdery	friable
Org. matter	3	2 - 0
Roots	3	2 - 1
Water conditions	D	D/M
Sec. Chem. & Min.		
Fauna		

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	15-25'/15%
Number of species	28	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 4'/100%
Inclusions	464 (A.Th.)		2 30%
			3 20%
			4

Site 308. Sampled on 8.9.55. Map ref: 322235.012610.

Location: 10.00 miles north-west of Nakasongola, North Mingo.

Position: lower hillside. Elevation: 3510 ft. Slope: -2° .

Aspect: N. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Nut cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-3" fs	3-12 d	12-30 d	30-48 +
Colour	25YR3.4 dk.red-br.	2.5YR3.6 dk.-red	2.5YR4.6 red.	2.5YR4.6 red
Disposal	U	U	U	U
Texture	FSL	FSL	FSCL	FSCL
Min:skel.			min.q	min.q
Structure	crumb	crumb	clod	clod
Vis.Por.	+++small	+++small	cracks & small	cracks & small
Handl.cons.	v.friable	v.friable	crumbly	plastic
Org.matter	4	3	2	1
Roots	4	3	2	1
Water conds.	D	M	M	M
Sec.Chem. & Min.		Mn	Mn	Mn, pea iron
Fauna				

Weather conditions prior to sampling: wet, at sampling: wet.

Vegetation

Area sampled	1600 sq.yards	Trees	10-25' / 20%
Number of species	23	Shrubs	6-10' / 5%
Physiognomy	Scattered Tree Grassland	Herbs	1 5-6' / 80%
Inclusions	Open thickets on anthills (not estimated).		2 30%
			3 10%
			4

Site 318. Sampled on 16.12.55. Map ref: 322815.010220.

Location: 0.75 mile south east of Kakoge, North Mengo.

Position: lower hillside. Elevation: 3600 ft. Slope: 3°.

Aspect: E. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & char.	0-7" fs	7-18 d	18-43 fs	43-72 +
Colour	7.5YR3.2 dk.-brown	7.5YR4.4 dk.-brown	7.5YR5.6 strong brown	5YR5.6 yellow-red
Disposal	U	U	U	U
Texture	FSL	FSL	FSL	FSCL
Min. skel.				q $\frac{1}{4}$ "
Structure	crumb	crumb	crumb	massive
Vis. Por.	++small	++small	++small	-
Handl. cons.	friable	friable	friable	crumbly
Org. matter	4	3	2	
Roots	4	4	2	1
Water conds.	M	M	M	M
Sec. Chem. & Min.				pea iron
Fauna	ants	ants		

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq. yards	Trees	10-20'/15%
Number of species	27	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 4'/70%
Inclusions	Open thickets on anthills (not estimated)		2 50%
			3 20%
			4

Site 330. Sampled on 21.1.56. Map ref: 322740.011740.

Location: 1.25 miles south of Nakasongola. North Wengo.

Position: upper hillside. Elevation: 3590 ft. Slope: 3°.

Aspect: N. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial-colluvial. Grazing: intermittent.

Cultivated about 30 years ago. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-5" d	5-11 fs	11-21/38 fs	21/38-37/45 d	37/45-60+
Colour	5YR3.3 dk-red-br.	5YR4.4 red-br.	5YR4.6 yellow-red	5YR5.6 yellow-red	5YR5.6 yellow-red
Disp.	U	U	U	U	U
Text.	FSL	FSL	FSL	FSL(matrix)	FSL(matrix)
Min.skel.					q
Structure	crumb	crumb	crumb	massive	vesicular
Vis.Por.	++small	++small	+small	-	channels
Handl. cons.	friable	friable	friable	crumbly	rocky
Org. matter	4	3	2		
Roots	4	3	2	1	dead
Water conds.	M	M	M	M	D
Sec.Chem. & Min.			Mn, pea iron	pea iron	vesicular sheet iron: stone
Fauna	ants	ants			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	6-15'/20%
Number of species	37	Shrubs	6-10'/5%
Physiognomy	Scattered Tree Grassland	Herbs	1 4'/75%
Inclusions	Open thickets on anthills (not estimated)		2 50%
			3 10%
			4

Site 332. Sampled on 24.1.56. Map ref: 323030.011755.

Location: 3.75 miles east of Nakasongola, North Mingo.

Position: hilltop. Elevation: 3610 ft. Slope + Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-6" fs	6-9/15 s	9/15 +
Colour	2.5YR3.6 dk.red	2.5YR4.6 red	
Disp.	U	U	
Texture	FSL	FSCl	
Min.skeleton			
Structure	crumb	crumb	
Vis.Por.	++small	++small	
Handl.cons.	powdery	friable	
Org.matter	3	2	
Roots	3	2	
Water conds.	D/M	D/M	
Sec.Chem. & Min.		pea iron	vesicular sheet iron

Fauna

Weather conditions prior to sampling: wet, at sampling: wet.

Vegetation

Area sampled:	1600 sq.yards	Trees	10-35' / 25%
Number of species	29	Shrubs	6-10' / 5%
Physiognomy	Scattered Tree Grassland	Herbs	1 4' / 60%
Inclusions	Anthill thickets		2 30%
			3 30%
			4

Notes: Hyparrhenia filipendula
seasonally dominant.

Site 334. Sampled on 24.1.56. Map ref: 323150.011750.

Location: 5.00 miles east of Nakasongola, North Mengo.

Position: hilltop. Elevation: 3560 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-4" fs.	4-12 d	12-36 d	36-69 s
Colour	2.5YR3.6 dk.red	2.5YR4.6 red	2.5YR4.6 red	10R 4.6 red
Disposal	U	U	U	U
Texture	FSCL	FSCL	FSC	FSC
Min.skel.				q.at 65"
Structure	crumb	crumb	crumb	crumb
Vis.Por.	+small	+small	+small	+small
Handl.cons.	powdery	powdery	friable	friable
Org.matter	3	2	1	
Roots	4	3	2	1
Water conds.	D	D	M	M
Sec.chem. & Min.				pea iron
Fauna	ants	ants	ants	ants

Weather conditions prior to sampling: wet, at sampling: wet,
below 69" cemented ironstone, discontinuous layer.

Vegetation

Area sampled	1600 sq.yards	Trees	a	20-40' / 10%
Number of species	41		b	10-15' / 7%
Physiognomy	Scattered Tree Grassland	Shrubs		6-10' / 3%
Inclusions	Anthill thickets (not estimated).	Herbs	1	4' / 70%
			2	50%
			3	30%
			4	

Notes: Combretum guinzii in top
tree layer. Hyparrhenia filipendula
seasonally dominant.

Site 335. Sampled on 25.1.56. Map ref: 323130.011750.

Location: 4.50 miles east of Nakasongola, North Mingo.

Position: hillside. Elevation: 3530 ft. Slope: $3\frac{1}{2}^{\circ}$. Aspect: W.

Macrorelief: low rolling. Microrelief: remains of anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth	0-5" d	5-19 d	19-36 c	36-55 fs	55-72 +
& clar.					
Colour	2.5YR3.6 dk.-red	2.5YR5.6 dk.red	2.5YR4.8 red	2.5YR4.8 red	2.5YR4.8 red
Disp.	U	U	U	U	U
Text.	FSCL	FSCL	FSC	FSC	C
Min.skel.					
Struct.	crumb	crumb	granule	granule	massive
Vis.por.	++small	++small	+small	+small	-
Handl.					
cons.	friable	friable	v.friable	v.friable	
Org.					
matter	4	3	2	1) dead
Roots	4	3	2	2) roots
Water					
conds.	M	M	D	D	D
Sec.chem.					cemented
& Min.					poa ironstone

Fauna

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	800 sq.yards	Trees	15'/15%
Number of species	16	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 4'/100%
Inclusions	Thickets spreading from anthills (not estimated)		2
			3 40%
			4 10%

Site 340. Sampled on 27.1.56. Map ref: 322825.012240.

Location: 3.60 miles north of Nakasongola, North Mongo.

Position: hilltop. Elevation: 3610 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: remains of anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-4" d	4-17 e	17-30 fs	30-38 s
Colour	5YR4.3 red-brown	2.5YR4.6 red	2.5YR4.6 red	2.5YR4.8 red
Disp.	U	U	U	U
Texture	FSCL	FSCL	FSCL	FSCL
Min. skel.		min.q	min.q	min.q 40%
Structure	crumb	crumb	crumb	crumb
Vis. Per.	++small	++small	+small	-small
Handl. cons.	friable	friable	friable	friable
Org. matter	3	2	1	1
Roots	4	4	2	1
Water conds.	D	M	M	M
Sec. Chem. & Min.				
Fauna	ants	ants		

Weather conditions prior to sampling: wet, at sampling: wet
below 38" = layer consisting of 80% quartz, 2-4", angular.

Vegetation

Area sampled	1600 sq.yards	Trees	10-25'/20%
Number of species	28	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 4-5'/100%
Inclusions.	Aggregation of shrubby species on remains of anthills - not estimated.		2 30%
			3 40%
			4

Site 348. Sampled on 31.1.56. Map ref: 323230.011805.

Location: 6.00 miles east of Nakasongola, North Mengo.

Position: hilltop. Elevation: 3570 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills & ironstone

outcrops. Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-5" fs	5-20 d	20-34 d	34-39 d	39-50 +
Colour	7.5YR4.4 dk.brown	5YR4.6 yellow-red	5YR4.8 yellow-red	5YR4.8 yellow-red	5YR4.8 yellow-red
Disp.	U	U	U	U	U
Text.	FSCL	FSCL	FSCL	FSCL	FSCL
Min.skel.					
Struct.	crumb	crumb	crumb	granule	massive
Vis.Por.	+++small	++small	++small	+small	-
Handl. cons.	friable	friable	friable	powdery	rocky
Org. matter	3	3	2	1	
Roots	4	3	2	1	1
Water conds.	D	M	M	D	D
Sec.Chem. & Min.				pea iron	cemented pea iron
Fauna					

Weather conditions prior to sampling: wet, at sampling: dry.
Sheet ironstone at variable depth 55-60".

Vegetation

Area sampled	2500 sq.yards	Trees	10-25' / 25%
Number of species	32	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 4' / 40%
Inclusions.	Open thickets on anthills		2 30%
	including: <u>Annona chrysophylla</u> , <u>Bridelia</u>		3 40%
	<u>brideliifolia</u> , <u>B. scleroneuroides</u> ,		4
	<u>Grewia sp. 1942</u> , <u>Maerua sp.</u>		

Site 353a. Sampled on 21.2.56. Map ref: 322505.012145.

Location: mile 5.50 Nakasongola - Nabuswera, North Mingo.

Position: hilltop. Elevation: 3600 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-9" fs	9-22 d	22-26 s	26 +
Colour	5YR4.6 yellow-red	5YR4.6 yellow-red	5YR4.8 yellow-red	
Disp.	U	U	U	
Texture	FSL	FSL	FSCL	
Min. skel.				
Structure	crumb	granule	granule	massive
Vis. Por.	++small	++small	++small	channels
Handl. cons.	friable	powdery	powdery	solid
Org. matter	4	2	1	
Roots	4	2	2	
Water conds.	M	D	D	
Sec. Chem. & Min.			pea iron	vesicular sheet ironstone
Fauna	ants			

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-30'/15%
Number of species	30	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 4'/75%
Inclusions	353b (A.Th.)		2 50%
			3 20%
			4

Site 354a. Sampled on 21.2.56. Map ref: 322100.012615.

Location: mile 14.10 Nakasongola - Nabuswera, North Mingo.

Position: hilltop. Elevation: 3600 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-8" d	8-23 fs	23-26 s	26 +
Colour	2.5YR3.4 dk.red-brown	2.5YR3.4 dk.red-brown	2.5YR4.8 red	
Disp.	U	U	U	
Texture	FSCL	FSCL	FSCL	
Min.skeleton				
Structure	crumb	crumb	granule	vesicular
Vis.Por.	++small	++small	+small	channel
Handl.cons.	friable	powdery	powdery	
Org.matter	4	2	1	
Roots	4	3	2	
Water conds.	M	M	D	
Sec.Chem. & Min.			pea iron	sheet ironstone
Fauna	ants	ants		

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	6-20' / 35%
Number of species	50	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 4' / 75%
Inclusions	354b (A.Th.)		2 50%
			3 30%
			4

Site 362b. Sampled on 23.2.56. Map ref: 322420.013045.

Location: 8.29 miles west of Lwampanga, North Mengo.

Position: hilltop. Elevation: 3550 ft. Slope - Aspect -

Macrorelief: gently undulating. Microrelief: anthills
(within 362a), Drainage: free to ironstone, then lateral.

Burning: annual/biennial. Erosion effect: eluvial.

Grazing: intermittent. Not cultivated. Wild life: small
game.

- for Soil Profile see site 362a page 175.

Type: A

Vegetation

Area sampled	800 sq.yards	Trees:	10-20'/15%
Number of species	17	Shrubs	
Physiognomy	Scattered Tree Grasslands	Herbs	1 5'/100%
Included in	362a (Th.)		2 10%
Notes:	grass cover open.		3 40%
			4

Site 422. Sampled on 11.5.56. Map ref: 320055.010830.

Location: mile 28.14 Wakya to - Ngoma, North Mengo.

Position: upper hillside. Elevation: 3600 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: intermittent.

Cultivated about 10 years ago. Wild life: small game & Elephant.

Soil Profile

Type: A

Depth & clar.	0-5" fs	5-25 d	25-37 fs	37-67 s
Colour	7.5YR3.2 dk. red - br	5YR4.6 yellow-red	5YR4.8 yellow-red	5YR4.8 yellow-red
Disp.	U	U	U	U
Texture	FSL	FSL	FSCL	FSCL
Min. skel.				
Structure	crumb	crumb	crumb	granule
Vis. Por.	+small	+small	+small	
Handl. cons.	powdery	friable	soft friable	powdery
Org. matter	3	2	1	
Roots	2	3	2	1
Water conds.	M	M	D/M	D
Sec. Chem. & Min.				

Weather conditions prior to sampling: wet, at sampling: dry,
below 67" = vesicular sheet ironstone.

Vegetation

Area sampled	2500 sq. yards	Trees)	
Number of species	37	Shrubs)	10-30' / 20%
Physiognomy	Scattered Tree Grassland	Herbs	1 5' / 80%
Inclusions	Open (burnt) thickets		2 40%
	on anthills (not estimated)		3 20%
			4

Site 424. Sampled on 12.5.56. Map ref: 320705.005805.

Location: mile 11.13 Wakyato - Ngoma, North Mingo.

Position: hilltop. Elevation: 3700 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-4" fs	4-15 d	15-44 d	44-84 +
Colour	5YR3.4 dk.red-brown	5YR4.6 yellow-red	2.5YR3.6 dk.red	2.5YR4.8 red
Disp.	U	U	U	U
Texture	LFS	FSCL	FSCL	FSC
Min.skeleton				q $\frac{1}{8}$ " 5%
Structure	crumb	crumb	crumb	crumb
Vis.Por.	++small	++small	++small	++small
Handl.cons.	friable	friable	friable	friable
Org.matter	3	1	1	1
Roots	3	3	2	2
Water conds.	M	M	M	M
Sec.Chem. & Min.		Mn?	Mn?	
Fauna				

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees)
Number of species	35	Shrubs) 6-30' / 20%
Physiognomy	Scattered Tree Grassland	Herbs 1 5' / 80%
Inclusions	430 (A.Th.)	2 40%
		3 10%
		4

Site 432. Sampled on 14.5.56. Map ref: 320615.005830.

Location: mile 12.10 Wakayato - Ngoma, North Mengo.

Position: hilltop. Elevation: 3650 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-6" fs	6-10 s	10 +
Colour	2.5YR3.4 dk.red-brown	2.5YR3.6 dark red	
Disp.	U	U	
Texture	FSCl	FSC	
Min.skeleton			q 80%
Structure	crumb	crumb	
Vis.Por.	+small	+small	
Handl.cons.	friable	soft friable	
Org.matter	3	1	
Roots	3	3	
Water conds.	M	M	
Sec.Chem. & Min.			(over ironstone)
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees)
Number of species	26	Shrubs) 6-30' / 30%
Physiognomy	Scattered Tree Grassland	Herbs 1 4' / 70%
Inclusions	433 (A.Th.)	2 40%
		3 20%
		4

Notes: zoning round anthills - Brachiaria
brizantha, Panicum maximum frequent.

Site 441. Sampled on 30.6.56. Map ref: 325305.010850.

Location: 4.18 miles north of Bale, North Mengo.

Position: hilltop. Elevation: 3580 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: intermittent.

Not cultivated. Wild life: small game abundant.

Soil Profile

Type: A

Depth & char.	0-5" fs	5-19" d	19-60 -
Colour	dk.red-brown	red-brown	red-brown
Disposal	U	U	U
Texture	FSL	FSCL	FSCL
Min.Skeleton			
Structure	granule	crumb	crumb
Vis.Poros.	+small	++small	++small
Handl.cons.	powdery	friable	friable
Org.matter	3	2	1
Roots	4	2	1
Water conds.	D	M	M
Sec.Chem. & Mih.			
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	15-25'/25%
Number of species	34	Shrubs	5-10/ 5%
Physiognomy	Scattered Tree Grassland	Herbs	1 5'/100%
Inclusions	442 (A.Th.)		2 30%
			3 20%
			4

Site 449. Sampled on 3.7.56. Map ref: 325305.011130.

Location: 5.29 miles north of Bale, North Mengo

Position: hilltop. Elevation: 3560 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: intermittent.

Not cultivated. Wild life: small abundant.

Soil Profile

Type: A

Depth & clar.	0-3" fs	3-7/29 s	7/29 +
Colour	dk.red-brown	red-brown	
Disp.	U	U	
Texture	FSCL	FSCL	
Min.skel.			
Structure	granule	crumb	
Vis.Poros.	+small	++small	
Handl.cons.	powdery	friable	
Org.matter	3	2-1	
Roots	4	2-1	
Water conds.	D/M	D/M	
Sec.Chem.		occ.cemented	sheet
& Min.		pea iron	ironstone
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	15'/10%
Number of species	31	Shrubs	6-10'/5%
Physiognomy	Scattered Tree Grassland	Herbs	1 5'/40%
Inclusions	450 (A.Th.)		2 20%
			3 60%
			4

Notes: this appears to be an ecotone of Hyparrhenia filipendula - Acacia seyal var. multijuga - Combretum spp. on shallow soil; it grades into the main type with increasing soil depth.

Site 461. Sampled on 29.7.56. Map ref: 324200.010015.

Location: mile 9.40 Wabusana - Kalungi, North Mengo.

Position: hillside. Elevation: 3520 ft. Slope: $2\frac{1}{2}^{\circ}$. Aspect: N.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial - colluvial. Grazing: intermittent.

Cultivated a long time ago. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-7" fs	7-15 s	15 +
Colour	dk.red-brown	red-brown	red-brown
Disp.			
Texture	FSL	FSCL	FSCL
Min.skel.	min q	min q	q 2" 50%
Structure	granule	crumb	crumb
Vis.Poros.	+small	++small	+small
Handl:cons.	powdery	friable	crumbly
Org.matter	3	2-1	
Roots	3	2	1
Water conds.	D	D	M
Sec.Chem. & Min.			
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-15' / 10%
Number of species	45	Shrubs	6-10' / 5%
Physiognomy	Scattered Tree Grassland	Herbs	1 5' / 70%
Inclusions	462 (A.Th.)		2 50%
			3 20%
			4

Group 6. Miscellaneous post-cultivation communities
on "A" soils.

Sites number: 331, 350, 368, 376, 380, 386,
397, 401, 402, 406, 434.

Site 331. Composition.

Woody species

<i>Acacia seyal</i> var. <i>multijuga</i>	X
<i>Albizzia zygia</i>	X
<i>Combretum binderanum</i>	X
<i>Combretum gueinzii</i>	X
<i>Hymenocardia acida</i>	X
<i>Piliostigma thonningii</i>	X
<i>Steganotaenia araliacea</i>	X
<i>Terminalia velutina</i>	X

Herb species

<i>Aloe</i> sp.	1
<i>Andropogon dummeri</i>	1
<i>Asparagus pauli-guilelmi</i>	X
<i>Brachiaria kotschyana</i>	1
<i>Brachiaria platynota</i>	2
<i>Chloris gayana</i>	X
<i>Cyperus cyperoides</i>	X
<i>Digitaria velutina</i>	X
<i>Emilia</i> sp.	X
<i>Eragrostis wakefieldii</i>	1
<i>Hyparrhenia dissoluta</i>	1
<i>Hyparrhenia filipendula</i>	3
<i>Loudetia arundinacea</i>	3
<i>Panicum infestum</i>	2
<i>Panicum maximum</i>	11

Site 331. Sampled on 19.1.56. Map ref: 322730.011720.

Location: 1.87 miles south of Nakasongola, North Mengo.

Position: hilltop. Elevation: 3620 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: intermittent.

Cultivated about 20 years ago. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-6" d	6-12 d	12-36 fs	36-101 s	101-106 +
Colour	7.5YR4.2 brown	7.5YR4.4 brown	7.5YR4.4 brown	5YR5.6 yellow-red	5YR5.6 yellow-red
Disp.	U	U	U		
Text.	FSL	FSL	FSL	FSCL	CL(matrix)
Min.skel.					rotting rock,
Struct.	crumb	crumb	crumb	soft crumb	massive
Vis.Por	++small	++small	++small	++small	-small
Handl.					
cons.	friable	friable	friable	friable	solid
Org.					
matter	3	2	1		
Roots	3	2	2	1	
Water					
conds.	M	M	M	M	D
Sec.Chem.					soft sheet
& Min.					ironstone
Fauna	ants	ants	ants		

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	6-15' / 10%
Number of species	24	Shrubs	6-10' / 5%
Physiognomy	Scattered Tree Grassland	Herbs	1 5' / 70%
Inclusions	Open anthill thickets (not estimated)		2 30%
			3 10%
			4

Site 350 - Composition

Woody species

Acacia senegal	X
A.seyal var. multijuga	X
Albizzia zygia	X
Cassia sp.	X
Combretum binderanum	X
C. ghaselense	X
C. gueinzii	X
Gymnosporia senegalensis	X
Piliostigma thonningii	X
Stereo spermum kunthianum	X
Strychnos innocua	X

Herb species

Aristida adscensionis	1
Asparagus pauli-guilelmi	X
Brachiaria brizantha	3
Chloris gayana	1
Hyparrhenia filipendula	2
Panicum maximum	1
Rhynchelytrum repens	1
Sporobolus pyramidalis	2
Sporobolus sp.1932	1
Vernonia violacea	1

Site 350. Sampled on 31.1.56. Map ref: 322910.011820.

Location: 1.50 miles east of Nakasongola, North Mengo.

Position: hilltop. Elevation: 3600 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: regular.

Cultivated about 10 years ago. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-6" d	6-13 fs	13-18/25 s	18/25 +
Colour	5YR4.3 red-brown	5YR4.6 yellow-red	5YR4.6 yellow-red	
Disp.	U	U	U	
Texture	FSCL	FSC	FSC	
Min. skel.				
Structure	granule	crumb	crumb	vesicular
Vis. Poros.	++small	++small	+small	channels
Handl. cons.	powdery	friable	friable	hard
Org. matter	3	1	1	
Roots	3	2	2	
Water conds.	D	M	D	
Sec. Chem. & Min.			pea iron	sheet ironstone
Fauna	ants	ants		

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees)
Number of species	21	Shrubs) 6-15'/5-10%
Physiognomy	Grassland	Herbs 1 4'/20%
Inclusions	Open thickets on anthills including:	2 80%
	<u>Allophylus africanus,</u>	3 30%
	<u>Bridelia scleroneuroides,</u>	4
	<u>Carissa edulis, Cissus rotundifolius,</u>	
	<u>Harrisonia abyssinica, Rhus natalensis,</u>	
	<u>Tinnea aethiopica, Ziziphus abyssinica.</u>	

Site 368 - Composition

Woody species

<i>Acacia hebecladoides</i>	X
<i>Acacia seyal</i> v. <i>multijuga</i>	X
<i>Albizzia zygia</i>	1
<i>Annona chrysophylla</i>	X
<i>Bridelia brideliifolia</i>	X
<i>Combretum binderanum</i>	X
<i>Combretum gueinzii</i>	1
<i>Gymnosporia senegalensis</i>	X
<i>Piliostigma thonningii</i>	X
<i>Stereospermum kunthianum</i>	X

Herb species

<i>Acalypha villicaulis</i>	1
<i>Aframomum</i> sp. "A"	2
<i>Aspilia</i> sp. 1998	X
<i>Berkheya spekeana</i>	X
<i>Brachiaria brizantha</i>	34
<i>Brachiaria platynota</i>	1
<i>Chloris pycnothrix</i>	1
<i>Cyanota hirsuta</i>	X
<i>Cymbopogon afronardus</i>	3
<i>Digitaria diagonalis</i>	1
<i>Digitaria ternata</i>	X
<i>Gloriosa simplex</i>	X
<i>Helichrysum nudifolium</i>	X
<i>Helichrysum</i> cf. <i>undatum</i>	X
<i>Hyparrhenia filipendula</i>	34
<i>Imperata cylindrica</i> v. <i>africana</i>	3
<i>Indigofera</i> sp.	X
<i>Lactuca capensis</i>	1
<i>Panicum maximum</i>	1
<i>Setaria sphacelata</i>	1
<i>Setaria splendida</i>	1
<i>Solanum incanum</i>	X

Site 368. Sampled on 19.3.56. Map ref: 314010.010235.

Location: mile 13.15 Kiboga gambolola - Butemba, North Mengo.

Position: hilltop. Elevation: 3650 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: intermittent.

Cultivated about 10 years ago. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-11" d	11-20 fs	20-63 d	63-76 d	76 +
Colour	5YR3.3 dk.red-br.	5YR3.4 dk.red-br	2.5YR4.8 red	2.5YR4.6 red	2.5YR4.6 red
Disp.	U	U	U	U	U
Text.	FSL	FSL	FSCL	FSCL	FSCL
Min.skel.	min.q	min.q		q 1/10 "ang.	q 1"ang.
Struct.	crumb	crumb	crumb	crumb	massive
Vis.Por.	++small	++small	++small	++small	+small
Handl. cons.	friable	friable	soft friable	soft friable	crumbly
Org. matter	4	3	2	1	
Roots	4	3	2	2	1
Water conds.	D/M	D/M	D/M	D/M	D/M
Sec.Chem. & Min.			Mn?		
Fauna					

Weather conditions prior to sampling: wet - dew, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	10-25' / 15%
Number of species	32	Shrubs	6-10' / 5%
Physiognomy	Scattered Tree Grassland.	Herbs	1 2 100%*
Inclusions	Open thickets on anthills (not estimated).		3 30% 4

Note * includes Hyparrhenia filipendula (4 ft. high)

Site 376 - Composition

Woody species

<i>Albizzia zygia</i>	X
<i>Combretum binderanum</i>	2
<i>Gymnosporia senegalensis</i>	X
<i>Hymenocardia acida</i>	1
<i>Lanea kerstingii</i>	X
<i>Stereospermum kunthianum</i>	X
<i>Strychnos innocua</i>	2
<i>Terminalia velutina</i>	X
<i>Vitex doniana</i>	X

Herb species

<i>Aframomum</i> sp.A	1
<i>Ampelocissus grantii</i>	1
<i>Asparagus pauli-guilelmi</i>	1
<i>Beckeropsis uniseta</i>	1
<i>Brachiaria decumbens</i>	1
<i>Brachiaria brizantha</i>	4
<i>Chloris pycnothrix</i>	1
<i>Chlorophytum blepharophyllum</i>	X
<i>Chlorophytum</i> sp.2020	X
<i>Commelina latifolia</i>	X
<i>Cymbopogon afronardus</i>	1
<i>Imperata cylindrica</i> v. <i>africana</i>	1
<i>Loudetia arundinacea</i>	X
<i>Panicum maximum</i>	1
<i>Urginea micrantha</i>	X
<i>Vernonia smithiana</i>	1
<i>Vigna gracilis</i>	X

Site 376. Sampled on 21.3.56. Map ref: 313630.010615.

Location: mile 19.25 Kiboga gombolola - Butemba, N.W. Mengo.

Position: upper hillside. Elevation: 3630 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: intermittent.

Cultivated about 5 years ago. Wild life: small game, Elephant.

Soil Profile

Type: A

Depth & clar.	0-3" fs	3-14 d	14-31 d	31-41 fs	41-84 +
Colour & Disp	7.5YR3.2 dk.brown U	5YR4.3 red-br.U	2.5YR3.6 dk.red U	2.5YR4.6 red U	2.5YR4.6 red U
Text.	FSL	FSCL	FSCL	FSCL	FSCL
Min.skel.				min.q	ang.q $\frac{1}{8}$ "
Struct.	crumb	crumb	crumb	crumb	crumb
Vis.Por.	++small	++small	++small	++small	++small
Handl. cons.	powdery	friable	friable	friable	friable
Org. matter	3	2	2	1	
Roots	3	3	2	1	1
Water conds.	D	D	D	D	D/M
Sec.Chem. & Min.				soft murrum	pea iron
Fauna					

Weather conditions prior to sampling: wet, at sampling: wet.

Vegetation

Area sampled	2500 sq.yards	Trees	15-35'/40%
Number of species	26	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 5'/10%
Inclusions	Open thickets on anthills (not estimated).		2 100%
			3 20%
			4

Site 380 - Composition.

Woody species

<i>Acacia hebecladoides</i>	X
<i>Acacia seyal</i> v. <i>multijuga</i>	1
<i>Albizzia zygia</i>	2
<i>Annona chrysophylla</i>	X
<i>Bridelia brideliifolia</i>	X
<i>Bridelia scleroneuroides</i>	1
<i>Cassia tora</i>	X
<i>Combretum binderanum</i>	2
<i>Dombeya rotundifolia</i>	X
<i>Ficus</i> sp.	X
<i>Gymnosporia senegalensis</i>	X
<i>Hymenocardia acida</i>	X
<i>Lanea kerstingii</i>	X
<i>Pandanus</i> sp.	X
<i>Pseudocedrela kotschyi</i>	X
<i>Rhus vulgaris</i>	X
<i>Stereospermum kunthianum</i>	X

Herb species

<i>Ageratum conyzoides</i>	1
<i>Asparagus pauli-guilelmi</i>	X
<i>Brachiaria brizantha</i>	5
<i>Brachiaria decumbens</i>	X
<i>Hyparrhenia filipendula</i>	1
<i>Imperata cylindrica</i> v. <i>africana</i>	1
<i>Panicum maximum</i>	1
<i>Urochloa panicoides</i>	X

Site 380. Sampled on 23.3.56. Map ref: 313445.010800.

Location: mile 0.90 Butemba t.o.- Hoima, N.W.Mengo.

Position: hilltop. Elevation: 3660 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: intermittent.

Cultivated about 10 years ago. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-3" fs.	3-19 d	19-45 d	45-84 +
Colour	5YR3.3 dk.red-br.	5YR3.4 dk.red-br.	2.5YR3.6 dk.red	2.5YR4.8 red
Disp.	U	U	U	U
Text.	FSL	FSL	FSC	FSC
Min.skel.				min q.
Struct.	crumb	crumb	granule	granule
Vis.Por.	++small	++small	+small	+small
Handl.				
cons.	friable	friable	powdery	powdery
Org.matter	4	3	2	1
Roots	4	2	2	2
Water cond.	M	D	D	D/M
Sec.chem. & Min. Fauna				

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-20'/20%
Number of species	25	Shrubs	6-10'/10%
Physiognomy	Scattered Tree Grassland	Herbs	1 5'/10%
			2 100%
			3 5%
			4

Site 386 - Composition.

Woody species

<i>Albizzia coriaria</i>	1
<i>Albizzia zygia</i>	1
<i>Annona chrysophylla</i>	X
<i>Bridelia scleroneuroides</i>	X
<i>Combretum binderanum</i>	1
<i>Grewia mollis</i>	X
<i>Harrisonia abyssinica</i>	X
<i>Lanea kerstingii</i>	X
<i>Markhamia platycalyx</i>	X
<i>Rhus natalensis</i>	X
<i>Spathodea campanulata</i>	X
<i>Stereospermum kunthianum</i>	X

Herb species

<i>Acalypha bipartita</i>	X
<i>Acalypha villicaulis</i>	X
<i>Aspilia</i> sp. 1998	1
<i>Brachiaria brizantha</i>	2
<i>Brachiaria decumbens</i>	2
<i>Brachiaria platynota</i>	4
<i>Commelina africana</i>	1
<i>Cyperus cyperoides</i>	X
<i>Digitaria longiflora</i>	X
<i>Hyparrhenia filipendula</i>	2
<i>Indigofera</i> sp.	X
<i>Justicia</i> sp. 1718	X
<i>Kyllinga albiceps</i>	X
<i>Oxalis corniculata</i>	X
<i>Panicum maximum</i>	2
<i>Phyllanthus nummulariifolius</i>	X
<i>Ruellia</i> sp. 2034	X
<i>Setaria sphacelata</i>	1

Site 386 Sampled on 12.4.56. Map ref: 322755.005600.

Location: mile 5.10 Batuntumula t.o.- Kakoge, North Mengo.

Position: upper hillside. Elevation: 3620 ft. Slope: 2°.

Aspect: N. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: intermittent.

Cultivated 10-15 years ago. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-3" fs	3-20 d	20-37 d	37-60 +
Colour	2.5YR3.2 dusky red	2.5YR3.6 dk.red	2.5YR4.8 red	2.5YR4.8 red
Disp.	U	U	U	U
Texture	FSC	FSC	FSC	FSC
Min.skel.			min.q 10%	ang.q 1"
Struct.	crumb	crumb	crumb	crumb
Vis.Por.	++small	++small	+small	+small
Handl.cons.	friable	friable	powdery	powdery
Org.matter	4	3	1	
Roots	4	3	2	1
Water conds.	M	M	D/M	D/M
Sec.Chem. & Min.			Mn? soft murrem	
Fauna				

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation.

Area sampled	1600 sq.yards	Trees	15-35'/10%
Number of species	30	Shrubs	6-10'/5%
Physiognomy	Scattered Tree Grassland	Herbs 1	4-5'/20%
Inclusions	Open thickets on anthills (not estimated).	2	100%
		3	20%
		4	

Notes: Boundary between 386 & 387 sharp,
cultivation discontinued on this site
at an earlier date.

Site 397 - Composition.

Woody species

Acacia seyal v. multijuga	X
Acacia hebecladoides	X
Albizzia coriaria	1
Albizzia zygia	X
Combretum binderanum	1
Combretum gueinzii	1
Ficus sp.	X
Gardenia jovis-tonantis	X
Securidaca longipedunculata	X

Herb species

Acalypha villicaulis	X
Aframomum sp.A.	X
Aloe sp.B.	X
Andropogon dummeri	1
Asparagus pauli-guilelmi	X
Aspilia sp. 1998	1
Brachiaria brizantha	X
Brachiaria fulva	X
Brachiaria platynota	2
Chlorophytum blepharophyllum	X
Cyanotis hirsuta	X
Cymbopogon afronardus	1
Eragrostis chalcantha	2
Fimbristylis monostachya	1
Gloriosa simplex	X
Helichrysum undatum	1
Hyparrhenia dissoluta	1
Hyparrhenia filipendula	4
Hypoxis sp. 2065	X
Indigofera sp.	X
Kyllinga albiceps	2
Kyllinga aurata	1
Loudetia arundinacea	X
Margaretta rosea	X
Mariscus macer	1
Mariscus mollipes	1
Microglossa densiflora	X
Panicum maximum	1
Saccharum sp. 2296	X
Setaria sphacelata	X
Setaria trinervia	3
Setaria sp.	1
Solanum incanum	1
Sporobolus pellucidus	X
Sporobolus pyramidalis	X
Striga asiatica	1
Vernonia grantii	X
Wissadula amplissima	X

Site 397. Sampled on 13.4.56. Map ref: 321245.005140.

Location: mile 0.26 Wakayato - Luwero, North Mengo.

Position: hilltop. Elevation: 3600 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: intermittent.

Cultivated about 20 years ago. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-2" fs	2-17 d	17-39 fs	39-84 +
Colour	5YR4.4 red-brown	5YR4.6 yellow-red	2.5YR4.8 red	2.5YR3.6 dk.red
Disp.	U	U	U	U
Texture	FSCL	FSCL	FSCL	FSC
Min.skel.				
Structure	crumb	crumb	crumb	crumb
Vis.Poros.	++small	++small	++small	++small
Handl.cons.	friable	friable	friable	friable
Org.matter	4	2	1	
Roots	4	3	2	2
Water conds.	M	M	M	D
Sec.Chem.				
& Min.	Mn?	Mn?	Mn?	pea iron
Fauna	white ants	white ants	white ants	

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	15-35' / 15%
Number of species	47	Shrubs	6-15' / 5%
Physiognomy	Scattered Tree Grassland	Herbs	1 4' / 80%
Inclusions	Anthill thickets		2 10%
	(not estimated)		3 30%
			4

Site 401 - Composition

Woody species

<i>Acacia macrothyrsa</i>	X	
<i>Annona chrysophylla</i>	X	
<i>Combretum binderanum</i>	X	
<i>Combretum gueinzii</i>	X	
<i>Cryptolepis oblongifolia</i>	X	
<i>Gymnosporia senegalensis</i>	X	
<i>Steganotaenia araliacea</i>	X	
<i>Terminalia velutina</i>	X	
<i>Vernonia amygdalina</i>	X	s *

Herb species

<i>Acalypha villicaulis</i>	1
<i>Ageratum conyzoides</i>	1
<i>Aspilia</i> sp. 1998	X
<i>Brachiaria comata</i>	X
<i>Cassia mimosoides</i>	X
<i>Commelina africana</i>	X
<i>Commelina benghalensis</i>	1
<i>Digitaria horizontalis</i>	X
<i>Digitaria scalarum</i>	5
<i>Eleusine indica</i>	X
<i>Eragrostis tremula</i>	X
<i>Erigeron grantii</i>	1
<i>Justicia betonica</i>	1
<i>Justicia</i> sp. 1718	X
<i>Panicum atrosanguineum</i>	2
<i>Panicum maximum</i>	1
<i>Rhynchelytum repens</i>	2
<i>Sporobolus piliferus</i>	X
<i>Urochloa panicoides</i>	X

Note: s * = seedlings.

Site 401. Sampled on 14.4.56. Map ref: 322710.005040.

Location: mile 2.45 Luwero - Wakyato, North Mengo.

Position: hillside. Elevation: 3570 ft. Slope: 2°.

Aspect: ENE. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: this year but not last year.

Erosion effect: eluvial - colluvial. Grazing: intermittent.

Cultivated 2 years ago. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-5" s	5-13 fs	13-19 fs	19-38 d	38-58 d	58-84 +
Colour	10YR4.3 brown	7.5YR4.4 brown	7.5YR4.4 brown	5YR5.6 yellow-red	5YR5.6 yellow-red	7.5YR6.6 yellow-red
Disp.	U	U	U	U	U	U
Text.	SCL	FSCL	FSCL	FSC	FSC	FSC
Min. skel.	min.q.	q. $\frac{1}{16}$ "	ang q. $\frac{1}{8}$ " 30%	q. $\frac{1}{4}$ " 20%		rotting rock
Struct.	crumb	crumb	crumb	crumb	crumb	crumb
Vis. For. Handl.	++small cons. friable	++small friable	+small crumbly	+small plastic	+small plastic	+small plastic
Org. matter	3	2	2	1		
Roots	4	3	2	2	1	
Water conds.	M	M	M	M	M	M
Sec. Chem. & Min.				soft murrum	soft murrum	soft murrum
Fauna						

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation.

Area sampled	2500 sq.yards	Trees: 15-30' / 5%
Number of species	28	Shrubs
Physiognomy	Grassland	Herbs 1
Inclusions	Anthill thickets (not estimated)	2 3 100%
		4

Site 402 - Composition

Woody species

Acacia campylacantha	X
Annona chrysophylla	X
Chlorophora excelsa	X
Stereospermum kunthianum	X
Vernonia amygdalina	X
Numerous planted trees *	(2)

Herb species

Ageratum conyzoides	X
Brachiaria brizantha	X
Brachiaria decumbens	X
Eleusine indica	X
Erigeron grantii	X
Hyparrhenia rufa	X
Justicia sp. 1718	X
Mariscus macer	X
Panicum maximum	1
Pennisetum polystachyon	X
Pennisetum purpureum	3
Setaria sphacelata	X
Sorghum verticilliflorum	X

Notes

*
#

Markhamia platycalyx
 Manganifera indica
 Ficus spp.
 Bananas, coffee, etc.

Site 402. Sampled on 14.4.56. Map ref: 322700.005040.

Location: mile 2.57 Luwero - Wakyato, North Mengo.

Position: upper hillside. Elevation: 3590 ft. Slope: 1°.

Aspect: E. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: burnt last two years.

Erosion effect: eluvial. Grazing: immediately after burning.

Cultivated about 3 years ago. Wild life: small game.

Soil Profile

Type: A

	0-6" d	6-27 d	27-56 d	56-69 d	69-84 +
Depth & clar.					
Colour	7.5YR4.4 brown	2.5YR3.6 dk.red	5YR5.8 yellow-red	2.5YR4.6 red	2.5YR5.6 red
Disp.	U	U	U	U	U
Text.	FSCL	SCL	FSCL	FSC	FSC
Min.skel.					
Struct.	crumb	crumb	crumb	crumb	crumb
Vis.Por.	+++small	+++small	+++small	+++small	+++small
Handl. cons.	friable	friable	friable	friable	friable
Org. matter	4	3	2	2	1
Roots	4	3	2	2	2
Water conds.	M	M	M	M	M
Sec.Chem. & Min.		Mn?		Mn? soft murrum	Mn? soft murrum

Fauna

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	15-40'/20%
Number of species	18 +	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 7'/40%
Inclusions	Anthill thickets (not estimated)		2 (4') 20%
			3 20%
			4

Notes: successional to Pennisetum purpureum.

Site 406 - Composition

Woody species

<i>Acacia campylacantha</i>	1
<i>Acacia seyal</i> v. <i>multijuga</i>	X
<i>Albizzia coriaria</i>	1
<i>Albizzia zygia</i>	2
<i>Chlorophora excelsa</i>	X
<i>Combretum gueinzii</i>	2
<i>Ficus</i> sp.	X
<i>Grewia mollis</i>	X
<i>Gymnosporia senegalensis</i>	X
<i>Hoslundia opposita</i>	X
<i>Hymenocardia acida</i>	X
<i>Markhamia platycalyx</i>	X
<i>Piliostigma thonningii</i>	X
<i>Stereospermum kunthianum</i>	X
<i>Terminalia velutina</i>	X

Herb species

<i>Acalypha villicaulis</i>	1
<i>Aframomum</i> sp. A	1
<i>Asparagus pauli-guilelmi</i>	X
<i>Aspilia</i> sp. 1998	2
<i>Brachiaria brizantha</i>	1
<i>Brachiaria eminii</i>	2
<i>Brachiaria fulva</i>	1
<i>Brachiaria platynota</i>	1
<i>Cyanotis hirsuta</i>	X
<i>Cymbopogon afronardus</i>	1
<i>Emilia</i> sp.	X
<i>Hyparrhenia filipendula</i>	1
<i>Imperata cylindrica</i> v. <i>africana</i>	4
<i>Indigofera</i> sp.	2
<i>Justicia betonica</i>	1
<i>Justicia</i> sp. 1995	1
<i>Kyllinga albiceps</i>	X
<i>Mariscus macer</i>	X
<i>Setaria caudula</i>	X
<i>Setaria sphacelata</i>	2
<i>Setaria splendida</i>	1
<i>Panicum maximum</i>	3
<i>Pennisetum purpureum</i>	1

Site 406. Sampled on 14.4.56. Map ref: 322545.005105.

Location: mile 4.23 Luwero - Wakyato, North Mungo.

Position: hilltop. Elevation 3690 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: post-burn.

Cultivated 15 years ago. Wild life: small game.

Soil Profile

Type: A

	0-5" d	5-17 d	17-48 d	48-69 d	69-84 +
Depth & clar.					
Colour	5YR3.4 dk.red-br.	5YR4.6 yellow-red	5YR5.8 yellow-red	2.5YR5.8 red	2.5YR5.8 red
Disp.	U	U	U	U	U
Text.	FSCL	FSCL	FSC	FSC	FSC
Min.skel.					ang.q 1"70%
Struct.	crumb	crumb	soft crumb	soft crumb	massive
Vis.Por.	+++small	+++small	+++small	+++small	+ small
Handl. cons.	friable	friable	friable	friable	crumbly
Org. matter	4	3	2	1	
Roots	4	3	2	2	1
Water conds.	M	M	M	M	M
Sec.Chem. & Min.		Mn?	Mn?	Mn? soft murrum	

Fauna

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees (a 20-40'/10%
Number of species	38	(b 10-20'/15%
Physiognomy	Scattered Tree Grassland	Shrubs
Inclusions	Open thickets on anthills (not estimated)	Herbs 1 5'/20%
		2 100%
		3 20%
		4

Notes: Boundary between sites 405 and 406 is diffuse.

Site 434 - Composition

Woody species

<i>Acacia seyal</i> v. <i>multijuga</i>	X
<i>Bridelia scleroneuroides</i>	X
<i>Combretum binderanum</i>	X
<i>Cryptolepis oblongifolia</i>	X
<i>Gymnosporia senegalensis</i>	X
<i>Lantana salvifolia</i>	X
<i>Rhus vulgaris</i>	X
<i>Pavetta crassipes</i>	X

Herb species

<i>Acalypha villicaulis</i>	X
<i>Andropogon dummeri</i>	X
<i>Aspilia</i> sp.	1
<i>Berkheya spekeana</i>	1
<i>Brachiaria brizantha</i>	1
<i>Brachiaria fulva</i>	1
<i>Brachiaria platynota</i>	2
<i>Cassia mimosoides</i>	X
<i>Chloris gayana</i>	1
<i>Echinops amplexicaulis</i>	X
<i>Eragrostis chalcantha</i>	1
<i>Eriosema cordatum</i>	X
<i>Fimbristylis monostachya</i>	3
<i>Helichrysum undatum</i>	1
<i>Hyparrhenia filipendula</i>	4
<i>Inula decipiens</i>	X
<i>Ipomoea grantii</i>	X
<i>Justicia</i> sp. 1718	X
<i>Phyllanthus numullariifolius</i>	X
<i>Pseudarthria hookeri</i>	2
<i>Setaria sphacelata</i>	2
<i>Sporobolus pyramidalis</i>	2
<i>Themeda triandra</i>	2
<i>Vernonia smithiana</i>	X

Site 434. Sampled on 14.5.56. Map ref: 320605.005835.

Location: mile 12.24 Wakayato - Ngoma, North Mengo.

Position: hillside. Elevation: 3600 ft. Slope: 3° Aspect: N.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: intermittent.

Cultivated about 20 years ago. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-7" d	7-13 d	13-36 fs	36-40 +
Colour	7.5YR3.2 dk.brown	7.5YR3.2 dk.brown	5YR4.6 yellow-red	5YR4.6 yellow-red
Disp.	U	U	U	U
Texture	FSL	FSCL	SCL	SCL(matrix)
Min.skel.				min q.
Structure	granule	crumb	crumb	massive
Vis.Por.	++small	++small	++small	-
Handl.	friable	friable	friable	crumbly
cons.				
Org.	3	3	1	
matter				
Roots	3	3	2	1
Water				
conds.	M	M	M	M
Sec.Chem.				cemented
& Min.				iron fragments
Fauna				

Weather conditions prior to sampling: wet at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	12'/10%
Number of species	32	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 4'/60%
Inclusions:	anthills bear trees and grasses, no thicket species (not estimated). Following species are more frequent around anthills: <u>Brachiaria brizantha</u> , <u>Chloris gayana</u> , <u>Panicum maximum</u> .	2	50%
		3	30%
		4	

Group 7. *Imperata cylindrica* var. *africana*
Post-Cultivation Communities.

	329	337	355	359	371	391
Woody SPECIES.						
<i>Acacia seyal</i> var. <i>multijuga</i>	X	X		X	2	1
<i>Acacia</i> sp.					X	
<i>Albizia coriaria</i>	X			X		
<i>A. zygia</i>			X		2	
<i>Annona chrysophylla</i>	X		X			
<i>Borassus aethiopicum</i>			X			
<i>Bridelia brideliifolia</i>				X	X	X
<i>B. scleroneuroides</i>	X		X	X	1	
<i>Combretum binderanum</i>	X	X	1	1	2	1
<i>C. ghasalense</i>	X	X				
<i>C. gueinzii</i>		X		X	X	
<i>Dichrostachys glomerata</i>		X				
<i>Dombeya rotundifolia</i>				X		
<i>Ficus</i> sp.	X			X		
<i>Gymnosporia senegalensis</i>	X	X	X		X	1
<i>G. senegalensis</i> var. <i>spinosa</i>				X		
<i>Harrisonia abyssinica</i>				X		
<i>Hymenocardia acida</i>			X	X		X
<i>Kigelia aethiopica</i>			X			
<i>Lonchocarpus laxiflorus</i>			X	X		
<i>Piliostigma thonningii</i>		X	X	X	X	X
<i>Pseudocedrela kotschyi</i>			X			
<i>Steganotaenia araliacea</i>			X			
<i>Stereospermum kunthianum</i>			X		1	X
<i>Tamarindus indica</i>			X			
<i>Terminalia velutina</i>	X		X	1		X
<i>Vernonia amygdalina</i>						X
<i>Vitex domiana</i>				1		X
HERBACEOUS SPECIES.						
<i>Acalypha villicaulis</i>			X	X	X	1
<i>Ageratum conyzoides</i>		X				
<i>Ampelocissus grantii</i>					X	
<i>Andropogon dummeri</i>				1		
<i>A. schirensis</i>				X		
<i>Anellama</i> sp. near <i>Whytei</i>			X			
<i>Aristida adscensionis</i>			1			1
<i>Asparagus pauli-guilelmi</i>				1	1	X
<i>Aspilia</i> sp. 1998					2	2
<i>Berkheya spekeana</i>				1	X	
<i>Brachiaria brizantha</i>	1		2	1	3	2
<i>B. deflexa</i>			1			
<i>B. jubata</i>				X		
<i>B. kotschyana</i>		1				
<i>B. platynota</i>		2		3	1	
<i>B. semiundulata</i>					X	
<i>Cassia mimosoides</i>			X	X		X
<i>Chloris gayana</i>		1	1			
<i>C. pilosa</i>			1			
<i>C. pyenothrix</i>	1					
<i>C. virgata</i> var. <i>elegans</i>		X	1			
<i>Chloris</i> sp. 2171			1			
<i>Chrysanthellum americanum</i>			X			
<i>Commelina benghalensis</i>			1			
<i>Cymbopogon afronardus</i>					1	
<i>Cynodon dactylon</i>			X			
<i>C. plectostachys</i>	X		X			
<i>Cyperus cyperoides</i>	X				X	
<i>Dactyloctenium aegyptium</i>	X					
<i>Digitaria dragonalis</i>			1	1	1	
<i>D. longiflora</i>	X	1	X			
<i>D. ternata</i>				X		
<i>D. velutina</i>	X	X	X	X	1	X
<i>Eleusine indica</i>				X		
<i>Emilia</i> sp.	X		X	X		
<i>Eragrostis aspera</i>	1					X
<i>E. chalcantha</i>						1
<i>E. cilianensis</i>					X	X
<i>E. ciliaris</i>		X		X		
<i>E. tenuifolia</i>	1	1	1	1	X	X
<i>Erigeron grantii</i>	1			1		
<i>Eulophia cucullata</i>					X	
<i>E. wakefieldii</i>				1	X	
<i>Euphorbia bongensis</i>			X			
<i>E. hirta</i>		X				
<i>Fimbristylis diphylla</i>			1			
<i>F. monostachya</i>	1	1				
<i>Gladiolus psittacinus</i>						1
<i>Helichrysum undatum</i>			1	1	1	1
<i>Hyparrhenia dissoluta</i>			X			
<i>H. filipendula</i>	1		2	1	1	1
<i>H. nyassae</i>	X					
<i>H. rufa</i>						1
<i>Hyparrhenia</i> sp. 1893		3				
<i>Hyparrhenia</i> sp.				X		
<i>Imperata cylindrica</i> var. <i>africana</i>	5	34	4	5	5	5
<i>Indigofera</i> sp.		X				
<i>Justicia betonica</i>				X	X	
<i>Justicia</i> sp. 1718	1			3	X	
<i>Kyllinga albiceps</i>			X		1	
<i>K. aurata</i>			X			
<i>Lactuca capensis</i>	1			1	1	
<i>Loudetia arundinacea</i>						1
<i>L. simplex</i>	X					
<i>Margaretta rosea</i>				1		
<i>Ornithogalum sordidum</i>				X		
<i>Oxalis corniculata</i>				X	X	
<i>Panicum infestum</i>	1					
<i>P. maximum</i>	2	1	1	1		2
<i>Pennisetum polystachyon</i>	2	1	2			1
<i>P. purpureum</i>		XL				
<i>Perotis indica</i>	1	1	1			1
<i>Phyllanthus nummulariifolius</i>					X	
<i>Pseudarthria hookeri</i>	2					1
<i>Rhynchelytrum repens</i>		1	2	1		1
<i>Rhynchosia sublobata</i>					X	
<i>Ruellia</i> sp. 1963				X		
<i>Setaria sphacelata</i>	2	1	1		1	
<i>S. splendida</i>				X		
<i>S. trinervia</i>				1		
<i>Sorghum verticilliflorum</i>	1					
<i>Sporobolus festivus</i>			2			
<i>S. piliferus</i>			1			
<i>S. pyramidalis</i>	1				1	
<i>Stylosanthes mucronata</i>			X			
<i>Thunbergia alata</i>				X		
<i>Tragus berteronianus</i>		1	1			X
<i>Urochloa panicoides</i>			X			X
<i>Vernonia smithiana</i>			1			
<i>Vigna reticulata</i>			1			

Site 529. Sampled on 21.1.56. Map ref: 322745.011750.

Location: 1.13 miles south of Nakasongola, North Mingo.

Position: lower hillside. Elevation: 3550 ft. Slope: $\frac{1}{2}$ -1°.

Aspect: N. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated 5 years ago. Wild life: small game.

Soil Profile

Type: B

Depth & clar.	0-7" fs	7-21 d	21-43 fs	43-75 fs	75-86 s
Colour	10YR3.2 v. dk. grey-br.	7.5YR5.4 brown	7.5YR5.4 brown	10YR6.4 l. yellow-br.	10YR6.2 l. brown-grey
Disp.	U	U	U	U	M
Text.	LFS	LFS	LFS	FSL	FSL
Min. skel.					
Struct.	granule	granule	granule	granule	granule
Vis. por.	++small	++small	++small	+small	+small
Handl. cons.	loose	loose	loose	loose	loose
Org. matter	4	2	1		
Roots	4	3	2	2	1
Water conds.	M	D	M	M	M
Sec. Chem. & Min.					
Fauna	ants	ants	ants		

Weather conditions prior to sampling: wet, at sampling: dry.
Below 86" = layer containing angular quartz 2"

Vegetation

Area sampled	1600 sq. yards	Trees	10-20' / < 10%
Number of species	35	Shrubs	
Physiognomy	Grassland	Herbs	1
Inclusions:	Thickets centred on anthills (not estimated).		2 100%
			3 50%
			4

Notes: Cover of Imperata very open.
Second stage of succession post cultivation: annuals →
Imperata → Brachiaria spp. - Pennisetum polystachyon →
Hyparrhenia spp.

Site 337. Sampled on 25.1.56. Map ref: 323950.011825.

Location: 1.50 miles north of Kalungi, North Mengo.

Position: valley head. Elevation: 3540 ft. Slope: $\frac{1}{2}^{\circ}$.

Aspect: NE. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated 2-3 years ago. Wild life: small game.

Soil Profile

Type: B

Depth & clar.	0-5" fs	5-20 d	20-32 fs	32-48 c	48-60 -
Colour	10YR4.2 dk. grey-br.	7.5YR4.4 brown	7.5YR4.4 brown	7.5YR5.4 brown	7.5YR5.4 brown
Disp.	U	U	U	U	U
Text.	LFS	LFS	FSCL	FSCL	FSCL
Min. skel.					
Struct.	granule	granule	crumb	clod	clod
Vis. Por.	+small	+small	++small	++small	-
Handl. cons.	powdery	powdery	friable	crumbly	plastic
Org. matter	3	3	2	1	
Roots	4	4	2	1	1
Water conds.	D	M	M	M	M
Sec. Chem. & Min.					
Fauna					

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled:	1600 sq.yards	Trees	6-15' / 5%
Number of species	28	Shrubs	
Physiognomy	Grassland	Herbs	1 4' / 50%
Inclusions	Anthill thickets - not estimated.		2 60%
			3 10%
			4

Notes: grass sequence probably: annuals → Imperata →
Hyparrhenia spp.

Site 355. Sampled on 21.2.56. Map ref: 322125.012550.

Location: mile 13.54 Nakasongola - Nabuswera, North Mengo.

Position: valley side. Elevation: 3550 ft. Slope: 1°.

Aspect: E. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated 3-5 years ago. Wild life: small game.

Soil Profile

Type: B

Depth & clar.	0-10 $\frac{1}{2}$ s	10 $\frac{1}{2}$ -36 d	36-68 fs	68-84 +
Colour	10YR4.1 dk.grey	10YR5.2 grey-brown	10YR4.2 dk.grey-br.	10YR4.2 dk.grey-br.
Disp.	U	U	U	U
Text.	S	S	SL	SL
Min. skel.				
Struct.	granular	granular	crumb	crumb
Vis. Poros.	++small	++small	++small	++small
Handl.	loose	loose	friable	crumbly
cons.				
Org. matter	3	2	1	
Roots	4	2	1	1
Water conds.	M	M	M	M
Sec. Chem.				
& Min.				
Fauna	ants	ants		

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	1600 sq. yards	Trees	6-20'/5%
Number of species	54	Shrubs	
Physiognomy	Grassland	Herbs	1 4'/80%
Inclusions	Anthill thickets - not estimated.		2 50%
			3 30%
			4

Site 359. Sampled on 22.2.56. Map ref: 322745.011100.

Location: 12.07 miles south of Nakasongola, North Mengo.

Position: lower hillside. Elevation: 3570 ft. Slope: 3°.

Aspect: S. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated 5-8 years ago. Wild life: small game.

Soil Profile

Type: B

Depth & clar.	0-5" fs	5-37 d	37-59 fs	59-84 +
Colour	5YR3.1 v.dk.grey	7.5YR5.4 brown	10YR6.4 l.yellow-br.	10YR7.1 l.grey
Disp.	U	U	U	M
Text.	LFS	LFS	FSC	FSC
Min.skel.				min.g
Struct.	granule	crumb	crumb	crumb
Vis.Poros.	++small	++small	++small	++small
Handl.	friable	friable	friable	friable
cons.				
Org.matter	4	2	1	
Roots	4	3	2	
Water conds.	M	M	M	M
Sec.Chem.				
& Min.				
Fauna				

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	15-30' / 10%
Number of species	49	Shrubs	6-10' / 5%
Physiognomy	Scattered Tree Grassland	Herbs	1
Inclusions	Open thickets on old anthill sites (not estimated).		2 100%
			3 30%
			4

Site 371. Sampled on 19.3.56. Map ref: 313955.010305.

Location: mile 13.78 Kiboga gombolola - Butemba, N.W.Mengo.

Position: lower hillside. Elevation: 3620 ft. Slope: 3°.

Aspect: SE. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated 4 years ago. Wild life: small game & Elephant.

Soil Profile

Type: B.

Depth & clar.	0-7" fs	7-19 fs	19-39 d	39-49 fs	49 +
Colour	10YR4.2 dk.grey-br.	10YR4.2 dk.grey-br.	2.5Y 7.2 l.grey	2.5Y 8.2 white	2.5Y 7.4 pale yellow
Disp.	U	U	U	U	U
Text.	LFS	LFS	LFS	S	LFS. " "
Min. skel.					ang. q. 1/16 10%
Struct.	crumb	crumb	granule	granule	granule
Vis. Por.	++small	++small	+small	+small	+small
Handl. cons.	powdery	powdery	friable	loose	friable
Org. matter	3	2	1	1	
Roots	3	3	2	1	1
Water conds.	D	M	M	W	W
Sec. Chem. & Min.					
Fauna					

Weather conditions prior to sampling: wet & dew, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-25' / 15%
Number of species	38	Shrubs	6-10' / 5%
Physiognomy	Scattered Tree Grassland	Herbs	1 4-5' / 20%
Inclusions	Anthill thickets - not estimated.		2 100%
			3 30%
			4

Site 391. Sampled on 12.4.56. Map ref: 322800.005933.

Location: mile 9.37 Batuntumula t.o. - Kakoge, North Mengo.

Position: lower hillside. Elevation: 3560 ft. Slope: 2°.

Aspect: SSE. Macrorelief: low rolling: Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated from 3 to 8 years ago. Wild life: small game.

Soil Profile

Type: B

Depth & clar.	0-8" d	8-19 fs	19-43 d	43-63 d	63-84 -
Colour	10YR5.1 grey	10YR5.1 grey	10YR5.2 grey-brown	10YR7.2 l.grey	2.5YR7.2 l.grey
Disp.	U	U	U	U	U
Text.	S	S	S	S	S
Min. skel.					
Struct.	granule	granule	granule	granule	crumb
Vis. Por.	+small	+small	+small	+small	+small
Handl. cons.	loose	loose	loose	loose	friable
Org. matter	3	2	1	1	
Roots	4	3	3	2	1
Water conds.	D/M	D/M	D	W	W
Fauna					

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled 1600 sq.yards
 Number of species 34
 Physiognomy: Grassland
 Inclusions: Anthill thickets - not estimated.

Trees 10-15'/5%
 Shrubs
 Herbs 1 4'/100%
 2 20%
 3 20%
 4

Group 8. *Hyparrhenia dissoluta*.

Post Cultivation Communities.

	306	341	364	453 ^a	455 ^a
Woody SPECIES.					
<i>Acacia campylacantha</i>				X	X
<i>A. hebecladoides</i>	X		X	X	X
<i>A. senegal</i>	X		X		
<i>A. seyal</i> v. <i>multijuga</i>					X
<i>A. siebarriana</i>	X		X		
<i>Albizia zygia</i>					1
<i>Borassus aethiopus</i>				2	1
<i>Combretum binderanum</i>	1	X	1		
<i>C. gueinzii</i>			2		
<i>Cussonia arborea</i>					X
<i>Gymnosporia buxifolia</i>			X	X	
<i>Hymenocardia acida</i>		X	X		
<i>Kigelia aethiopica</i>				X	X
<i>Lamnea stuhlmannii</i>			X		
<i>Ptilostigma thonningii</i>		X	X		1
<i>Steganotaenia araliacea</i>					1
HERBACEOUS SPECIES.					
<i>Andropogon dummeri</i>		X		1	X
<i>Aristida adscensionis</i>			X		
<i>Aspilia</i> sp. 2190				X	1
<i>Brachiaria brizantha</i>	X	X	1		1
<i>B. dictyoneura</i>			2		
<i>B. kotschyana</i>	X	1	1	X	2
<i>Brachiaria</i> sp.		X			
<i>Chloris gayana</i>	1	1	1	1	2
<i>Crassocephalum rubens</i>					X
<i>Crotalaria</i> sp. 1905		1			
<i>Cyanotis hirsuta</i>				X	2
<i>Cymbopogon giganteus</i>					X
<i>Eragrostis chalcantha</i>	X	2	X	3	3
<i>E. ciliaris</i>			X		
<i>E. superba</i>			X		
<i>E. tremula</i>			X		
<i>Eriosema glomeratum</i>		1		X	1
<i>Eulophia wakefieldii</i>				X	X
<i>Fimbristylis diphylla</i>		1	X	2	
<i>Hyparrhenia dissoluta</i>	5	5	4	4	4
<i>H. filipendula</i>	X	2	3	3	3
<i>H. nyassae</i>		2			
<i>Indigofera</i> sp. 1908		1			
<i>Murdannia simplex</i>		1	1	1	X
<i>Panicum infestum</i>		1	1		
<i>P. maximum</i>		1			1
<i>Perotis indica</i>		2	1		
<i>Pseudarthria hookeri</i>					1
<i>Setaria sphacelata</i>					X
<i>S. trinervia</i>				2	2
<i>Sorghum rigidifolium</i>				1	X
<i>Sporobolus festivus</i>	2	3	2	2	2
<i>S. pyramidalis</i>		X			
<i>Striga asiatica</i>				1	
<i>S. gesnerioides</i>			X		1
<i>Tephrosia</i> sp. 1906		1			
<i>Tephrosia</i> sp. 2191				1	
<i>Vernonia gerberaeformis</i>				X	X
<i>V. schweinfurthia</i>		X	X		
<i>V. violacea</i>				X	1
<i>Vigna</i> sp.			X		
Unidentified compositae 2189				X	

Site 306. Sampled on 5.9.56. Map ref: 322545.013055.

Location: 5.50 miles west of Iwampanga, North Mengo.

Position: lower hillside. Elevation: 3460 ft. Slope: 2°.

Aspect: W. Macrorelief: gently undulating. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated about 10 years ago. Wild life: small game.

Soil Profile

Type: B

Depth & char.	0-8" fs.	8-20 d	20-34 fs	34-48 +
Colour	10YR4.2 dk.grey-br.	7.5YR4.2 dk.brown	7.5YR5.4 brown	10YR6.3 pale brown
Disp.	U	U	U	M
Text.	FS	FS	FSL	FSL
Min.skel.				
Structure	granule	granule	crumb	clod
Vis.Poros.	++small	++small	++small	+small
Handl.cons.	powdery	friable	friable	plastic
Org.matter	3	2	1	
Roots	4	3	2	1
Water conds.	D	M	M	W
Sec.Chem. & Min.				
Fauna				

Weather conditions prior to sampling: wet, at sampling: wet.

Vegetation

Area sampled	1600 sq.yards	Trees	10-20'/5-10%
Number of species	11	Shrubs	
Physiognomy	Grassland	Herbs	1 6-7'/100%
Inclusions	Anthill thickets - not estimated.		2 10%
			3 20%
			4

Note: cover of Hyparrhania dissoluta very open.

Site 341. Sampled on 27.1.56. Map ref: 322840.012310.

Location: 4.00 miles north of Nakasongola, North Mingo.

Position: valley side. Elevation: 3540 ft. Slope: 1°.

Aspect: N. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated about 15 years ago. Wild life: small game.

Soil Profile

Type: B

Depth & clar.	0-5" d	5-13 d	13-51 fs	51-64 s
Colour	10YR5.2 grey-brown	10YR5.2 grey-brown	10YR5.3 brown	10YR7.2 light grey
Disp.	U	U	U	U
Texture	SL	SL	LS	LS
Min. skel.				
Structure	granule	granule	granule	granule
Vis. Porosity	++small	++small	+small	+small
Handl. cons.	loose	loose	loose	loose
Org. matter	3	2	1	
Roots	4	3	2	2
Water conds.	D	M	M	M
Sec. Chem. & Min.				
Fauna				

Weather conditions prior to sampling: wet, at sampling: dry.
Below 64" granite.

Vegetation

Area sampled	1600 sq.yards	Trees	10'/v.small
Number of species	24	Shrubs	
Physiognomy	Grassland	Herbs	1 5'/100%
Inclusions	Anthill thickets - not estimated.		2 20%
			3 30%
			4

Notes: cover of Hyparrhenia dissoluta open.

Site 364. Sampled on 23.2.56. Map ref: 322355.013050.

Location: 8.45 miles west of Iwampanga, North Mengo.

Position: lower hillside. Elevation: 3520 ft. Slope: 3°.

Aspect: WSW. Macrorelief: gently undulating. Microrelief: anthills

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated about 20 years ago. Wild life: small game.

Soil Profile

Type: B

Depth & clar.	0-4" fs	4-13 d	13-58 d	58-84 +
Colour	7.5YR4.2 dk.brown	7.5YR5.4 brown	7.5YR6.6 red-yellow	10YR7.4 v.pale br.
Disp.	U	U	U	U
Texture	FS	FS	FSCL	FSCL
Min.skel.				
Structure	crumb	crumb	granule	crumb
Vis.Poros.	++small	++small	+small	++small
Handl.cons.	friable	friable	powdery	friable
Org.matter	4	2	1	
Roots	4	3	2	2
Water conds.	M	M	D	D
Sec.Chem. & Min.				
Fauna				

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	10-25' / 15%
Number of species	28	Shrubs	6-10' / 5%
Physiognomy	Scattered Tree Grassland	Herbs	1 5' / 100%
Inclusions	Aggregation of shrub species on old anthills - burnt-off thickets:		
	<i>Harrisonia abyssinica</i> ,		
	<i>Steganotaenia araliacea</i> , also trees of main area, particularly <i>Combretum gueinzii</i> , and grasses:		
	<i>Panicum maximum</i> , <i>Brachiaria viridula</i> , <i>Sporobolus pyramidalis</i> .		

Site 453a. Sampled on 10.7.56. Map ref: 320315.013210.

Location: 0.80 mile east of Kafu Bridge, North Mengo.

Position: plain bordering lake, Elevation: 3400 ft. Slope -

Aspect - Macrorelief: gently undulating. Microrelief: Anthills

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated within last 20 years. Wild life: small game.

Soil Profile

Type: B

Depth & clar.	0-4" fs	4-17"d	17-60 +
Colour	dk.grey-brown	grey-brown	pale brown
Disp.	U	U	U
Texture	FS	S	SL
Min.skeleton			
Structure	granule	granule	crumb
Vis.Poros.	*small	*small	++small
Handl.consist..	loose	loose	friable
Org.matter	3	1	
Roots	4	3	2-1
Water conds.	D/M	M	M
Sec.Chem. & Min.			
Fauna			

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	20-45'/small
Number of species	25	Shrubs	
Physiognomy	Grassland	Herbs	1 4-5'/100%
Inclusions	453b (A.Th.)		2 20%
	453c (see below)		3 40%
			4

Notes 453c: burnt off anthill thickets

Boerhaavia sp., Brachiaria brizantha,
Euphorbia candelabrum, E. hypericoides, Ficus sp.,
Hyparrhenia filipendula, Panicum maximum,
Setaria incrassata, Vernonia gerberaeformis.

Site 455a. Sampled on 10.7.56. Map ref: 320435.013150.

Location: 2.00 miles ESE Kafu Bridge, North Mengo.

Position: plain bordering lake. Elevation: 3400 ft.

Macrorelief: gently undulating. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated about 5 years ago. Wild life: small game.

Soil Profile

Type: B

Depth & clar.	0-7" fs	7-15 d	15-60 +
Colour	dk.grey-brown	grey-brown	l.grey-brown
Disp.	U	U	U
Texture	FSL	FSL	S
Min.skeleton			
Structure	crumb	crumb	granule
Vis.Porosity	++small	++small	++small
Handl.consist.	friable	friable	loose
Organic matter	3	1	
Roots	4	2	1
Water conditions	D/M	M	M
Sec.Chem.& Min.			
Fauna			

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-40'/5%
Number of species	32	Shrubs	
Physiognomy	Grassland	Herbs	1 5'/80%
Inclusions	455b (A.Th.)		2 30%
			3 20%
			4

Site 307. Sampled on 7.9.55. Map ref: 322230.012615.

Location: 10.0 miles north west of Nakasongola, North Mengo.

Position: valley head. Elevation: 3480 ft. Slope: $\frac{1}{2}^{\circ}$.

Aspect: NE. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated about 20 years ago. Wild life: small game.

Soil Profile

Type: B

Depth & clar.	0-9" fs	9-25 d	25-40 d	40-48 +
Colour	7.5YR4.2 dk.brown	5YR4.3 red-brown	7.5YR5.4 brown	7.5YR5.4 brown
Disposal	U	U	U	U
Texture	FS	FS	LFS	LFS
Min.skeleton				
Structure	granule	granule	granule	granule
Vis.Porosity	+small	+small	+small	+small
Handl.cons.	powdery	powdery	friable	friable
Org.matter	3	2	1	
Roots	4	3	2	2
Water conds.	D	D	M	M
Sec.Chem. & Min.				
Fauna				

Weather conditions prior to sampling: wet, at sampling: wet.

Vegetation

Area sampled	1600 sq.yards	Trees	10-25'/15%
Number of species	15	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 4-7'/100%
Inclusions	Anthill thickets - not estimated.		2 20%
			3 10%
			4

Site 344. Sampled on 27.1.56. Map ref: 323015.012820.

Location: 9.60 miles north of Nakasongola, North Mingo.

Position: upper valley. Elevation: 3560 ft. Slope -

Aspect - Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated about 20 years ago. Wild life: small game.

Soil Profile

Type: B

Depth & clar.	0-3" fs	3-11 fs	11-26 fs	26-49 d	49-84 +
Colour	10YR5.1 grey	10YR5.2 grey-brown	7.5YR6.2 lt.brown	7.5YR6.2 lt.brown	7.5YR7.4 pink
Disp.	U	U	U	U	U
Text.	FS	FS	FS	FSL	FSL
Min. skel.					
Struct.	granule	granule	granule	crumb	crumb
Vis. Por.	+small	+small	+small	+small	+small
Handl.					
cons.	powdery	powdery	powdery	friable	friable
Org. matter	3	2	1	1	
Roots	4	3	2	2	1
Water conds.	D	M	M	M	M
Seq. Chem. & Min. Fauna					

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampling	2500 sq.yards	Trees	10-20'/10%
Number of species	25	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 5'/100%
Inclusions	Anthill thickets - not estimated.		2
			3 30%
			4

Site 352a. Sampled on 21.2.56. Map ref: 322520.012145.

Location: mile 4.91 Nakasongola - Nabuswera, North Mengo.

Position: valley side. Elevation: 3550 ft. Slope: 1°.

Aspect: E. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated about 6 years ago. Wild life: small game.

Soil Profile

Type: B

Depth & clar.	0-7" d	7-16 d	16-38 d	38-71 fs	71-84 +
Colour	10YR4.1 dk.grey	10YR5.2 grey-brown	10YR5.3 brown	10YR5.3 brown	10YR6.3 pale brown
Disp.	U	U	U	U	U
Text.	FS	FS	FS	FS	FSL
Min.skel.					
Struct.	granule	granule	granule	granule	crumb
Vis.Por.	++small	++small	++small	++small	++small
Handl.					
cons.	powdery	powdery	powdery	powdery	plastic
Org. matter	4	3	2	1	
Roots	4	4	3	2	1
Water conds.	M	M	M	M	W
Sec.Chem. & Min.					
Fauna	white ants	white ants	white ants		

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	6-30'/15-20%
Number of species	46	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 4-5'/30
Inclusions	352b (A.Th.)		2 100%
			3 20%
			4

Site 363a. Sampled on 23.2.56. Map ref: 322405.013050.

Location: 8.39 miles west of Lwampanga, North Mango.

Position: hillside. Elevation: 3520 ft. Slope: 3°. Aspect: WSW.

Macrorelief: gently undulating. Microrelief: anthills (within

363b). Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated about 20 years ago. Wild life: small game

Soil Profile

Type: B

Depth & clar.	0-5" fs	5-18 d	18-84 +
Colour	5YR5.2 red-grey	7.5YR5.4 brown	5YR5.4 red-brown
Disposal	U	U	U
Texture	FS	SCL	SCL
Min. skeleton			
Structure	crumb	crumb	granule
Vis. Porosity	++small	++small	++v. small
Handl. cons.	friable	friable	friable
Org. matter	3	1	
Roots	4	2	2
Water conds.	D	D	D
Sec. Chem. & Min.			
Fauna			

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-20'/10%
Number of species	31	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 4'/70%
Inclusions	363b (A.Th.)		2 40%
			3 40%
			4

Site 374. Sampled on 21.3.56. Map ref: 313650.010605.

Location: mile 19.17 Kiboga gombolola - Butemba, N.W.Mengo.

Position: lower hillside. Elevation: 3620 ft. Slope: 2°.

Aspect: ESE. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated about 20 years ago. Wild life: small game.

Soil Profile

Type: B

	0-4" s	4-11 d	11-23 d	23-44d	44-72 +
Depth & clar.					
Colour	10YR4.1 dk.grey	10YR4.2 dk.grey-br.	7.5YR5.4 brown	10YR5.3 brown	10YR6.4 yellow-brown
Disp.	U	U	U	U	U
Text.	LFS	FSL	FSCL	FSC	FSC
Min.skel.					
Struct.	granule	crumb	crumb	nut	nut
Vis.Por.	+small	++small	++small	-	+small
Handl.					
cons.	loose	friable	friable	resistant	soft friable
Org.					
matter	3	2	1	1	
Roots	4	3	2	2	1
Water					
conds.	M	M	D	D	D
Sec.Chem.					
& Min.					
Fauna					

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	10-25'/10%
Number of species	24	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 4'/100%
Inclusions	Anthill thickets - not estimated.		2 20%
			3 20%
			4

Site 381. Sampled on 27.3.56. Map ref: 314005.010245.

Location: mile 13.36 Kiboga gombolola - Butemba, N.W.Mengo.

Position: lower hillside. Elevation: 3620 ft. Slope: $3\frac{1}{2}^{\circ}$.

Aspect: NW. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated 10 years ago. Wild life: small game.

Soil Profile

Type: B

Depth & clar.	0-6" d	6-21 fs	21-32 d	32-50 fs	50-68 fs	68-84 +
Colour	10YR 4.1 dk grey	7.5YR 4.1 dk.grey	10YR 6.1 grey	10YR 8.2 white	2.5Y 7.2 l.grey	2.5Y 7.2 l.grey
Disp.	U	U	U	U	U	U
Text.	LFS	FS	FS	LFS	LFS	FSL
Min.skel.						
Struct.	crumb	granule	granule	granule	granule	crumb
Vis.Por.	++small	+small	+small	+small	+small	+small
Handl.						
cons.	friable	friable	loose	loose	crumbly	plastic
Org.						
matter	3	2	1	1		
Roots	4	2	1	1	1	
Water						
conds.	D	D/M	M	W	W	W
Sec.Chem.						
& Min.						
Fauna						

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	15-25' / 10%
Number of species	43	Shrubs	6-10' / 5%
Physiognomy	Scattered Tree Grassland	Herbs	1 4-5' / 100%
Inclusions	Anthill thickets - not estimated.		2 30%
			3 20%
			4

Site 384. Sampled on 27.3.56. Map ref: 314425.011220.

Location: 10.82 miles east of Butemba, N.W. Mengo.

Position: lower hillside. Elevation: 3570 ft. Slope: $1\frac{1}{2}^{\circ}$

Aspect: W. Macrorelief: undulating. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated about 20 years ago. Wild life: small game & Elephant

Soil Profile

Type: B

Depth & clar.	0-6" c	6-12 d	12-27 d	27-65 fs	65-84 +
Colour	10YR4.2 dk. grey-br.	10YR4.2 dk. grey-br.	10YR5.3 brown	10YR6.3 pale brown	10YR8.3 v. pale brown
Disp.	U	U	U	U	U
Text.	FS	FS	FS	S	S
Min. skel.					
Struct.	granule	granule	granule	granule	granule
Vis. Por.	++small	++small	++small	+small	+small
Handl. cons.	loose	loose	loose	loose	loose
Org. matter	3	2	1	1	
Roots	4	3	2	2	1
Water conds.	M	M	M	W	W
Sec. Chem. & Min.					
Fauna					

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq. yards	Trees	10-15' / 2%
Number of species	20	Shrubs	6-10' / 2%
Physiognomy	Grassland	Herbs	1 4-5' / 100%
Inclusions	Anthill thickets - not estimated.		2 10%
			3 30%
			4

Site 419. Sampled on 11.5.58. Map ref: 320115.010750.

Location: mile 27.68 Wakyato - Ngoma, North Mengo.

Position: lower hillside. Elevation: 3550 ft. Slope: 2°.

Aspect: N. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated about 20 years ago. Wild life: small game & Elephant.

Soil Profile

Type: B

Depth	0-4" fs	4-11 fs	11-26 fs	26-44 d	44-52 fs	52-61fs	61-84+
& clar.	10YR4.1	10YR4.1	10YR4.2	10YR6.3	10YR6.3	10YR6.3	10YR6.3
	dk.grey	dk.grey	dk.grey- brown	pale brown	pale brown	pale brown	pale brown
Disp.	U	U	U	U	U	U	M
Text.	FS	FS	FS	FS	FS	FSCL	FSCL
Min. skel.							
Struct.	granule	granule	granule	granule	granule	crumb	crumb
Vis. por.	+small	+small	+small	+small	+small	+small	+small
Handl.							
cons.	loose	loose	loose	loose	loose	friable	friable
Org.							
matter	3	2	1	1			
Roots	4	2	1	1	1		
Water							
conds.	M	M	M	M	M		
Sec. Chem.							
& Min.							
Fauna							

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	6-15' / 5%
Number of species	33	Shrubs	
Physiognomy	Grassland	Herbs	1 5' / 60%
Inclusions	Open thickets on anthills - not estimated.		2 40%
			3 10%
			4

Site 421. Sampled on 11.5.56. Map ref: 320105.010815.

Location: mile 28.00 Wakayato - Ngoma, North Mengo.

Position: lower hillside. Elevation: 3550 ft. Slope: 2°.

Aspect: S. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated 5 years ago. Wild life: small game & Elephant.

Soil Profile

Type: B

Depth & clar.	0-5" d	5-13 d	13-28 d	28-48 +
Colour	10YR5.1 grey	10YR5.2 grey-brown	10YR5.2 grey-brown	10YR6.3 pale brown
Disp.	U	U	U	U
Texture	FS	FSL	LS	LS
Min.skeleton				
Structure	granule	crumb	granule	granule
Vis.Poros.	-	+small	+small	-
Handl.cons.	abrasive	friable	loose dry	abrasive
Org.matter	3	2	1	
Roots	3	3	2	1
Water conds.	M/W	M	M/W	M/W
Sec.Chem. & Min.				
Fauna				

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	6-12'/10%
Number of species	30	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1
Inclusions	Anthills bearing different grasses to surrounding land.		2 3 60% 4

Notes: recently burned, consequently difficult to recognise and assess cover of species.

Site 425. Sampled on 12.5.56. Map ref: 320645.005815.

Location: mile 11.60 Wakyato - Ngoma, North Mengo.

Position: lower hillside. Elevation: 3580 ft. Slope: 2°.

Aspect: NNW. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated about 15 years ago. Wild life: small game.

Soil Profile

Type: B

Depth & char.	0-7" fs	7-15 d	15-48 +
Colour	10YR4.2 dk.grey-brown	10YR4.2 dk.grey-brown	10YR5.4 Yellow-brown
Disposal	U	U	U
Texture	FSL	FSL	SCL
Min. Skeleton			
Structure	granule	crumb	crumb
Vis. Porosity	+small	+small	+small
Handl. consist.	friable	friable	powdery
Org. matter	3	2	1
Roots	3	3	1
Water conds.	M	D/M	D
Sec. Chem. & Min.			
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-25'/10%
Number of species	33	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 4-5'/100%
Inclusions	429 (A.Th.)		2 30%
			3 30%
			4

Site 439. Sampled on 29.6.56. Map ref: 325310.010830.

Location: 3.75 miles north of Bale, North Mengo.

Position: lower hillside. Elevation: 3440 ft. Slope: $2\frac{1}{2}^{\circ}$.

Aspect: SE. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated about 15 years ago. Wild life: much game.

Soil Profile

Type: B

Depth & clar.	0-10" fs	10-96 +
Colour	dk. grey-brown	grey-brown - pale brown
Disposal	U	U
Texture	LFS	FS
Min. Skeleton		
Structure	granule	granule
Vis. Porosity	+small	+small
Handl. consist.	loose	loose
Org. matter	3	1-0
Roots	4	3-1
Water conditions	M	M
Sec. Chem. & Min.		
Fauna		

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq. yards	Trees	10-40' / 10%
Number of species	37	Shrub	6' / 5%
Physiognomy	Scattered Tree Grassland	Herbs	1 5' / 100%
Inclusions	440 (A.Th.)		2 30%
			3 40%
			4 1%

Site 447. Sampled on 3.7.56. Map ref: 325305.011220.

Location: 5.80 miles north of Bale, North Mengo.

Position: lower hillside. Elevation: 3460 ft. Slope: $1\frac{1}{2}^{\circ}$.

Aspect: N. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated about 10 years ago. Wild life: much game.

Soil Profile

Type: B

Depth & Clar.	0-9" fs	9-22 d	22-60 +
Colour	dk. grey-brown	grey-brown	pale brown
Disp.	U	U	U
Texture	FS	S	LS
Min. Skeleton			
Structure	granule	granule	crumb
Vis. Porosity	+small	+small	-
Handl. consist.	loose	loose	loose
Org. matter	3	1	
Roots	3	3	2-1
Water conditions	M	M	M
Sec. Chem. & Min.			
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq. yards	Trees (a)	45% / small
Number of species	36	(b)	10-25' / 25%
Physiognomy	Scattered Tree Grassland	Shrubs	
Inclusions	448 (A.Th.)	Herbs	1 4-7' / 100%
			2 30%
			3 20%
			4

Notes: for zonation round anthills see site 448, page 206.

Group 10. Miscellaneous post-cultivation communities
on "B" soils.

Sites number: 317, 321, 322, 365, 382, 387,
394, 409, 414.

Site 317 - Composition

Woody species

<i>Acacia hebecladoides</i>	X
<i>Acacia seyal</i> var. <i>multijuga</i>	X
<i>Combretum binderanum</i>	1
<i>Combretum gueinzii</i>	X
<i>Gymnosporia senegalensis</i>	X
<i>Hymenocardia acida</i>	1
<i>Lonchocarpus laxiflorus</i>	X
<i>Piliostigma thonningii</i>	X

Herb species

<i>Acalypha villicaulis</i>	1
<i>Asystasia gangetica</i>	X
<i>Brachiaria brizantha</i>	1
<i>Cassia mimosoides</i>	1
<i>Cyanotis hirsuta</i>	1
<i>Cyperus diloloensis</i>	1
<i>Cyperus</i> sp.	X
<i>Eragrostis chalcantha</i>	1
<i>Erigeron grantii</i>	X
<i>Eulophia wakefieldii</i>	X
<i>Fimbristylis diphylla</i>	2
<i>Hyparrhenia diplandra</i>	X
<i>Hyparrhenia filipendula</i>	3
<i>Hyparrhenia nyassae</i>	1
<i>Imperata cylindrica</i> var. <i>africana</i>	X
<i>Justicia</i> sp. 1718	1
<i>Loudetia arundinacea</i>	4
<i>Polygala amboniensis</i>	1
<i>Pseudarthria hookeri</i>	1
<i>Rhynchospora brownii</i>	1
<i>Sopubia</i> sp. 1701 near <i>s. simplex</i>	1
<i>Vigna vexillata</i>	X

Site 317. Sampled on 15.12.55. Map ref: 322820.010220.

Location: 0.87 mile south-east of Kakoge, North Mingo.

Position: valley side. Elevation: 3550 ft. Slope: $\frac{1}{3}^{\circ}$.

Aspect: E. Macrorelief: low rolling. Microrelief: anthills.

Drainage: slight seasonal waterlogging. Burning: annual/biennial

Erosion effect: colluvial. Grazing: post-burn.

Not cultivated. Wild life: small game.

Soil Profile

Type: B

Depth & clar.	0-7" fs	7-26 d	26-72 +
Colour	5YR4.2	10YR5.3	10YR6.4
	dk.red-grey	brown	l.yellow-brown
Disposal	U	U	M
Texture	FS	S	LFS
Min. Skeleton			
Structure	crumb	granule	crumb
Vis. Porosity	++small	+small	+small
Handl. consist.	friable	loose	loose
Org. matter	4	2	
Roots	4	2	
Water conds.	M	M	S
Sec. Chem. & Min.			
Fauna	ants		

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-25'/10-15%
Number of species	30	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 4-5'/100%
Inclusions	Anthill thickets - not estimated.		2 50%
			3 20%
			4

Site 321 - Composition

Woody species

<i>Acacia campylacantha</i>	X
<i>Acacia seyal</i> v. <i>multijuga</i>	1
<i>Annona chrysophylla</i>	X
<i>Bridelia brideliifolia</i>	X
<i>Bridelia scleroneuroides</i>	X
<i>Combretum binderanum</i>	1
<i>Gardenia jovis-tonantis</i>	X
<i>Gymnosporia senegalensis</i>	X
<i>Hymenocardia acida</i>	1
<i>Lanea kerstingii</i>	X
<i>Piliostigma thonningii</i>	X
<i>Terminalia velutina</i>	X

Herb species

<i>Acalypha villicaulis</i>	X
<i>Andropogon dummeri</i>	1
<i>Andropogon schinzii</i>	X
<i>Aristida adscensionis</i>	XL
<i>Becium obovatum</i>	X
<i>Bidens coriacea</i>	X
<i>Borreria stricta</i>	1
<i>Brachiaria brizantha</i>	1
<i>Crotalaria</i> sp.	1
<i>Cyperus</i> sp. 1789	1
<i>Digitaria diagonalis</i>	1
<i>Digitaria longiflora</i>	XL
<i>Digitaria velutina</i>	XL
<i>Eragrostis aspera</i>	XL
<i>Eragrostis ciliaris</i>	XL
<i>Eulophia bella</i>	X
<i>Eulophia wakefieldii</i>	1
<i>Euphorbia hirta</i>	X
<i>Fimbristylis diphylla</i>	1
<i>Fimbristylis monostachya</i>	XL
<i>Hyparrhenia dissoluta</i>	2
<i>Hyparrhenia filipendula</i>	3
<i>Lightfootia</i> sp.	1
<i>Loudetia arundinacea</i>	3
<i>Perotis indica</i>	XL
<i>Rhynchelytrum repens</i>	XL
<i>Setaria sphacelata</i>	1
<i>Sporobolus festivus</i>	2
<i>Vernonia schweinfurthia</i>	2

Site 321. Sampled on 20.12.55. Map ref: 322740.010550.

Location: 3.50 miles north of Kakoge, North Mengo.

Position: valley side. Elevation: 3550 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: slight seasonal waterlogging. Burning: annual/biennial

Erosion effect: colluvial. Grazing: intermittent.

Cultivated about 20 years ago. Wild life: small game.

Soil Profile

	Type: B			
Depth & clar.	0-6" fs	6-14 d	14-39 fs	39-60 +
Colour	10YR4.1 dk.grey	10YR5.2 grey-brown	10YR6.2 l.br.-grey	10YR7.3 v.pale brown
Disposal	U	U	U	U
Texture	FS	FS	FS	FS
Min. Skeleton				
Structure	crumb	granule	granule	crumb
Vis. Poros.	+small	+small	+small	+small
Handl. cons.	loose	loose	loose	loose
Org. matter	4	3	2	1
Roots	4	4	2	1
Water conds.	M	M	M	S
Sec. Chem. & Min.				
Fauna	ants	ants		

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	6-25'/15%
Number of species	41	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 4'/80%
Inclusions	Anthill thickets - not estimated.		2 50%
			3 20%
			4

Site 322 - Composition

Woody species

<i>Acacia campylacantha</i>	X
<i>Acacia seyal</i> v. <i>multijuga</i>	1
<i>Albizzia zygia</i>	X
<i>Annona chrysophylla</i>	X
<i>Combretum binderanum</i>	2
<i>Gardenia jovis-tonantis</i>	X
<i>Gymnosporia senegalensis</i>	X
<i>Hymenocardia acida</i>	1
<i>Lippia adoensis</i>	X
<i>Piliostigma thonningii</i>	X
<i>Terminalia velutina</i>	X

Herb species

<i>Acalypha villicaulis</i>	1
<i>Aframomum</i> sp. "A"	1L
<i>Aneilema aequinoctiale</i>	X
<i>Asystasia gangetica</i>	X
<i>Brachiaria brizantha</i>	2
<i>Chloris gayana</i>	2L
<i>Crotalaria</i> sp.	1
<i>Echinops amplexicaulis</i>	X
<i>Emilia</i> sp.	X
<i>Eragrostis aspera</i>	X
<i>Hibiscus</i> sp. near <i>H. calophyllus</i>	X
<i>Hyparrhenia dissoluta</i>	2
<i>Hyparrhenia filipendula</i>	3
<i>Justicia</i> sp.	1
<i>Loudetia arundinacea</i>	3
<i>Perotis indica</i>	1
<i>Pennisetum polystachyon</i>	1
<i>Plectranthus porpeodon</i>	X
<i>Pseudarthria hookeri</i>	1

Site 322 Sampled on 20.12.55. Map ref: 322740.010605.

Location: 3.75 miles north of Kakoge, North Mengo.

Position: hillside. Elevation: 3570 ft. Slope: 2°. Aspect: S.

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated about 20 years ago. Wild life: small game.

Soil Profile

Type: B

Depth & clar.	0-8" fs	8-28 d	28-35 fs	35-60 +
Colour	10YR4.1 dk.grey	10YR4.2 dk.grey-br.	10YR4.2 dk.grey-br.	10YR5.2 grey-brown
Disposal	U	U	U	U
Texture	LFS	LFS	LFS	LFS
Min. Skeleton				
Structure	crumb	crumb	crumb	crumb
Vis. Porosity	++small	+small	+small	+small
Handl. cons.	friable	loose	loose	crumbly
Org. matter	4	3	2	1
Roots	4	4	3	2
Water conds.	M	M	M	M
Sec. Chem. & Min.				
Fauna	ants	ants		

Weather conditions prior to sampling: wet, at sampling: wet.

Vegetation

Area sampled	1600 sq.yards	Trees	10-30'/10%
Number of species	30	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 4-5'/75%
Inclusions	Anthill thickets - not estimated.		2 50%
			3 20%
			4

Site 365 - Composition

Woody species

<i>Acacia seyal</i> v. <i>multijuga</i>	X
<i>Albizzia malacophylla</i>	1
<i>Albizzia zygia</i>	1
<i>Bridelia brideliifolia</i>	X
<i>Bridelia scleroneuroides</i>	X
<i>Combretum binderanum</i>	2
<i>Combretum ghasalense</i>	X
<i>Entada abyssinica</i>	X
<i>Gymnosporia senegalensis</i>	X
<i>Hoslundia opposita</i>	X
<i>Lanea schimperi</i>	X
<i>Lippia adoensis</i>	X
<i>Piliostigma thonningii</i>	X
<i>Rhus vulgaris</i>	X
<i>Stereospermum kunthianum</i>	X
<i>Terminalia velutina</i>	X

Herb species

<i>Acalypha villicaulis</i>	X
<i>Asparagus pauli-guilelmi</i>	X
<i>Brachiaria decumbens</i>	X
<i>Brachiaria platynota</i>	3
<i>Eulophia wakefieldii</i>	X
<i>Hyparrhenia filipendula</i>	X
<i>Justicia</i> sp. 1718	1
<i>Loudetia arundinacea</i>	5
<i>Microrchloa kunthii</i>	2
<i>Ornithogalum sordidum</i>	X
<i>Sporobolus festivus</i>	2

Site 365. Sampled on 16.3.56. Map ref: 314700.011155.

Location: 13.34 miles east of Butemba, N.W. Mengo.

Position: "hill"top. Elevation: 3580 ft. Slope: $\frac{1}{2}^{\circ}$. Aspect: S.

Macrorelief: undulating. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: mostly post-burn.

Not cultivated. Wild life: small game & Elephant.

Soil Profile

Type: B

Depth & clar.	0-4" fs	4-23 c	23-32 fs	32 +
Colour	10YR4.1 dk.grey	7.5YR5.4 brown	7.5YR5.4 brown	7.5YR5.4 brown
Disposal	U	U	U	U
Texture	LFS	LFS	FSL	FSL
Min.Skeleton			min.q	min.q
Structure	granule	granule	granule	granule
Vis.Poros.	+small	+small	+small	+small
Handl.cons.	v.friable	v.friable	friable	friable
Org.matter	3	1	1	
Roots	4	2	2	1
Water conds.	M	D	D	D
Sec.Chem. & Min.				pea iron
Fauna				

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-20'/10%
Number of species	27	Shrubs	6-10'/5%
Physiognomy	Scattered Tree Grassland	Herbs	1 5'/100%
Inclusions	Some aggregation of shrubby species on anthills and old anthill sites - not estimated.		2 30%
			3 20%
			4

Site 382 - Composition

Woody species

<i>Albizzia malacophylla</i>	X
<i>Combretum binderanum</i>	1
<i>Combretum gueinzii</i>	X
<i>Grewia mollis</i>	X
<i>Gymnosporia senegalensis</i>	X
<i>Hymenocardia acida</i>	1
<i>Piliostigma thonningii</i>	X
<i>Protea madiensis</i>	X
<i>Stereospermum kunthianum</i>	X
<i>Vitex doniana</i>	X

Herb species

<i>Aframomum</i> sp. A.	1
<i>Andropogon dummeri</i>	X
<i>Aspilia</i> sp. 1998	1
<i>Berkheya spekeana</i>	X
<i>Brachiaria brizantha</i>	1
<i>Eulophia cucullata</i>	X
<i>Eulophia wakefieldii</i>	X
<i>Hyparrhenia filipendula</i>	3
<i>Lactuca capensis</i>	1
<i>Loudetia arundinacea</i>	5
<i>Sporobolus festivus</i>	2
<i>Vernonia smithiana</i>	1

Site 382. Sampled on 27.3.56. Map ref: 314440.011225.

Location: 10.93 miles east of Butemba, N.W.Mengo.

Position: spur top. Elevation: 3580 ft. Slope - Aspect -

Macrorelief: undulating. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial - colluvial. Grazing: post-burn.

Not cultivated. Wild life: small game & Elephant.

Soil Profile

Type: B

Depth & clar.	0-3" fs	3-8 fs	8-33 d	33-84 +
Colour	10YR4.2 dk.grey-br.	10YR4.2 dk.grey-br.	7.5YR4.4 brown	7.5YR5.6 strong brown
Disposal	U	U	U	U
Texture	LFS	LFS	LFS	FSL
Min.Skel.				
Structure	granule	granule	granule	crumb
Vis.Poros.	+small	+small	+small	++small
Handl.Cons.	friable	friable	friable	friable
Org.matter	3	2	1	
Roots	3	2	2	2
Water conds.	D	D	M	M
Sec.Chem. & Min.				
Fauna				

Weather conditions prior to sampling: wet & dew, at sampling:
dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-15'/5%
Number of species	22	Shrubs	6-10'/5%
Physiognomy	Scattered Tree Grassland	Herbs	1 5-6'/100%
Inclusions	Open thickets on anthills - not estimated.		2 10%
			3 20%
			4

Site 387 - Composition

Woody species

<i>Acacia seyal</i> v. <i>multijuga</i>	X
<i>Chlorophora excelsa</i>	X
<i>Combretum binderanum</i>	X
<i>Combretum gueinzii</i>	X
<i>Dichrostachys glomerata</i>	X
<i>Erythrina abyssinica</i>	X
<i>Ficus natalensis</i>	X
<i>Gymnosporia senegalensis</i>	X
<i>Hymenocardia acida</i>	X
<i>Steganotaenia araliacea</i>	X
<i>Vernonia amygdalina</i>	X

Herb species

<i>Brachiaria decumbens</i>	2
<i>Chloris virgata</i>	X
<i>Chrysanthellum americanum</i>	1
<i>Commelina benghalensis</i>	1
<i>Dactyloctenium aegyptium</i>	X
<i>Digitaria longiflora</i>	1
<i>Digitaria scalarum</i>	X
<i>Eleusine indica</i>	X
<i>Eragrostis ciliaris</i>	1
<i>Eragrostis tenuifolia</i>	X
<i>Erigeron grantii</i>	2
<i>Euphorbia hirta</i>	X
<i>Lactuca capensis</i>	2
<i>Panicum atrosanguineum</i>	3
<i>Panicum maximum</i>	5
<i>Pennisetum polystachyon</i>	X
<i>Pennisetum purpureum</i>	1
<i>Perotis indica</i>	X
<i>Phyllanthus nummulariifolius</i>	X
<i>Rhynchelytrum repens</i>	1
<i>Setaria sphacelata</i>	X

Site 387. Sampled on 12.4.56. Map ref: 322805.005620.

Location: mile 5.30 Batuntumula t.o.-Kakoge, North Mengo.

Position: lower hillside. Elevation: 3570 ft. Slope: $1\frac{1}{2}^{\circ}$.

Aspect: NNW. Macrorelief: low rolling. Microrelief: anthills

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated 3 - 5 years ago. Wild life: small game.

Soil Profile

Type: B

Depth & clar.	0-10" d	10-27 d	27-39 fs	39-54 s	54-72 +
Colour	10YR4.1 dk.grey	10YR4.2 dk.grey-br.	10YR5.2 grey-br.	2.5YR7.2 l.grey	5Y 7.1 l.grey
Disp.	U	U	U	U	U
Text.	FSL	FSL	FSL	S	S
Min.Skel.					
Struct.	granule	granule	granule	granule	granule
Vis.Por.	+small	+small	+small	+small	+small
Handl.					
Cons.	friable	friable	friable	friable	friable
Org.					
matter	4	3	2	1	
Roots	4	3	2	2	1
Water					
conds.	M	M	M	W	W
Sec.Chem. & Min.					
Fauna					

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	(a 40'/small (b 15'/10%
Number of species	32	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 6'/100% 2 10% 3 20% 4
Inclusions	Anthill thickets - not estimated.		

Site 394 - Composition

Woody species

Acacia campylacantha	2
Acacia hebecladoides	X
Acacia seyal v. multijuga	X
Albizzia malacophylla	X
Albizzia zygia	X
Annona chrysophylla	X
Bridelia brideliifolia	X
Cassia tora	X
Combretum binderanum	X
Combretum gueinzii	X
Dombeya rotundifolia	X
Ficus sp.	X
Grewia mollis	X
Gymnosporia senegalensis	X
Stereospermum kunthianum	X

Herb species

Acalypha villicaulis	X
Aframomum sp.A.	X
Aspilia sp.1998	1
Beckeropsis uniseta	X
Brachiaria brizantha	2
Brachiaria platyhora	1
Cymbopogon afronardus	2
Digitaria scalarum	1
Helichrysum undatum	X
Hyparrhenia filipendula	X
Hyparrhenia sp.near H.filipendula	1
Kyllinga albiceps	X
Lactuca capensis	X
Oxalis corniculata	X
Panicum maximum	4
Pennisetum purpureum	X
Sporobolus pyramidalis	1

Site 394. Sampled on 13.4.56. Map ref: 321620.005025.

Location: mile 16.32 Luwero - Wakyato, North Mengo.

Position: lower hillside. Elevation: 3570 ft. Slope: $4\frac{1}{2}^{\circ}$.

Aspect: E. Macrorelief: low rolling. Microrelief: undulations

& anthills. Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated 10 years ago. Wild life: small game.

Soil Profile

Type: B

Depth & clar.	0-8" d	8-22 fs	22-47 fs	47-64 d	64-84 +
Colour	10YR3.2 v.dk. grey-br.	10YR3.2 v.dk. grey-br.	10YR6.2 l.br.-grey	10YR6.3 pale brown	10YR6.5 pale brown
Disp.	U	U	U	U	U
Text.	LFS	FS	FS	LS	LS
Min. Skel.					ang. q.
Struct.	crumb	crumb	granule	granule	granule
Vis. Por.	+small	+small	+small	+small	+small
Handl.					
cons.	friable	friable	friable	crumbly	crumbly
Org. matter	4	3	1		
Roots	4	3	2	1	1
Water conds.	M	M	D/M	D/M	D/M
Sec. Chem. & Min.					
Fauna					

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees (a 30')	} 15%
Number of species	32	(b 10-20')	
Physiognomy	Scattered Tree Grassland	Shrubs	
Inclusions	Open thickets on anthills	Herbs	1 5'/70%
	- not estimated.		2 30%
			3 10%
			4

Notes: microrelief: back slopes almost level

tree corn, a = Acacia campylacantha

b = other woody species.

Site 409 - Composition

Woody species

Acacia seyal v. multijuga	X
Albizzia zygia	S
Bridelia brideliifolia	X
Combretum binderanum	1
Combretum ghasalense	X
Combretum gueinzii	X
Gymnosporia senegalensis	X
Hoslundia opposita	X
Hymenocardia acida	1
Piliostigma thonningii	X
Stereospermum kunthianum	X

Herb species

Acalypha villioaulis	X	
Aframomum sp.A.	X	
Andropogon dummeri	X	
Asparagus pauli-guilelmi	X	
Aspilia sp. 1998	1	
Berkheya spekeana	1	
Brachiaria brizantha	X	
Brachiaria decumbens	X	
Brachiaria eminii	2	
Brachiaria fulva	2	
Brachiaria leucacrantha	X	
Brachiaria platynota	1	
Chlorophytum sp.	X	
Cyanotis hirsuta	X	
Cymbopogon afronardus	3	
Cyperus rotundus	X	
Digitaria longiflora	1	
Digitaria scalarum	X	
Eragrostis aspera	X	
Eragrostis ciliaris	1	
Eragrostis tenuifolia	1	
Fimbristylis monostachya	X	
Helichrysum undatum	X	
Hyparrhenia filipendula	2	
Indigofera sp.	X	
Justicia sp. 1718	X	
Kyllinga albiceps	X	
Lactuca capensis	X	
Lippia adoensis	X	
Loudetia arundinacea	1	
Panicum maximum	1	
Pseudarthria hookeri	1	Themeda triandra 1
Rhynchelytum repens	2	Urginea micrantha X
Setaria sphacelata	1	Vernonia smithiana X
Setaria trinervia	X	V. violacea X
Sporobolus pyramidalis	1	

Site 409. Sampled on 17.4.56. Map ref: 322100.005120.

Location: mile 0.94 Kiwoko - Tweyanze, North Mengo.

Position: lower hillside. Elevation: 3540 ft. Slope: 2°.

Aspect: SE. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated about 5 years ago. Wild life: small game.

Soil Profile

Type: B

	0-6" d	6-14 fs	14-22 d	22-34 d	34-60 +
Depth & clar.					
Colour	10YR4.2 dk.grey-br.	10YR4.3 brown	10YR4.3 brown	10YR5.4 yellow-br.	10YR5.4 yellow-br.
Disp.	U	U	U	U	U
Text.	LFS	LFS	LS	LS	LS
Min.Skel.				min.q	min.q
Struct.	crumb	crumb	granule	granule	granule
Vis.Por.	+small	+small	-	-	-
Handl. cons.	friable	friable	crumbly	crumbly	resistant
Org. matter	3	2	1		
Roots	4	3	2	2	1
Water conds.	M	M	M	D	D
Sec.Chem. & Min.					
Fauna					

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	10-25' / 5%
Number of species	51	Shrubs	6-10' / 5%
Physiognomy	Scattered Tree Grassland	Herbs	1 4' / 60%
Inclusions	Anthill thickets - not estimated.		2 40%
			3 20%
			4

Note: s = seedlings.

Site 414 - Composition

Woody species

<i>Acacia seyal</i> v. <i>multijuga</i>	X
<i>Annona chrysophylla</i>	X
<i>Bridelia scleroneuroides</i>	X
<i>Combretum binderanum</i>	1
<i>Hymenocardia acida</i>	1
<i>Lantana salvifolia</i>	X
<i>Ptilostigma thonningii</i>	X
<i>Pseudarthria hookeri</i>	X
<i>Vitex doniana</i>	X

Herb species

<i>Acalypha villicaulis</i>	1
<i>Andropogon dummeri</i>	2
<i>Aspilia</i> sp.1998	1
<i>Berkheya spekeana</i>	1
<i>Brachiaria brizantha</i>	X
<i>Brachiaria fulva</i>	X
<i>Brachiaria platynota</i>	3
<i>Bulbostylis collina</i>	1
<i>Cymbopogon afronardus</i>	X
<i>Digitaria diagonalis</i>	1
<i>Digitaria maitlandii</i>	1
<i>Digitaria scalarum</i>	1
<i>Diplolophium abyssinicum</i>	X
<i>Eragrostis chalcantha</i>	2
<i>Helichrysum undatum</i>	1
<i>Hyparrhenia dissoluta</i>	X
<i>Hyparrhenia filipendula</i>	2
<i>Imperata cylindrica</i> v. <i>africana</i>	X
<i>Justicia betonica</i>	1
<i>Justicia</i> sp.1995	2
<i>Kyllinga albiceps</i>	1
<i>Lippia adoensis</i>	X
<i>Loudetia arundinacea</i>	1
<i>Mariscus macer</i>	X
<i>Mariscus mollipes</i>	1
<i>Microchloa kunthii</i>	2
<i>Oxalis corniculata</i>	1
<i>Phyllanthus nummulariifolius</i>	1
<i>Setaria sphacelata</i>	X
<i>Setaria trinervia</i>	3
<i>Sporobolus festivus</i>	2
<i>Sporobolus pyramidalis</i>	X
<i>Striga forbesii</i>	X
<i>Themeda triandra</i>	X
<i>Vernonia schweinfurthia</i>	2
<i>Vernonia smithiana</i>	1
<i>Vernonia violacea</i>	1

Site 414. Sampled on 18.4.56. Map ref: 322135.005355.

Location: mile 4.55 Kiwoko - Tweyanze, North Mengo.

Position: lower hillside. Elevation: 3550 ft. Slope: 2°.

Aspect: NNE. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: intermittent.

Cultivated about 5 years ago. Wild life: small game.

Soil Profile

Type: B

Depth & clar.	0-3"	3-14 fs	14-27 s	27-48 +
Colour	10YR3.2 v.dk.grey-br.	10YR4.2 dk.grey-br.	7.5YR4.4 brown	5YR5.6 yellow-red
Disp.	U	U	U	U
Text.	LFS	FSL	FSCL	FSCL
Min.Skel.				rotting rock
Struct.	granule	crumb	crumb	massive
Vis.Por.	+small	++small	++small	-
Handl.				
cons.	friable	friable	sticky	
Org.				
matter	3	1	1	
Roots	4	3	2	1
Water				
conds.	M	M	W	W
Sec.Chem.				
& Min.				murrem
Fauna				

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	10-15'/10%
Number of species	46	Shrubs	
Physiognomy	Scattered Tree Grassland	Herbs	1 5'/60%
Inclusions	Anthill thickets - not estimated.		2 30%
			3 20%
			4

Group 11. Cyperus-rich Themeda triandra - Sorghum rigidifolium.
Grasslands.

	367	369	379	316	373	390	412	399	400	403	407	356	358	385	393	398	324	388	457	459
WOODY SPECIES																				
Acacia campylacantha																				1
A. hebecladoides		X	X			X													X	1
A. seyal					X															
A. seyal v. multijuga			X	X									X							2
A. sieberiana																				
A. vermoeseni																				1
Acacia sp.															X	X				
Bridelia bridelifolia													X						X	
Combretum apiculatum				X																
C. binderanum			X	1									X							
C. ghasalense						X														X
C. gueinzii			X	X																
Gardenia jovia-tonantis							X													
Gymnosporia senegalensis	X	X	X			X							X		X					
Piliostigma thonningii	X	X	X		X	1							X	X	X		X			1
Pseudocedrela kotschyi													1							
Terminalia sericea				X																
HERBACEOUS SPECIES																				
Ageratum conyzoides										1	1				1					
Alectra sp. 2229																				1
Alloteropsis semialata	1																			
Aloe sp. "B"																			X	
Alysicarpus sp. 2005		1			X															
Ammania prieuriana																				1
Ampelocissus grantii		X																	X	
Anagallis pumila				X																
Andropogon dummeri						1	2	X	X	X	X	1	1	1						
A. eucumus	4	4	5					X	X	X	X	1	X				X	X		
Anisopappus africanus																				1
Anthrosolen chrysantha								1												1
Asparagus pauli-guilelmi										X										
Aspilia sp. 1998															X					
Biophytum sessile										2									X	
Blumea lacera			1										X							
Borreria ruelliae																				X
B. stricta																			1	
Bothriochloa glabra																				2
Brachiaria brizantha				X																
B. fulva		3																		
B. soluta	2	2	1	X	3	1	2	2	2	2	1	1	1	1	2				X	
Bulbostylis collina							1		1											1
Bulbostylis sp.										1										
Burnatia enneandra																			XL	X
Chrysanthellum americanum																				1
Commelina benghalensis	1			1																
C. subulata				1					X				X	1			1	2	2	2
Cyanotis hirsuta									X											
Cymbopogon afronardus															1					
Cymbopogon excavatus			1	X				1	1						2					
Cyperus amabilis				X																
C. denudatus			1			2		X	1			3	2	1	2	2	1	3	3	
C. diloloensis	2	2	X	X	1	3	1	X	3	X	1	1	X	3	2		X	2	1	
C. latifolius				X											2	1	X			
C. phaeorrhizos	1	2	1																	
C. unioloides																			2	
C. zollingeri																				X
Cyperus sp. 1947												1								
Digitaria diagonalis							1								1				X	X
D. maitlandii					1	1	1		X	X	X			2						
D. melanochila	X	1																		
D. melanolis v. major	1	1	1		1															
Eleocharis variegata																			XL	
Elionurus sp.		1											3							
Emilia integrifolia													X						X	1
Eragrostis exasperata						2		1						2						
E. tenuifolia										1						X			X	
Eriosema velutinum		X																		2
Eulophia cucullata						X	X	X												
E. subulata			1		X	X	X													
E. wakefieldii	X												1						X	
Eulophia sp.																				1
Euphorbia hypericoides														1						
Exochaenium micranthum																				X
Fimbristylis diphylla	1		3					2	1						2	3	1	2	2	
F. monostachya								1												
Floscopa rivularis																			3	
Fuirena sp. 1665				1																
Gladiolus psittacinus	X							X	X							X				
Gnidia sp. 2232																				1
Guizotia scabra																			1	2
Gynura amplexicaulis			X																	
Helichrysum gerberaeifolium	X																			
H. undatum																			1	X
Hibiscus cannabinus																				X
H. dissoluta	X	X													X					
H. filipendula	X	X	1	2	1	2	2	1	3	1			1	1	X	1			1	
H. gazensis		X																		X
H. lintonii																			2	
H. nyassae	1	1	2	X	1				1	1										2
H. rufa														3						
Hyparrhenia sp. 1806																			X	
Hyparrhenia sp.						1									1				X	1
Hypoxis angustifolium															1					
Imperata cylindrica v. africanum	X	X	X					X				1	1	X	1					
Indigofera sp. 1698				X	2															
Indigofera sp.			X									1		X						
Jussiaea sten. v. sten																				X
Justicia betonica				X																
Justicia sp. 1718																				

Site 367. Sampled on 19.3.56. Map ref: 314020.010215.

Location: 12.83 miles Kiboga gombolola - Butemba, N.W.Mengo.

Position: valley bottom. Elevation: 3600 ft. Slope: - Aspect: -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp.inund. 2 months. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game, elephant rare.

Soil Profile

Type: C.

Depth & clar.	0-5" d	5-17 fs	17-48 +
Colour	10YR4.1 dk.grey	10YR5.2 grey-brown	5YR5.1 grey
Disposal	U	U	M
Texture	FSL	FSL	FSCL
Min.Skeleton			
Structure	granule	crumb	massive
Vis.Porosity	+v.small	+small	+small occ.crack
Handl.cons.	friable	friable	plastic
Org.matter	4	2	1
Roots	4	3	1
Water conds.	M	M	M
Sec.Chem.& Min.			
Fauna	ants		

Weather conditions prior to sampling: rain, at sampling: morning dew.

Vegetation

Area sampled:	2500 sq.yards	Trees	
Number of species	29	Shrubs	
Physiognomy	grassland	Herbs	1 4'/100%
Inclusions	anthill thickets - not estimated.		2 20%
			3 30%
			4

Site 369. Sampled on 19.3.56. Map ref: 314000.010255.

Location: 13.52 miles Kiboga gombolola - Butemba, N.W.Mengo.

Position: valley bottom. Elevation: 3600 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp.inund. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game, occ. elephant.

Soil Profile

Type: C

Depth & clar.	0-10" d	0-14 fs	14-15 s	15-48 +
Colour	5YR4.1 dk.grey	5YR5.1 grey	5YR5.2 grey-brown	5YR4.1 dk.grey
Disposal	U	U	U	M
Texture	FSL	FSL	S	FSC
Min.skeleton				
Structure	granule	granule	granule	massive
Vis.Poros.	+small	+small	+small	+cracks +small plastic
Handl.cons.	powdery	powdery	loose	
Org.matter	4	2	1	
Roots	4	2	2	1
Water conds.	D	D	W	M
Sec.Chem. & Min.				
Fauna				

Weather conditions prior to sampling: rain & dew, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	20'/v.small
Number of species	25	Shrubs	7'/v.small
Physiognomy	grassland	Herbs	1 4'/100%
Inclusions	anthill thickets - not estimated.		2 3 50% 4

Site 379. Sampled on 23.3.56. Map ref: 313440.010825.

Location: 1.46 miles Butemba turn off - Hoima, N.W.Mengo.

Position: valley. Elevation: 3600 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp.inund. 3 months. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-3" fs	3-17 fs	17-33 d	33-72 +
Colour	10YR4.1 dk.grey	10YR5.1 grey	10YR5.1 grey	10YR5.1 grey
Disp.	U	U	M	M
Text.	FSL	FSL	FSC	FSC
Min.Skeleton				
Structure	crumb	crumb	clod	massive
Vis.Porosity		+small	+small	+small
Handl.cons.	friable	loose	plastic	plastic
Org.matter	4	2	1	
Roots	4	2	2	1
Water conds.	M	D	M	M
Sec.Chem.& Min.				
Fauna				

Weather conditions prior to sampling: heavy rain, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-20'/1%
Number of species	33	Shrubs	
Physiognomy	grassland	Herbs	1 4'/100%
Inclusions	anthill thickets		2 20%
	- not estimated.		3 40%
			4

Site 316. Sampled on 14.12.55. Map ref: 322825.010220.

Location: 1 mile south east of Kakoge, Mengo.

Position: valley. Elevation: 3550 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp.inund. 2 months. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: dry season.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-5" fs	5-16 d	16-24 d	24-32 d	32-72 +
Colour	5YR3.1 v.dk.-grey	7.5YR4.2 dk.-brown	10YR4.3 brown	5YR3.2 dk.red-br.	7.5YR5.4 brown
Disp.	U	U	U	M	M
Text.	LFS	FSL	S	SCL	SCL
Min.Skel.			occ.min.q		quartz
Struct.	crumb	crumb	granule	massive	massive
Vis.Por.	+small	+small	+++small		
Handl.					
cons.	friable	friable	loose	solid	solid
Org. matter	4	2	1	1	
Roots	4	2	2	1	1
Water conds.	M	M	M	M	M
Sec.Chem. & Min.					
Fauna	ants			ants	

Weather conditions prior to sampling: rain, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	6-20'/5-10%
Number of species	36	Shrubs	
Physiognomy	scattered tree grassland	Herbs	1
Inclusions	anthill thickets - not estimated.		2 100%
			3 50%
			4

Site 373. Sampled on 21.3.56. Map ref: 313655.010605.

Location: 19.00 miles Kiboga gombolola - Butemba, N.W.Mengo.

Position: valley bottom. Elevation: 3600 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp.inund. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game, occ. elephant.

Soil Profile

Type: C

Depth & clar.	0-3" fs	3-23 d	23-48 d	48-72 +
Colour	10YR4.1 dk.grey	10YR5.2 grey-brown	7.5YR5.1 grey	10YR5.1 grey
Disposal	U	U	M	M
Texture	FSL	FSL	FSC	FSC
Min. Skeleton				
Structure	crumb	crumb	clod	clod
Vis. Porosity	++small	++small	+crack +small	+crack +small
Hand. cons.	friable	friable	plastic	plastic
Org. matter	3	1	1	
Roots	4	2	1	
Water conds.	M	D	M	M
Sec. Chem. & Min.				
Fauna				

Weather conditions prior to sampling: heavy rain, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	
Number of species	21	Shrubs	
Physiognomy	grassland	Herbs	1 4'/10%
Inclusions	anthill thickets -		2 100%
	not estimated.		3 30%
			4

Site 390. Sampled on 12.4.56. Map ref: 322755.005930.

Location: mile 9.19 left Batuntumula t.o. - Kakoge, N.Mengo.

Position: valley bottom. Elevation: 3550 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: ridging 1 ft. high X
2 ft.+ anthills. Drainage: imp.inund. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-5" s	5-14 s	14-19 s	19-48 +
Colour	10YR4.1 dk.grey	10YR5.2 grey-brown	10YR5.2 grey-brown	10YR3.1 v.dk.grey
Disposal	U	U	U	M
Texture	FSL	FSL	FSL	FSC
Min. Skeleton				
Structure	crumb	crumb	nutty	massive
Vis. Porosity	small	small	small	small
Handl. cons.	friable	friable	friable	plastic
Org. matter	3	2	1	
Roots	3	3	2	1
Water. conds.	M	M	M	M
Sec. Chem. & Min.				
Fauna				

Weather conditions prior to sampling: heavy rain, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-20'/v.small
Number of species	18	Shrubs	
Physiognomy	grassland	Herbs	1 3-4'/100%
Inclusions	anthill thickets		2 40%
	- not estimated.		3 20%
			4

Notes: grasses growing on tops of ridges.

Site 412. Sampled on 17.4.56. Map ref: 322140.005405.

Location: 4.60 miles Kiwoko - Tweyanze, Mengo.

Position: valley. Elevation: 3520 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp.inund. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & char.	0-5" s	5-17 s	17-36 +
Colour	10YR5.1 grey	10YR6.1 light grey	7.5YR3.1 v.dk.grey
Disposal	U	U	M
Texture	FSL	FSL	FSCL
Min.Skeleton			
Structure	granule	granule	clod
Vis.Porosity			
Handling cons.	plastic-abrasive	plastic-abrasive	plastic
Org.matter	4	2	1
Roots	4	2	
Water conditions	M	S	S
Sec.Chem.& Min.			
Fauna			

Weather conditions prior to sampling: heavy rain, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	10'/v.small
Number of species	30	Shrubs	
Physiognomy	grassland	Herbs	1 5'/10%
Inclusions	413 (A.Th.)		2 100%
			3 30%
			4

Site 399. Sampled on 14.4.56. Map ref: 322725.005040.

Location: mile 1.95 Luwero - Wakyato, Mengo.

Position: valley. Elevation: 3550 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp. inund. 2 months. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-3" fs	3-11 fs	11-31 fs	31-48 +
Colour	10YR4.1 dk. grey	10YR5.2 grey-br.	7.5YR6.2 pink-grey	5YR5.1 grey
Disposal	U	U	U	M
Texture	FSC	FSC	CS	SCL
Min. Skeleton				minute Q
Structure	crumb	granule	granule	massive
Vis. Porosity	+small	+small	+small	
Handl. cons.	smooth-friable	loose	loose	plastic
Org. matter	4	2	1	
Roots	4	2	1	
Water conds.	M	M	S	S
Sec. Chem. & Min.				
Fauna				

Weather conditions prior to sampling: heavy rain, at sampling: dry.

Vegetation

Area sampled	2500 sq. yards	Trees	
Number of species	15	Shrubs	
Physiognomy	grassland	Herbs	1 4 1/5%
			2 100%
			3 10%
			4

Notes: boundary 399/400 sharp? burn.
cover: Loudetia kagerensis matted
height 2-3'.
Sorghum rigidifolium not
full grown 2-3'.

Site 400. Sampled on 14.4.56. Map ref: 322715.005040.

Location: mile 2.14 Luwero - Wakyato, Mengo.

Position: valley. Elevation: 3550 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp.inund. 2 months. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-4" fs	4-20 s	20-33 c	33-48 +
Colour	10YR4.1 dk.grey	10YR6.1 light-grey	7.5YR3.1 v.dk.grey	7.5YR5.1 grey
Disposal	U	U	M	M
Texture	FSL	FSL	FSC	FSC
Min.Skeleton Structure	blocky	blocky	massive	massive
Vis.Poros.				
Handl.cons.	plastic	plastic	sticky	sticky
Org.matter	4	2		
Roots	4	2	1	1
Water conds.	W	W	S	S
Sec.Chem.& Min.				
Fauna				

Weather conditions prior to sampling: heavy rain, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	
Number of species	20	Shrubs	
Physiognomy	grassland	Herbs	1 5'/5%
			2 100%
			3 40%
			4

Notes: Loudetia kagerensis not matted
as in site 399, but occurring as
individual shoots, medium density.
? post-burn

Site 403. Sampled on 14.4.56. Map ref: 322605.005110.

Location: 3.73 miles right Luwero - Wakyato, Mengo.

Position: valley. Elevation: 3550 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp.inund. 2 months. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-4" fs	4-14 fs	14-17 s	17-48 +
Colour	7.5YR5.1 grey	10YR5.1 grey		7.5YR5.1 grey
Disposal	U	U		M
Texture	FSL	FSL	S	FSC
Min.Skeleton				
Structure	crumb	crumb	granule	massive
Vis.Poros.				
Handl.cons.	friable- plastic	friable- plastic	loose	plastic
Org.matter	4	2	1	
Roots	4	2	1	1
Water conds.	M	M	S	S
Sec.Chem. & Min. Fauna				

Weather conditions prior to sampling: heavy rain, at sampling: dry.

Vegetation.

Area sampled	1600 sq.yards	Trees	
Number of species	18	Shrubs	
Physiognomy	grassland	Herbs	1 4-5'/50
Inclusions	404 (A.Th.)		2 100%
			3 10%
			4

Site 407. Sampled on 17.4.56. Map ref: 322105.005115.

Location: 0.84 miles Kiwoko - Twéyanze, Mengo.

Position: valley bottom. Elevation: 3520 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp.inund. 2 months. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-5" d	5-9 fs	9-36 +
Colour	10YR4.1 dk.grey	10YR5.1 grey	10YR6.2 light grey-brown
Disposal	U	U	U
Texture	L	L	SCL
Min. Skeleton			rare Q
Structure	crumb	crumb	massive
Vis. Porosity	+small	+small	
Handl. cons.	plastic	plastic	plastic
Org. matter	4	2	1
Roots	4	2	1
Water conds.	W	S	S
Sec. Chem. & Min.			
Fauna			

Weather conditions prior to sampling: heavy rain, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	
Number of species	25	Shrubs	
Physiognomy	grassland	Herbs	1 4-5'/20%
Inclusions	408 (A.Th.)		2 100%
			3 30%
			4

Notes: 3 zones round anthill thickets - see site 408, group 3.

Site 356. Sampled on 22.2.56. Map ref: 522740.010900.

Location: 15-18 miles south of Nakasongola, N.Mengo.

Position: valley. Elevation: 3530 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: ridging 1 ft. high X
2 ft. - anthills. Drainage: imp.inund. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-3" fs	3-17 c	17-20 fs	20-30 d	30-41 fs	41-48 -
Colour	10YR5.1 grey	10YR6.2 l.brown- grey	10YR6.2 l.brown- grey	10YR4.1 dk.grey	10YR4.1 dk.grey	10YR5.1 grey
Disp.	U	U	U	M	M	M
Text.	FSL	FSL	FSL	FSC	FSC	FSC
Min.Skel.						
Struct.	granule	granule	granule	massive	massive	massive
Vis.Por.	+v.small	+v.small	+v.small			
Handl.						
cons.	plastic	crumbly	crumbly	plastic	plastic	plastic
Org.						
matter	3	2	1			
Roots	2	1	1	1		
Water						
conds.	M	W	W	W	W	W
Sec.Chem.						
& Min.						
Fauna	worms					

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	
Number of species	18	Shrubs	
Physiognomy	grassland	Herbs	1 3-5'/60%
			2 70%
			3 20%
			4 5%

Notes: grasses & sedges rooted on upper part of ridge.

Site 358. Sampled on 22.2.56. Map ref: 322745.011050.

Location: 12-18 miles south of Nakasongola, N.Mengo.

Position: valley bottom. Elevation: 3550 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp.inund. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-6" d	6-12 fs	12-23 fs	23-35 fs	35-44 +
Colour	10YR5.1 grey	10YR5.1 grey	10YR6.1 light grey	10YR4.1 dk.grey	10YR6.1 light grey
Disp.	U	U	U	M	M
Text.	FSL	FSL	FSL	FSC	FSC
Min.skel.				q.ang. $\frac{1}{8}$ "	q.ang. $\frac{1}{4}$ "
Struct.	granule	crumb	granule	massive	massive
Vis.Por.	+small	+small	+small		
Handl.					
cons.	powdery	friable	friable	plastic	plastic
Org.					
matter	4	3	2		
Roots	4	3	2	1	1
Water					
conds.	D/M	D/M	D/M	M	M
Sec.Chem. & Min.					
Fauna	ants				

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-15'/10%
Number of species	26	Shrubs	
Physiognomy	scattered tree grassland	Herbs	1 5'/100%
Inclusions	anthill thickets - not estimated.		2 50%
			3 10%
			4

Site 385. Sampled on 27.3.56. Map ref: 314415.011215.

Location: 10.71 miles east of Butemba, N.W.Mengo.

Position: valley. Elevation: 3550 ft. Slope - Aspect -

Macrorelief: undulating. Microrelief: anthills.

Drainage: imp.inund.2 months. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: intermittent.

Not cultivated. Wild life: small game, occ. elephant.

Soil Profile

Type: C

Depth & clar.	0-4" d	4-9 d	9-26 fs	26-60 +
Colour	10YR3.1 v.dk.grey	10YR4.2 dk.grey-br.	7.5YR4.2 brown	7.5YR4.1 dk.grey
Disposal	U	U	U	M
Texture	FS	FS	FSL	FSCL
Min.Skeleton				min.q.
Structure	crumb	crumb	crumb	clod
Vis.Por.	+small	+small	+small	occ.crack
Handl.cons.	loose	loose	loose	plastic
Org.matter	4	2	1	1
Roots	4	2	2	1
Water conds.	M	M	W	W
Sec.Chem.& Min.				
Fauna				

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	
Number of species	17	Shrubs	
Physiognomy	grassland	Herbs	1 4'/100%
Inclusions	anthill thickets -		2 10%
	not estimated.		3 30%
			4

Site 393. Sampled on 13.4.56. Map ref: 321625.005025.

Location: mile 16.28 right Luwero - Wakyato, Mengo.

Position: valley bottom. Elevation: 3550 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp.inund.2 months. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-5" fs	5-17 fs	17-36 +
Colour	10YR4.1 dk.grey	10YR6.3 pale brown	10YR4.1 dk.grey
Disposal	U	U	M
Texture	FSCL	FSCL	FSCL
Min. Skeleton			
Structure	massive	massive	massive
Vis. Porosity			
Handl. consist.	plastic	plastic	plastic
Org. matter	3	1	1
Roots	4	2	1
Water conditions	S	S	S
Sec. Chem. & Min.			
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees (a 25' / v. small (b 10'
Number of species	24	
Physiognomy	grassland	Shrubs
Inclusions	anthill thickets - not estimated.	Herbs 1 4'/100% 2 30% 3 10% 4

Site 398. Sampled on 13.4.56. Map ref: 321255.005120.

Location: mile 0.75 right Wakyato - Luwero, Mengo.

Position: valley. Elevation: 3530 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp.inund.2 months. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: intermittent.

Not cultivated. Wild life : small game.

Soil Profile

Type: C

Depth & clar.	0-3" fs	3-11 fs	11-19 fs	19-26 s	26-48 +
Colour	10YR3.1 v.dk.grey	10YR4.1 dk.grey	10YR4.2 dk.grey-br.	10YR4.1 dk.grey	10YR4.1 dk.grey
Disp.	U	U	U	M	M
Text.	FSL	FSL	SL	FSCL	FSCL
Min.Skel.					
Struct.	crumb	crumb	granule	massive	massive
Vis.Por.	++small	++small	++small		
Handl.					
cons.	plastic	plastic	plastic	plastic	plastic
Org. matter	4	2	1	1	
Roots	4	3	1	1	
Water conds.	M	M	M	M	M
Sec.Chem. & Min.		soft murrum	soft murrum		
Fauna					

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	10-20'/v.small
Number of species	29	Shrubs	
Physiognomy	grassland	Herbs	1 5'/60%
Inclusions	anthill thickets		2 10%
	- not estimated.		3 40%
			4

Site 324. Sampled on 21.12.55. Map ref: 322655.010455.

Location: 1.75 miles north east of Kakoge, Mengo.

Position: valley. Elevation: 3550 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills & ridging.

Drainage: imp.inund.2 months. Burning: annual/biennial.

Erosion effect; illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-6" d	6-12 d	12-20 d	20-60 +
Colour	10YR5.1 grey	10YR5.2 grey-brown	10YR5.2 grey-brown	10YR5.2 grey-brown
Disposal	U	U	U	U
Texture	FSL	FSL	FSL	FSL
Min.Skel.				sand
Structure	amorphous	amorphous	amorphous	amorphous
Vis.Por.				
Handl. cons.	sticky plastic	sticky plastic	gritty plastic	gritty plastic
Org. matter	4	3		
Roots	4	2	1	1
Water conds.	S	S	S	S
Sec.Chem. & Min. Fauna				

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	
Number of species	27	Shrubs	
Physiognomy	grassland	Herbs	1 5 1/60%
Inclusions	anthill thickets		2 50%
	- not estimated.		3 30%
			4 10%

Notes: grasses on tops, sedges on sides of ridges.

Site 588. Sampled on 12.4.56. Map ref: 522805.005625.

Location: mile 5.36 Batuntumula t.o.- Kakoge, Mengo.

Position: valley bottom. Elevation: 3550 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp.inund.2 months. Burning: annual/biennial.

Erosioneffect: alluvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

	0-5" fs	5-18 fs	18-22 fs	22-28 fs	28-60 +
Depth & clar.					
Colour	10YR5.1 grey	10YR5.1 grey	10YR5.2 grey-brown	5YR3.1 v.dk.grey	5YR3.1 v.dk.grey
Disp.	U	U	U	M	M
Text.	FSL	FS	S	SCL	SCL
Min. Skel.					
Struct.	granule	granule	granule	clod	clod
Vis. Por.	small	small	small		
Handl.					
cons.	friable	friable	crumbly	plastic	plastic
Org. matter	3	2	1		
Roots	4	2	2	2	1
Water conds.	M	M	M	M	M
Sec. Chem. & Min. Fauna					

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	20'/v.small
Number of species	36	Shrubs	6-10'/1%
Physiognomy	grassland	Herbs	1 4'/75%
Inclusions	anthill thickets -		2 20%
	not estimated.		3 20%
			4

Site 457. Sampled on 27.7.56. Map ref: 324205.010045.

Location: mile 10.14. Wabusana - Kalungi, N.Mengo.

Position: valley bottom. Elevation: 3440 ft. Slope: negligible.

Aspect - Macrorrelief: low rolling. Microrelief: anthills.

Drainage: imp.inund.2 months. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: intermittent, not palatable.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-1"	1-5	5-24 +
Colour	grey	grey	grey-brown
& Disposal	FS	FSL	C
Texture			
Min. Skeleton	granule	granule	columnar
Structure			
Visible porosity			
Handl. consist.	plastic	plastic	plastic
Org. matter	5	3	
Roots	5	3	1-0
Water conds.	M	M	W
Sec. Chem. & Min			
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	
Number of species	25	Shrubs	
Physiognomy	grassland	Herbs	1 4 ¹ /40%
Inclusions	458 (A.Th.)		2 100%
			3 30%
			4 5%

Site 459. Sampled on 29.7.56. Map ref: 324205.010030.

Location: mile 9.75 Wabusana - Kalungi, N. Mengo.

Position: valley side. Elevation: 3450 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp.inund.2 months. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: 0

Depth & clarity	0-7"	7-24 +
Colour & Disposal	dk.grey	grey-brown M
Texture	FSCL	FSC
Min.Skeleton Structure	clod	massive
Visible Porosity		
Handling consist.	plastic	plastic
Org.matter	3	1-0
Roots	3	1-0
Water conditions	M	W
Sec.Chem.& Min.		
Fauna		

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	15-25'/10%
Number of species	27	Shrubs	
Physiognomy	scattered tree grassland	Herbs	1
Inclusions	460 (A.Th.)		2 100%
			3 10%
			4

Group 12. *Themeda triandra*
Grasslands and Wooded Grasslands.

	300	301	302	303	304	370	378	377	420	426	435	466	468
Woody Species.													
<i>Acacia campylacantha</i>								X				1	1
<i>A. hebecladoides</i>												1	
<i>A. senegal</i>					X								
<i>A. seyal</i>									X				
<i>A. seyal v. fistula</i>	1	X	X	X	X								
<i>A. seyal v. multijuga</i>								X			X		1
<i>A. sieberiana</i>										X	X		
<i>Acacia sp.</i>								1				2	2
<i>Balanites aegyptiaca</i>	X	X	X										
<i>Bridelia scleroneuroides</i>													X
<i>Combretum binderanum</i>		1	1	2	1			1	X		X		
<i>C. ghasalense</i>		X	X	X	X					X			
<i>C. guenzii</i>								X					
<i>Gardenia jovic-tonantis</i>													X
<i>Gymnosporia senegalensis</i>								X	X		X		
<i>G. senegalensis v. inermis</i>													X
<i>G. senegalensis v. spinosa</i>													X
<i>Harrisonia abyssinica</i>					X								X
<i>Kigelia aethiopica</i>													X
<i>Piliostigma thonningii</i>		X	X	X				X	X	X	X	X	X
<i>Pseudocedrela kotschy</i>		X	X										
<i>Rhus vulgaris</i>								X					
<i>Stereospermum kunthianum</i>									X				
HERBACEOUS SPECIES.													
<i>Aloe sp. "B"</i>									X				
<i>Aloe sp.</i>											X		
<i>Asparagus pauligulelmii</i>					1							X	
<i>Asparagus sp.</i>									X				
<i>Bethrichloa glabra</i>	2	1	1	X	2								
<i>B. insculpta</i>	X			X								2	4
<i>Brachiaria brizantha</i>					X							1	1
<i>B. dictyoneura</i>					1								2
<i>B. soluta</i>								2	2	1	2		
<i>Burnatia emeandra</i>	XL												
<i>Chloris gayana</i>												1	
<i>Commelina purpurea</i>			X	1									
<i>C. subulata</i>						X	X						
<i>Cyanotis hirsuta</i>					X								
<i>C. subulata</i>										2			
<i>Cymbopogon excavatus</i>	X	X	X	X	1								
<i>Cyperus distans</i>													X
<i>C. richardii</i>											1		
<i>Digitaria maitlandii</i>									2		2		
<i>Dychoriste radicans</i>												1	
<i>Echinochloa pyramidalis</i>	X												
<i>Eragrostis chalcantha</i>					X					1			
<i>E. tenuifolia</i>												2	
<i>Fimbristylis diphylla</i>											2		
<i>F. exilis</i>									1				
<i>F. monostachya</i>					X								
<i>Gladiolus psittacinus</i>										X			
<i>Helichrysum undatum</i>												1	
<i>Heteropogon contortus</i>				X	2								
<i>Hyparrhenia dissoluta</i>					1				2	X	2		
<i>H. filipendula</i>					X				1	1		2	
<i>H. nyassae</i>	1	X	1	X	1								
<i>Imperata cylindrica v. africana</i>								X					
<i>Indigofera sp. 1978</i>						X	X						
<i>Indigofera sp. 2007</i>						X							
<i>Ipomoea aquatica</i>	XL												
<i>Kyllinga albiceps</i>											1		
<i>Lactuca capensis</i>												X	
<i>Leonotis nepetaefolia</i>													X
<i>Lippia adoensis</i>											X		
<i>Microchloa kunthii</i>									2	3	3		
<i>Murdannia simplex</i>											1		
<i>Ornithogalum sordidum</i>								X	X				
<i>Ornithogalum sp. 1975</i>								1					
<i>Ottelia sp. 2187</i>	XL												
<i>Panicum maximum</i>		X	X	X	X	1						X	1
<i>P. meyerianum</i>								X					
<i>Paspalum notatum</i>												1	1
<i>Polygala amboniensis</i>											1		
<i>Pycnostachys stuhlmannii</i>							X						
<i>Ruellia patula</i>												1	
<i>Sacciolepis brevifolia</i>							3						
<i>Scleria lithosperma</i>										1	1		
<i>Scleria sp. near S. melanophala</i>							1						
<i>Setaria atrata (?= 2188)</i>	3	2	2	2	2								
<i>S. holstii</i>								X					
<i>S. sphacolata</i>						2			2	1	2	X	1
<i>Solanum incanum</i>												X	
<i>Sonchus oleraceus</i>													X
<i>Sorghum rigidifolium</i>	XL	1	X		X	2	3					X	
<i>Sporobolus festivus</i>					X						3		
<i>S. piliferus</i>												1	
<i>S. pyramidalis</i>	1	X	1	1	1							X	
<i>Stathmostelma rhacodes</i>					X								
<i>Striga asiatica</i>												1	
<i>Themeda triandra</i>	5	5	5	5	4	5	4	5	5	5	5	4	1
<i>Urginea micrantha</i>								1					
<i>Vernonia schweinfurthia</i>													2
<i>Vigna sp. 1980</i>							X						
Unidentified moss						1	2						

Site 300. Sampled on 2.9.55. Map ref: 322525.013045.

Location: 6.00 miles west of Lwampanga, N. Mengo.

Position: valley bottom. Elevation: 3450 ft. Slope - Aspect -

Macrorelief: undulating. Microrelief: remains of anthills.

Drainage: imp. inund. patches. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-5" d	5-10 d	10-30 +
Colour	7.5YR3.0 v.dk.grey	7.5YR4.0 dk.grey	7.5YR4.0 dk.grey
Disposal	U	U	M
Texture	C	C	C
Min. Skeleton			
Structure	columnar	columnar	columnar
Vis. Poros.	occ. fissures	occ. fissures	occ. fissures
Handl. consist.	plastic	plastic	plastic
Org. matter	4	2	1
Roots	4	2	
Water conds.	M	W	W
Sec. Chem. & Min.			
Fauna			

Weather conditions prior to sampling: wet, at sampling: wet.

Vegetation

Area sampled	2500 sq.yards	Trees	20-25'/5-10%
Number of species	10	Shrubs	
Physiognomy	scattered tree grassland	Herbs	1 3-4'/100%
Inclusions:	slightly different grass		2 20%
	mixture on old anthills		3 5-10%
	(barely discernible).		4

Site 301. Sampled on 3.9.55. Map ref: 322530.013050.

Location: 5.75 miles west of Lwampanga, N. Mengo.

Position: valley. Elevation: 3450 ft. Slope - Aspect -

Macrorelief: undulating. Microrelief: remains of anthills.

Drainage: imp.inund.patches. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-5" d	5-15 d	15-48 +
Colour	7.5YR3.2 dk.brown	10YR3.2 v.dk.grey-brown	7.5YR4.0 dk.grey
Disposal	U	U	U
Texture	FSC	C	C
Min.Skeleton			
Structure	crumb-clod	clod	massive
Visible Poros.	+small	+small	-
Handling cons.	friable	plastic	plastic
Org.matter	3	2	1
Roots	3	2	
Water conds.	M	W	W
Sec.Chem.& Min.			
Fauna			

Weather conditions prior to sampling: wet, at sampling: wet.

Vegetation

Area sampled	2500 sq.yards	Trees	10-20'/5-10%
Number of species	14	Shrubs	
Physiognomy	scattered tree grassland	Herbs	1 3-4'/100%
			2 20%
			3
			4

Site 302. Sampled on 3.9.55. Map ref: 322530.013050.

Location: 5.75 miles west of Lwampanga, N. Mengo.

Position: valley. Elevation: 3450 ft. Slope - Aspect -

Macrorelief: undulating. Microrelief: remains of anthills.

Drainage: imp.inund.patches. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-6" d	6-12 d	12-30 d	30-48 +
Colour	10YR3.1 v.dk.grey	10YR3.1 v.dk.grey	2.5Y 3.0 v.dk.grey	2.5Y 4.0 v.dk.grey
Disposal	U	U	U	U
Texture	FSCL	FSCL	FSC	FSC
Min. Skeleton				
Structure	crumb	clod	massive	massive
Vis. Poros.	**small	+small	-	-
Handl. cons.	friable	friable	plastic	plastic
Org. matter	3	2	1	1
Roots	3	2	1	
Water conds.	D	M	W	W
Sec. Chem. & Min.				
Fauna				

Weather conditions prior to sampling: wet, at sampling: wet.

Vegetation

Area sampled	2500 sq.yards	Trees	10-20'/10%
Number of species	15	Shrubs	
Physiognomy	scattered tree grassland	Herbs	1 3-4'/100%
			2 10%
			3
			4

Site 303. Sampled on 2.9.55. Map ref: 322535.013050.

Location: 5.50 miles west of Lwampanga, N. Mengo.

Position: valley side. Elevation: 3450 ft. Slope - Aspect -

Macrorelief: undulating. Microrelief: remains of anthills.

Drainage: imp.inund.patches. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & char.	0-6" d	6-12 d	12-24 d	24-48 +
Colour	10YR2.2 v.dk.brown	10YR3.1 v.dk.grey	10YR3.1 v.dk.grey	2.5Y 4.0 dk.grey
Disposal	U	U	U	U
Texture	FSC	FSC	FSC	FSC
Min.Skeleton				
Structure	crumb	massive	massive	massive
Vis.Poros.	++small	-	-	-
Handl.cons.	friable	cohesive	plastic	plastic
Org.matter	3	2	1	1
Roots	3	1	1	
Water conds.	M	W	W	W
Sec.Chem.& Min.				
Fauna				

Weather conditions prior to sampling: wet, at sampling: wet.

Vegetation

Area sampled	2500 sq.yards	Trees	10-15'/10%
Number of species	14	Shrubs	
Physiognomy	scattered tree grassland	Herbs	1 3-4'/100%
			2 10%
			3 10%
			4

Site 304. Sampled on 6.9.55. Map ref: 322540.013055.

Location: 5.50 miles west of Lwampanga, N.Mengo.

Position: valley side. Elevation: 3450 ft. Slope: -Aspect: -

Macrorelief: undulating. Microrelief: anthills.

Drainage: imp.inund. patches. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-7" fs	7-15 d	15-25 d	25-48 +
Colour	10YR3.1 v.dk.grey	10YR3.1 v.dk.grey	10YR4.1 dk.grey	10YR4.2 dk.grey-brown
Disposal	U	U	U	U
Texture	FSCL	FSCL	FSC	FSC
Min.Skeleton				
Structure	crumb	crumb-clod	massive	massive
Vis.Poros.	small	small		
Handl.consist.	friable	cloddy	plastic	plastic
Org.matter	3	2	1	1
Roots	4	3	2	2
Water conds.	M	M	W	W
Sec.Chem. & Min. Fauna				

Weather conditions prior to sampling: wet, at sampling: wet.

Vegetation

Area sampled	2500 sq.yards	Trees	10-15'/10%
Number of species	24	Shrubs	
Physiognomy	scattered tree grassland	Herbs	1 5'/10%
Inclusions:	open thickets on anthills		2 100%
	(not estimated).		3 10%
			4

Site 370. Sampled on 19.3.56. Map ref: 314000.010300.

Location: mile 13.65 Kiboga gombolola - Butemba, N.W.Mengo.

Position: valley bottom. Elevation: 3600 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills & ridging.

Drainage: imp.inund. 2 months. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: post-burn.

Not cultivated. Wild life: small game, occ. elephant.

Soil Profile

Type: C

Depth & clar.	0-8" fs	8-48 +
Colour	5YR5.1 grey	5YR4.1 dk.grey
Disposal	U	M
Texture	FSL	FSC
Min. Skeleton		
Structure	granule	massive
Visible porosity	+small	+small + cracks
Handling cons.	friable	plastic
Organic matter	4	1
Roots	4	2
Water conditions	M	M
Sec.Chem.& Min.		
Fauna	ants & worms	

Weather conditions prior to sampling: wet, dew, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	
Number of species	8	Shrubs	
Physiognomy	grassland	Herbs	1 5'/10%
Inclusions	anthill thickets		2 100%
	- not estimated.		3 5-10%
			4

Notes: moss in hollows, other species on ridges.

Site 378. Sampled on 22.3.56. Map ref: 513415.010940.

Location: mile 3.05 Butemba t.o. - Hoima, N. Mengo.

Position: valley bottom. Elevation: 3600 ft. Slope - Aspect -

Macrorelief: low rolling; Microrelief: anthills & ridging.

Drainage: imp. inund. 2 months. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: B

Depth & clar.	0-5" d	5-10 fs	10-13 fs	13-28 fs	28-31 fs	31-39 fs	39-47 fs	47-72+
Colour	10Y5.1 grey	10YR5.2 gr.-br	10YR6.2 l.grey-br.	10YR5.3 brown	7.5YR6.2 pink-grey	7.5YR4.2 brown	10YR6.2 l.grey-br	10YR6.3 pale br.
Dispos.	U	U	U	M	U	U	U	M
Texture	LFS	FSL	SL-S	FSL	S	LS	LS	FSL
Min. Skel.								q. 1/8"
Struct.	crumb	crumb	granule	massive	granule	granule	granule	cloddy
Vis. Por.	*small	*small	*small	*small	**small	*small	*small	*small
Handl. cons.	friable	friable	friable	plastic sticky	loose	loose sticky	loose sticky	plastic
Org. matter	4	3	1	1	1	1		
Roots	3	1	1	1				
Water conds.	M	W	W	W	S	S	W	W
Sec. Chem. & Min.								
Fauna								

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	
Number of species	9	Shrubs	
Physiognomy	grassland	Herbs	1 5'/5%
Inclusions	anthill thickets -		2 100%
	not estimated.		3
			4 10%

Notes: Rooting abundant on tops of ridges, only moss in the hollows.

Site 377. Sampled on 22.3.56. Map ref: 513420.010955.

Location: mile 3.11 Butemba t.o.- Hoima, N.W.Mengo.

Position: valley. Elevation: 3600 ft. Aspect - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp.profile S.W. Burning: annual/biennial.

Erosion effect: iluvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-4" fs	4-9 c	9-13 d	13-48 +
Colour	10YR3.1 v.dk.grey	10YR4.1 dk.grey	10YR4.1 dk.grey	2.5YR4.0 dk.grey
Disposal	U	U	U	M
Texture	FSL	FSL	FSL	FSCL
Min.Skeleton				Q
Structure	crumb	crumb	crumb	-
Vis.Porosity	++small	++small	++small	occ.crack
Handl.cons.	friable	friable	friable	plastic
Org.matter	4	2	1	1
Roots	4	3	2	1
Water conds.	M	M	M	M
Sec.Chem.& Min.				
Fauna				

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-20'/5%
Number of species	17	Shrubs	
Physiognomy	Grassland	Herbs	1
Inclusions	Anthill thickets -		2 100%
	not estimated.		3 10%
			4

Site 420. Sampled on 11.5.56. Map ref: 320110.010805.

Location: mile 27.82 Wakyato - Ngoma, N. Mengo.

Position: valley bottom. Elevation: 3510 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp.profile S.W. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game, occ. elephant.

Soil Profile

Type: C

Depth & clar.	0-4" fs	4-10 d	10-17 fs	17 +
Colour	10YR4.1 dk.grey	10YR5.1 grey	10YR4.1 dk.grey	7.5YR3.1 v.dk.grey
Disposal	U	U	U	M
Texture	LFS	FSL	FSCL	FSC
Min.Skeleton Structure	granule	granule	nut	clod
Vis.Porosity			+small +crack	+small +crack
Handl.cons.	plastic -abrasive	friable	crumbly	plastic
Org.matter	4	2	1	
Roots	4	2	1	
Water conds.	M	M	M	M
Sec.Chem.& Min.				
Fauna				

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	6-12'/v.small
Number of species	15	Shrubs	
Physiognomy	grassland	Herbs	1 4'/100%
Inclusions	anthill thickets		2
	- not estimated.		3 10%
			4

Site 426. Sampled on 12.5.56. Map ref: 320620.005820.

Location: mile 11.73 Wakyato - Ngoma, N.Mengo.

Position: valley bottom. Elevation: 3560 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp. low layers S.W. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game + elephant.

Soil Profile

Type: C

Depth & char.	0-4" fs	4-7 fs	7-19 d	19-23 fs	23-48 +
Colour	10YR4.1 dk.grey	10YR5.1 grey	10YR5.2 grey-brown	10YR6.3 pale-br.	10YR3.1 v.dk.grey
Disp.	U	U	U	U	M
Texture	FSL	FSL	FSCL	SCL	FSCL
Min. Skel.					
Struct.	crumb	crumb	crumb	granule	massive clod
Vis. Por.	+small	+small	+small		
Handl. cons.	friable	friable	plastic	plastic -abrasive	plastic
Org. matter	4	3	2		
Roots	3	3	2	1	1
Water conds.	M	M	W	S	M
Sec. Chem. & Min.					
Fauna					

Weather conditions prior to sampling: rain, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	6-10'/v.small
Number of species	13	Shrubs	
Physiognomy	Grassland	Herbs	1) 3-4'/100%
Inclusions	427 (A.Th.)		2) 40%
			3)
			4)

Notes: better drained patch with
Hyparrhenia spp. & Loudetia arundinacea

Site 435. Sampled on 14.5.56. Map ref: 320605.005840.

Location: mile 12.35 Wakyato - Ngoma, N. Mengo.

Position: valley bottom. Elevation: 3520 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp. profile S.W. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game & elephant.

Soil Profile

Type: C

Depth & clar.	0-4" fs	4-10 fs	10-20 fs	20-48 +
Colour	7.5YR3.1 v.dk.grey	10YR5.1 grey	10YR5.2 grey-brown	10YR4.1 dk.grey
Disposal	U	U	U	M
Texture	FSL	FSL	FSCL	FSCL
Min.Skel.				min.Q.
Structure	granule	granule	crumb	massive
Vis.Por.			+small	
Handl.cons.	plastic	plastic	plastic	plastic
Org.matter	4	3	1	
Roots	4	2	1	1
Water conds.	M/W	M	M	M
Sec.Chem.& Min.				
Fauna				

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	6-30'/5%
Number of species	21	Shrubs	
Physiognomy	grassland	Herbs	1 4'/100%
Inclusions	436 (A.Th.)		2 30%
			3 40%
			4

Notes: wet patches: Brachiaria soluta, Cyperus flavidus,
Eragrostis ciliaris, Timbristylis exilis,
Hyparrhenia nyassae, Leersia hexandra, Lipocarpa
pulcherrima, Murdannia simplex, Setaria sphacelata,
Scirpus confusus, Stathmostelma rhacodes.

Site 466. Sampled on 2.8.56. Map ref: 321205.005225.

Location: 1 mile north of Wakyato, N.Mengo.

Position: valley. Elevation: 3510 ft. Slope: negligible.

Aspect: - Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp., lower layers S.W. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-7"	7-36	36 +
Colour	grey	grey-brown	yellow-brown
Disposal	U	U	M
Texture	FS	SL	C
Min. Skeleton			
Structure	granule	granule	massive
Visible Porosity	small	small	
Handl. consist.	crumbly	crumbly	plastic
Org. matter	3	1	
Roots	3	1	
Water conditions	D	M	M
Sec. Chem. & Min.			
Fauna			

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees (a 30'/20%
Number of species	28	(b 6-10'/5%
Physiognomy	scattered tree grassland.	Shrubs
Inclusions	467 (A.Th.)	Herbs 1
		2 100%
		3 30%
		4

Site 468. Sampled on 2.8.56. Map ref: 321145.005215.

Location: 2 miles north west of Wakyato, N. Mengo.

Position: swamp edge. Elevation: 3480 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: pitted surface (trampling)

Drainage: imp. profile S.W. Burning: annual/biennial.

Erosion effect: alluvial. Grazing: regular.

Soil Profile

Type: C

Depth & clar.	0-15"	15 +
Colour	grey	grey
Disposal	U	M
Texture	FS	C
Min. Skeleton		
Structure	granule	massive
Visible Porosity	+small	-
Handling consist.	loose	plastic
Organic matter	3	1
Roots	3	
Water conditions	S	S
Sec. Chem. & Min.		
Fauna		

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	800 sq.yards	Trees (a 30' / 20%
Number of species	12	(b 10' / 5%
Physiognomy	scattered tree grassland.	Shrubs Herbs
		1
		2 100%
		3 20%
		4

Group 13. Hyparrhenia spp.
Wooded Grasslands.

Woody Species	305	351a	333	338	342	445	328	347	443	320	349	389	366	437
Acacia campylacantha			X											
A. hebecladoides	X	X		X	X		X		X		X	X	X	
A. senegal	X		X	X			X	X	X					
A. seyal							X							
A. seyal var. fistula									1					
A. seyal var. multijuga					X	X	X	X				X		
A. siebariana	X	1	X	X			X			X				
Acacia sp.							X							
Annona chrysophylla		X	X							X	X			
Balanites aegyptiaca				X	X			X						
Balanites sp.			X											
Combretum apiculatum	X													
C. binderanum	1	X	2	X	X		1	X	X	1	X		X	
C. ghasalense		1		X	1	1	1	X	1	1	1			
C. guenzii		X	X		X	X	X				X			
Combretum sp.							X							
Cussonia arborea						X								
Gardenia jovis tonantis					X	X	X				X			
Gymnosporia senegalensis		X			X	X				X	X			
G. senegalensis var. spinosa			X											
Lanea kerstingii					X									
Pavetta crassipes		X				X								
Piliostigma thonningii		X	X	X	X	1		X	X	1		X	X	
Pseudocedrela kotschyi		X	X	X	X	X		X			X			
Steganotaenia araliacea						X								
Stereospermum kunthianum		X						X						
Tamarindus indica						X								
HERBACEOUS SPECIES.														
Alloteropsis semialata							2				2			
Aloe sp. B.								X						X
Aloe sp.		X	X				X							
Alysicarpus sp.		X												
Andropogon dummeri		1	1	X							1		1	
A. eucomus		X		X									X	
Anthericum							X	X	1		X			
Anthericum sp.														X
Asparagus pauli-guilelmi	X	X	X	X		1	X	1			X			1
Becium sp.	X													
Bothriochloa glabra	X													
Brachiaria brizantha	1	1		1	1	X		X	X		1			
B. dictyoneura	1	1		1										
B. emini							X							
B. fulva												1		
B. kotschyana	X													
B. soluta		2	2	1		1	1	3	2	2	2	2	2	1
Bulbostylis atrosanguinea		1												
B. collina									1			1		
Chloris gayana	X	X	X		1	1								
Chlorophytum sp. 1820							X							
Cissus bambuseti						X								
Commelina africana										2				
C. benghalensis			X											
C. subalata			1		1	1		1	1			2		
Crotalaria sp.					1									
Cyanotis hirsuta	1	1				1								
Cymbopogon afronardus	1													
Cyperus denudatus											1			
C. esculentus										X				
C. flavidus									X					
Digitaria scalarum	1													
Digitaria sp.					1								1	
Dyschoriste radicans			1	1							X			
Emilia sp.							X						1	
Eragrostis chalcantha				2	X	X	X				3			1
E. chapellieri	X													
E. exasperata				1										
Eulophia chalcantha													1	
C. cucullata												X		1
E. instata							1				X			
E. pyrophila			X				X							
E. wakefieldii				1	X									
Euphorbia hirta										X				
Fimbristylis diphylla												2		
F. monostachya	X	X		1		2	1		1	1	1			
Gladiolus psittacinus									X					
Habenaria zambesina									X					
Helichrysum undatum							X				X			
Heteropogon contortus	1													X
Hibiscus cannabinus					1		X							
Hyparrhenia collina										3				
H. dissoluta	5	3			2	1		1			1		1	
H. filipendula	3	2	4	3	4	5	2	5	2	2	2	5	3	4
H. gazensis												1		
H. nyassae		2	2				4		4	1	3			
H. rufa														
Hyparrhenia sp.												2	1	
Hypoxis angustifolius									X		X			
H. urceolata								1		1	1			
Imperata cylindrica v. africana														X
Indigofera sp.					1									
Ipomoea blepharophylla			X											
Ipomoea sp.	X		X		X									
Jussiaea sp. 1759										X				
Justicia sp. 1995									1				X	
Kyelinga alba									1					
K. albiceps		X		1							1		1	
K. aurata		1												
Leersia hexandra										1				
Loudetia kagerensis										1				
L. simplex						1		1	3	3	4		1	2
Mariscus mollipes			1					X			X			
Microchloa kunthii			2	2	1	3	3	2	2	1	2	3	2	3
Murdannia simplex		1	1	1	X	X			1		1	1		
Ornithogalum sordidum			X	X				1			1			
Osbeckia sp. 1758										X				
Panicum infestum				1										
P. maximum	X													
Polygala amboniensis									X	1		1		
Rhynchospora brownii										X	2			
Sacciolepis brevifolia										1				
Scleria hirtella									2					
S. lithosperma		3				2			X					2
Setaria atrata (? = 2188	X		2											
S. sphacelata		4		3		X		1	1	1	2	1	1	3
Sorghum rigidifolium										2				
Sporobolus festivus	1	2	2	2	2	2	2	2	2		3			3
S. pyramidalis	X	X												
Stathmostelma rhacodes								1	X		X	X		
Striga asiatica												1		
S. canescens			X				1				X			
S. forbesii													X	
Themeda triandra	1	X	X			1				2	X	2	4	3
Urginea micrantha		X	1					X						
Vernonia schweinfurthia		2	2	1			2	2			1	1		

Site 305. Sampled on 6.9.55. Map ref: 322540.013055.

Location: 5.50 miles west of Lwampanga, N. Mengo.

Position: valley side. Elevation: 3450 ft. Slope: 1°.

Aspect: W. Macrorelief: undulating. Microrelief: anthills.

Drainage: imp. lower layers S.W. Burning: annual/biennial.

Erosion effect: colluvial - illuvial. Grazing: regular.

Not cultivated.

Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-3" d	3-18 d	18-39 d	39-48 +
Colour	5YR3.1 black	5YR3.2 dk. red-br.	5YR4.3 red-brown	5YR4.3 red-brown
Disposal	U	U	U	U
Texture	FSL	FSL	FSCL	FSCL
Min. Skeleton				
Structure	crumb	clod	clod	massive
Visible Poros.	++small	++small	+small	+small
Handl. consist.	v. friable	friable	crumbly	semi-plastic
Organic matter	4	3	2	1
Roots	4	3	2	2
Water conds.	M	M	W	W
Seq. Chem. & Min.				
Fauna				

Weather conditions prior to sampling: wet, at sampling: wet.

Vegetation

Area sampled	1600 sq. yards	Trees	10-20' / 5-10%
Number of species	26	Shrubs	
Physiognomy	scattered tree grassland.	Herbs	1 5' / 100%
Inclusions	anthill thickets - not estimated.		2 20%
			3 10%
			4

Site: 351(a). Sampled on 21.2.56. Map ref: 322530.012145.

Location: mile 4.60 Nakasongola - Nabuswera, N. Mengo.

Position: upper valley. Elevation: 3530 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp. lower layers S.W. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-5" fs	5-9 fs	9-24 d	24-40 fs	40-49 fs	49-64 d	64-77 +
Colour	5YR3.1 v. dk grey	10YR4.2 dk grey-br	10YR4.2 dk grey -brown	10YR4.2 dk grey -brown	10YR4.2 dk grey -brown	2.5Y 5.2	2.5Y 5.2
Disp.	U	U	M	M	U	M	M
Text.	FSL	FSL	FSL	FSCL	FSCL	C	C
Min. Skel.							1/10"
Struct.	crumb	crumb	nut	nut	nut		nut
Vis. Por.	+small	+small	+small +cracks	+small +cracks	+small +cracks	+small	+small
Handl. cons.	friable	friable	nutty -abrasive	nutty -abrasive	friable	friable	nutty
Org. matter	4	3	2	1	1	1	1
Roots	4	3	2	2	2	1	1
Water conds.	M	M	D	D	D	D	D
Sec. Chem. & Min.						CaCO ₃	CaCO ₃
Fauna							

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	1600 sq. yards	Trees	6-30' / 5-10%
Number of species	56	Shrubs	
Physiognomy	scattered tree grassland	Herbs	1 4' / 60%
Inclusions	351(b) (A. Th.)		2 50%
			3 50%
			4

Notes: Setaria sphacelata seasonally dominant.

Hyparrhenia dissoluta co-dominant.

Vegetation sampled about 3 weeks after site description owing to burning.

Site 333. Sampled on 24.1.56. Map ref: 323110.011755.

Location: 4.00 miles east of Nakasongola, N. Mengo.

Position: valley. Elevation: 3510 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief:

Drainage: imp. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-5" d	5-19 d	19-25 d	25-60
Colour	10YR4.1 Dk.grey	7.5YR4.2 brown	10YR5.2 grey-brown	10YR5.2 grey-brown
Disposal	U	U	M	M
Texture	FSCL	FSCL	FSCL	FSC
Min.Skeleton				
Structure	crumb	crumb	crumb	clod
Vis.Porosity	+small	+small	+small	cracks
Handl.cons.	v.friable	friable	block	plastic
Org.matter	4	2	1	0
Roots	3	2	2	1
Water conds.	M	M	M	M
Sec.Chem.& Min.				
Fauna				

Weather conditions prior to sampling: wet, at sampling: wet.

Vegetation

Area sampled	1600 sq. yards	Trees(a 25-40'/5%
Number of species	33	(b 10-15'/5%
Physiognomy	scattered tree grassland.	Shrubs 6-10'/small
Inclusions	open thickets on anthills - not estimated.	Herbs 1 5'/75% 2 40% 3 30% 4

Site 338. Sampled on 25.1.56. Map ref: 323730.011950.

Location: 2.00 miles west of Kaswama, N.Mengo.

Position: valley. Elevation: 3500 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp.inund.rare. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

	0-3" d	3-10 d	10-18 d	18-73 fs	73 +
Depth & clar.					
Colour	10YR4.1 dk.grey	10YR5.2 grey-brown	10YR5.2 grey-brown	10YR5.2 grey-brown	
Disp.	U	U	U	U	
Texture	FSCL	FSCL	FSCL	FSCL	
Min.Skel.					
Struct.	granule	nut	nut	massive	
Vis.Por.		+small	+small		
Handl. cons.	powdery	hard	hard	massive	
Org. matter	3	2	1		
Roots	4	3	2	1	
Water conds.	D	M	M	M	
Sec.Chem. & Min.					conc. CaCO ₃
Fauna					

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-20' / 5%
Number of species	28	Shrubs	
Physiognomy	grassland	Herbs	1 4' / 40%
Inclusions	anthill thickets		2 60%
	- not estimated.		3 20%
			4

Site 342. Sampled on 27.1.56. Map ref: 322900.012420.

Location: 6.30 miles north of Nakasongola, N. Mengo.

Position: valley. Elevation: 3560 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp.profile, S.W. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-4" d	4-15 fs	15-20 c	20-34 +
Colour	10YR4.1 dk.grey	10YR4.2 dk.grey-br.	10YR5.3 brown	10YR5.3 brown
Disposal	U	U	U	M
Texture	FSL	FSL	FSL	FSCL
Min. Skeleton				
Structure	crumb	crumb	massive	massive
Vis. Porosity	+small +cracks	+small +cracks	+small +cracks	+small +cracks
Handl. cons.	friable	friable	crumbly	nut-clod
Org. matter	4	3	2	1
Roots	4	4	2	1
Water conds.	M	M	M	M
Sec. Chem. & Min.			soft murrum	soft murrum
Fauna				

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-20'/10%
Number of species	26	Shrubs	
Physiognomy	scattered tree grassland.	Herbs	1 4-5'/100% 2 10%
Inclusions	anthill thickets - not estimated.	3	50%
		4	

Site 445. Sampled on 2.7.56. Map ref: 325305.011230.

Location: 6.00 miles north of Bale, N. Mingo.

Position: valley side. Elevation: 3425 - ft. Slope: negligible.

Aspect: - Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp.profile S.W. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clarity	0-4" fs	4-19 fs	19-60 +
Colour			

Disposal

	LFS	FSL	FSCL
Texture			
Min. Skeleton			
Structure	granule	granule	granule
Visible Poros.	+small	+small	-
Handl. consist.	loose	plastic-abrasive	plastic
Organic matter	4	3-1	
Roots	4	3-1	
Water conditions	M	W	S
Sec. Chem. & Min.			
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-15' / 5%
Number of species	29	Shrubs	6-12' / 2%
Physiognomy	grassland	Herbs	1 4' / 100%
Inclusions	446 (A.Th.)		2 20%
			3 40%
			4 1%

Site 328. Sampled on 21.1.56. Map ref: 522750.011755.

Location: 1.00 mile south of Nakasongola, N. Mengo.

Position: valley. Elevation: 3530 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp. lower layers S.W. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-8" fs	8-20 fs	20-42 d	42-48 s	68 +
Colour	10YR4.1 dk.grey	7.5YR5.2 brown	10YR4.2 dk.grey-br.	2.5Y 5.2 grey-br.	2.5Y 5.2 grey-brown
Disp.	U	U	U	M	M
Texture	FSL	FSCL	FSC	FSC	FSC (matrix) Q 2"
Min.Skel.					
Struct.	amorphous	columnar	columnar	columnar	massive
Vis.Por.	+small	+small +crack	+small +crack	+small +crack	
Handl. cons.	crumbly	plastic	plastic	plastic	rocky
Org. matter	4	2	1		
Roots	4	3	2	1	
Water conds.	M	M	M	M	M
Sec.Chem. & Min.				pea ironstone	pea ironstone CaCO ₃
Fauna					

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	5-12' / 5%
Number of species	31	Shrubs	
Physiognomy	grassland	Herbs	1 5' / 100%
Inclusions	anthill thickets		2 50%
	- not estimated.		3 30%
			4

Site 347. Sampled on 31.1.56. Map ref.: 323255.011800.

Location: 6.30 miles east of Nakasongola, N. Mengo.

Position: valley. Elevation: 3520 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp. lower layers S.W. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & char.	0-5" fs	5-14 fs	14-33 c	33-60 +
Colour	10YR4.1 dk.grey	10YR4.2 dk.grey-br.	7.5YR4.0 dk.grey	7.5YR4.0 dk.grey
Disposal	U	U	M	M
Texture	FSL	FSL	FSC	FSC
Min. Skel.				
Structure	crumb	crumb	clod	massive
Vis. Poros.	++small	++small		
Handl. cons.	friable	friable	nutty	plastic
Org. matter	4	2	1	
Roots	4	3	2	1
Water conds.	M	M	M	M
Sec. Chem. & Min.				
Fauna	ants			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	10-25'/5%
Number of species	26	Shrubs	
Physiognomy	grassland	Herbs	1 4'/100%
Inclusions	anthill thickets		2
	- not estimated.		3 30%
			4

Site 443. Sampled on 2.7.56. Map ref: 325300,011240.

Location: 6.10 miles north of Bale, Bugerere, N. Mengo.

Position: valley bottom. Elevation: 3425 ft. Slope -

Aspect - Macrorelief: low rolling. Microrelief: anthills.

Drainage: imp. lower layers S.W. Burning: annual/biennial.

Erosion effect: illuvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-7" fs	7-22" fs	22 +
Colour	v.dk.grey-br.	grey-brown	brown
Disposal			
Texture	LFS	FSL	FSC
Min. Skeleton			
Structure	granule	granule	clod
Vis. Porosity	+small	-	-
Handl. cons.	abrasive	loose	plastic
Org. matter	4	1	
Roots	4	2	
Water conds.	M	W	S
Sec. Chem.			
& Min.			
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq. yards	Trees	10-15' / 1%
Number of species	30	Shrubs	5-10' / 1%
Physiognomy	grassland	Herbs	1 4-5' / 100%
Inclusions	444 (A.Th.)		2 50%
			3 30%
			4

Notes: wet patch: Eragrostis cilianensis,
Fimbristylis exilis, F. diphylla, Murdannia simplex,
Leersia hexandra, Sorghum rigidifolium.

Site 320. Sampled on 17.12 55. Map ref: 322740.010530.

Location: 3.00 miles north of Kakoge, Mengo.

Position: upper valley bottom. Elevation: 3550 ft. Slope -

Aspect - Macrorelief: low rolling. Microrelief: anthills

& ridging. Drainage: imp.inund.1 month. Burning: annual/

biennial. Erosion effect: illuvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-5" fs	5-19 fs	19-48 +
Colour	10YR5.1 grey	10YR6.2 light brown-grey	10YR4.2 dk.grey-br.
Disposal	U	U	M
Texture	FSL	FSL	C
Min.Skel.			
Structure	crumb	loose	massive
Vis.Porosity	+small	+small	
Handl.cons.	friable	friable	plastic
Org.matter	4	2	
Roots	4	2	2
Water conds.	M	M	M
Sec.Chem. & Min.			
Fauna	ants & worms		

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-20'/10%
Number of species	26	Shrubs	
Physiognomy	scattered tree grassland.	Herbs	1 4-5'/75%
			2 2-3'/50%
Inclusions	open thickets on anthills - not estimated.		3 20%
			4

Site 349. Sampled on 31.1.56. Map ref: 322955.011820.

Location: 2.50 miles east of Nakasongola, N. Mengo.

Position: centre of broad valley. Elevation: 3500 ft. Slope -

Aspect - Macrorelief: low rolling. Microrelief: anthills & depressions 10 yds. X 3 ft. deep. Drainage: imp.profile S.W.

Burning: annual/biennial. Erosion effect: illuvial.

Grazing: regular. Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-3" fs	3-28 fs	28-46 d	46-60 +
Colour	5YR3.1 v.dk.grey	10YR4.2 dk.grey-br.	10YR5.3 brown	10YR5.3 brown
Disp.	U	U	M	M
Texture	FSL	FSL	FSC	FSC
Min.Skel.				
Structure	granule	granule	nut	nut
Vis.Poros.	+small	+small	+small +cracks	+small +cracks
Handl.cons.	powdery-	powdery	abrasive - plastic	abrasive - plastic
Org.matter	4	2	1	
Roots	4	3	2	1
Weather conds.	D	M	M	M
Sec.Chem. & Min.				
Fauna	ants			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	6-15'/10%
Number of species	40	Shrubs	
Physiognomy	scattered tree grassland	Herbs	1 2 100%
Inclusions	anthill thickets - not estimated.		3 30% 4

Site 389. Sampled on 12.4.56. Map ref: 322800.005930.

Location: mile 9.19 Batuntumula t.o. Kakoge, Mengo.

Position: broad valley. Elevation: 3550 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills & ridging

1 ft. high X 2 ft. Drainage: imp.profile S.W.

Burning: annual/biennial. Erosion effect: illuvial.

Grazing: regular. Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clar.	0-4" s	4-24 +
Colour	10YR4.1 dk.grey	10YR5.1 grey
Disposal	U	M
Texture	FSL	FSCL
Min.Skeleton		
Structure	granule-crumb	massive
Vis.Porosity	small	
Handl.consist.	friable-smooth	plastic
Organic matter	3	1
Roots	4	1
Water conds.	M	M
Sec.Chem.& Min.		
Fauna	worms	

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-20'/v.small
Number of species	20	Shrubs	
Physiognomy	grassland	Herbs	1 4'/100%
Inclusions	anthill thickets		2 20%
	- not estimated		3 20%
			4

Site 366. Sampled on 16.3.56. Map ref: 514640.011150.
 Location: 13.02 miles east of Butemba, N.W. Mengo.
 Position: upper valley bottom. Elevation: 3550 ft. Slope -
 Aspect - Macrorelief: undulating. Microrelief: anthills.
 Drainage: imp. lower layers S.W. Burning: annual/biennial.
 Erosion effect: illuvial. Grazing: regular.
 Not cultivated. Wild life: small game + elephant & buffalo.

Soil Profile

Type: C

Depth & clar.	0-4" fs	4-22 d	22-29 +
Colour	7.5YR4.0 dk.grey	7.5YR4.0 dk.grey	7.5YR4.0 dk.grey
Disposal	U	M	M
Texture	LFS	FSCL	FSCL
Min. Skeleton			
Structure	granule	blocky	massive
Vis. Poros.	small	small cracks	small cracks
Handling cons.	powdery	friable	plastic
Org. matter	3	1	
Roots	4	2	1
Water conds.	M	M	M
Sec. Chem. & Min.			
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-20' / 1%
Number of species	17	Shrubs	
Physiognomy	grassland	Herbs	1 5' / 30%
Inclusions	anthill thickets -		2 90%
	not estimated		3 20%
			4

Site 437. Sampled on 29.6.56. Map ref: 325315.010815.

Location: 3.57 miles north of Bale, N. Mengo.

Position: upper valley bottom. Elevation: 3420 ft. Slope: negligible. Aspect - Macrorrelief: low rolling.

Microrelief: anthills. Drainage: imp. lower layers S.W.

Burning: annual/biennial. Erosion effect: illuvial.

Grazing: intermittent. Not cultivated. Wild life: much game.

Soil Profile

Type: C

Depth & clar.	0-10"	10-38	38 +
Colour	dk. grey-brown	grey-brown	yellowish brown
Disposal			
Texture	FSL	FSCL	C
Min. Skeleton			
Structure	granule	granule	massive-clod
Vis. Porosity	small	small	cracks when dry
Handl. consist.	abrasive	abrasive	plastic
Org. matter	3	1	
Roots	3	1	
Water conds.	M	W	S
Sec. Chem. & Min.			
Fauna			

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	2500 sq. yards	Trees	10-25' / 1%
Number of species	15	Shrubs	
Physiognomy	grassland	Herbs	1 4-5' / 80%
Inclusions	438 (A.Th.)		2 30%
			3 40%
			4

Notes: following species in shaded hollow:

Ageratum conyzoides, Brachiaria brizantha, Cyperus latifolius (stunted), Echinochloa pyramidalis, Sida cordifolia.

For species of burnt off anthills site, see site 438, group 3.

Group 14. Swamp Communities.

Sites number 465, 469, 470.

Site 465. Composition.

Species

Cyperus denudatus	2
C. dives	1
C. latifolius	5
C. papyrus	2(L)
Ipomoea lilacina	X
Polygonum sp. 1651	1(L)
Scirpus confusus	1
Dryopteris sp.	1

Site 465. Sampled on 1.8.56. Map ref: 321010.005515.

Location: mile 5.5 Wakyato - Ngoma, N. Mengo.

Position: valley bottom. Elevation: 3480 ft. Slope: slight.

Aspect: W. Macrorelief: low rolling. Microrelief: anthills

Drainage: imp.P.W. Burning: occasional.

Erosion effect: illuvial. Not grazed.

Not cultivated. Wild life: birds.

Soil Profile

Type: E

Depth & clar.	0-11" d/s	11-60 +
Colour	grey-brown	grey
Disposal		M
Texture	FSL	C
Min. Skeleton		
Structure	granule	massive
Visible Porosity	small	
Handl. consist.	Loose-plastic	plastic
Org. matter	3-4	1-0
Roots	3-4	1-0
Water conditions	S	S
Sec. Chem. & Min.		
Fauna		

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	800 sq. yards	Trees	
Number of species	8	Shrubs	
Physiognomy	reed swamp	Herbs	1 4% / 100%
Inclusions	anthill thickets		2
	& grassed anthills.		3 30%
			4

Notes: Cyperus papyrus in wetter patches;
Polygonum sp. in drier patches.

Site 469. Composition.

Species

<i>Cyperus distans</i>	1
<i>Cyperus dives</i>	5
<i>Cyperus latifolius</i>	1
<i>Cyperus papyrus</i>	1
<i>Echinochloa pyramidalis</i>	1

Site 469. Sampled on 2.8.56. Map ref: 321135.005210.

Location: 2 miles north west of Wakyato, N. Mengo.

Position: valley bottom. Elevation: 3480 ft. Slope: slight.

Aspect: NNW. Macrorelief: low rolling. Microrelief: -

Drainage: imp. P.W. Burning: occasional.

Erosion effect: illuvial. Not grazed.

Not cultivated, cut occasionally. Wild life: birds.

Soil Profile

Type: E

Depth & clar.	0-11" fs	11-60 +
Colour	grey	grey
Disposal	v	M
Texture	FSL	C
Min. Skeleton		
Structure	granule	massive
Visib. Poros.	small	
Handl. consist.	loose	plastic
Org. matter	3	
Roots	3	
Water conds.	S	S
Sec. Chem. & Min.		
Fauna		

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	400 sq. yards	Trees	
Number of species	5	Shrubs	
Physiognomy	reed swamp.	Herbs	1 4'/100%
Inclusions	anthill thickets		2
	& anthill grass -		3 30%
	not estimated.		4

Site 470 Composition.

Species

Cyperus dives	3
Cyperus latifolius	3
Echinochloa pyramidalis	2
Jussiaea sp.	2
Leersia hexandra	X
Polygonum 1651	X
Scirpus confusus	1
Typha australis	1
Dryopteris sp.	2

Site 470. Sampled on 2.8.56. Map ref: 321410.004905.

Location: 3 miles south of Wakyato, N. Mengo.

Position: valley bottom. Elevation: 3480 ft. Slope: slight.

Aspect: NNW. Macrorelief: low rolling. Microrelief: -

Drainage: imp. P.W. Burning: occasional.

Erosion effect: illuvial. Not grazed.

Not cultivated. Wild life: birds.

Soil Profile

Type: E

Depth & clarity	0-15" fs	15-60 +
Colour	grey	grey
Disposal	U	M
Texture	FSL	O
Min. Skeleton		
Structure	granule	massive
Vis. Porosity	small	
Handl. consist.	loose	plastic
Organic matter	3	
Roots	4	
Water conditions	S	S
Sec. Chem. & Min.		
Fauna		

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	400 sq.yards	Trees	
Number of species	9	Shrubs	
Physiognomy	reed swamp	Herbs	1 4'/100%
Inclusions	anthill thickets		2 10%
			3 30%
			4

Notes: Leersia hexandra and Polygonum 1651
on better drained spots - road embankments.

Group 15. Mosaic of Wooded Grassland Communities on
Granite Hills.

- Site number 456.

Woody species

<i>Annona chrysophylla</i>	L
<i>Bridelia brideliifolia</i>	X
<i>Bridelia scleroneuroides</i>	X
<i>Combretum binderanum</i>	X
<i>Combretum ghasalense</i>	X
<i>Crossopteryx febrifuga</i>	X
<i>Cussonia arborea</i>	X
<i>Dombeya rotundifolia</i>	X
<i>Euphorbia candelabrum</i>	L
<i>Ficus</i> spp.	L
<i>Gymnosporia senegalensis</i>	X
<i>Heeria reticulata</i>	X
<i>Lannia kerstingii</i>	X
<i>Pavetta crassipes</i>	X
<i>Ptilostigma thonningii</i>	X
<i>Protea madiensis</i>	L
<i>Securidaca longipedunculata</i>	X
<i>Steganotaenia araliacea</i>	X
<i>Stereospermum kunthianum</i>	X
<i>Strychnos innocua</i>	X
<i>Terminalia velutina</i>	L

Herb species

<i>Acalypha villicaulis</i>	X
<i>Aframomum</i> sp "B"	X
<i>Aneilema</i> sp. 2122-2169	X
<i>Anthericum</i> sp.	X
<i>Brachiaria brizantha</i>	1
<i>Brachiaria kotschyana</i>	2
<i>Crystolepis oblongifolia</i>	X
<i>Otenium concinnum</i>	1
<i>Cyanotis lanata</i>	1
<i>Digitaria diagonalis</i>	1
<i>Diplolophium abyssinicum</i>	X
<i>Euphorbia bongensis</i>	X
<i>Gladiolus psittacinus</i>	X
<i>Hyparrhenia filipendula</i>	3
<i>Indigofera</i> sp. 2115	X
<i>Loudetia arundinacea</i>	3
<i>Monechma ciliare</i>	X
<i>Phyllanthus nummulariifolius</i>	X
<i>Sporobolus festivus</i>	2
<i>Striga asiatica</i>	X
<i>Thunbergia alata</i>	1
<i>Vernonia smithiana</i>	1
2201 <i>Polygala amboniensis</i>	X
2202 - <i>Tephrosia</i> sp.	1
2126 <i>Clerodendron myricoides</i>	X

Site 456. Sampled on 11.7.56. Map ref: 322725.011905.

Location: Nakasongola hill, N. Mengo.

Position: hill. Elevation: 3800-4198 ft. Slope: 0-15°.

Aspect: all. Macrorelief: hilly. Microrelief: stepped, +
boulders. Drainage: various. Burning: annual/biennial.

Erosion effect: complex. Grazing: slight.

Not cultivated. Wild life: sparse.

Soil Profile

Type: F

Depth & clarity
Colour and Disposal

variable
v.dk.red-brown

Texture
Min.Skeleton

FSCL
occ. boulders granite - quartz
fragments.

Structure
Visible Porosity
Handling Consistency
Organic matter
Roots
Water conditions
Sec.Chem.& Min.
Fauna

crumb
++ small
friable
3/1
3/1
D/M

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled extensive
Number of species 46 +
Physiognomy scattered tree
grassland.

Trees	10-20'	5%
Shrubs	5-10'	5%
Herbs	1	5-6'/90%
	2	20%
	3	40%
	4	

Unclassified Sites

Numbers 309, 325, 395, 396, 405, 428, 452.

Site 309. Composition.

Woody species

<i>Allophylus africanus</i>	1
<i>Acacia seyal</i> var. <i>multijuga</i>	21
<i>Carissa edulis</i>	X
<i>Combretum gueinzii</i>	2
<i>Euphorbia candelabrum</i>	X
<i>Harrisonia abyssinica</i>	XI
<i>Maerua</i> sp.	X

Herb species

<i>Andropogon dummeri</i>	12
<i>Anthericum spicatum</i>	1
<i>Brachiaria brizantha</i>	2
<i>B. dictyoneura</i>	1
<i>B. kotschyana</i>	1
<i>Eragrostis chalcantha</i>	XI
<i>Hyparrhenia dissoluta</i>	X
<i>H. filipendula</i>	3
<i>Indigofera</i> sp. 1499	X
<i>Ipomoea</i> sp.	X
<i>Loudetia arundinacea</i>	4
<i>Setaria sphacelata</i>	1
<i>Sporobolus pyramidalis</i>	X
<i>Wedelia menotriche</i>	X

Site 309. Sampled on 8.9.55. Map ref: 522235.012610.

Location: 10 miles north west of Nakasongola, N. Mengo.

Position: upper hillside. Elevation: 3530 ft. Slope: 2°.

Aspect: N. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clar.	0-5" fs	5-17 d	17-30 c	30-48 +
Colour	5YR3.4 dk.red-br.	5YR4.6 yellow-red	5YR5.6 yellowish -red	5YR5.6 yellowish -red
Disposal	U	U	U	U
Texture	FSCL	FSCL	FSC	FSC
Min.Skel.			Q ¼" 5%	Q ¼" 10%
Structure	crumb	crumb	crumb	crumb
Vis.Poros.	++small	++small	++small	++small
Handl.cons.	v.friable	v.friable	v.friable	v.friable
Org.matter	4	3	2	2
Roots	4	4	3	3
Water conds.	M	M	D	D
Sec.Chem. & Min.			pea ironstone	pea ironstone
Fauna				

Weather conditions prior to sampling: wet, at sampling: wet.

Vegetation

Area sampled	1600 sq.yards	Trees	10-25'/20%
Number of species	21	Shrubs	6-10'/5%
Physiognomy	scattered tree grass: land.	Herbs	1 5'/100%
			2 30%
Inclusions	open thickets on anthills - not estimated.		3 20%
			4

Site 325. Composition.

Woody species

<i>Acacia macrothyrsa</i>	1
<i>Albizzia zygia</i>	X
<i>Annona chrysophylla</i>	X
<i>Combretum binderanum</i>	X
<i>Combretum ghasalense</i>	X
<i>Gymnosporia senegalensis</i>	X
<i>Hymenocardia acida</i>	1
<i>Pavetta crassipes</i>	X
<i>Piliostigma thonningii</i>	X
<i>Vitex doniana</i>	X

Herb species

<i>Andropogon dummeri</i>	X
<i>Asparagus pauli-guilelmii</i>	X
<i>Borreria stricta</i>	1
<i>Brachiaria soluta</i>	1
<i>Crotalaria</i> sp.	X
<i>Cyperus diloloensis</i>	1
<i>Eragrostis chalcantha</i>	2
<i>Erigeron grantii</i>	X
<i>Eulophia bella</i>	X
<i>Fimbristylis diphylla</i>	2
<i>Fimbristylis monostachya</i>	2
<i>Floscopa rivularis</i>	1
<i>Hyparrhenia diplandra</i>	1
<i>Hyparrhenia dissoluta</i>	1
<i>Hyparrhenia lintonii</i>	3
<i>Hyparrhenia nyassae</i>	1
<i>Hygrophila</i> sp. 1799	X
<i>Loudetia arundinacea</i>	1
<i>Mic rochloa kunthii</i>	2
<i>Osbeckia</i> sp. 1798	X
<i>Polygala arenaria</i>	X
<i>Rhynchospora brownii</i>	1
<i>Ruellia</i> sp. 1814	X
<i>Setaria trinervia</i>	1
<i>Sopubia</i> sp. near <i>S. simplex</i>	1
<i>Sorghum rigidifolium</i>	3
<i>Sporobolus pyramidalis</i>	1
<i>Striga forbesii</i>	X
<i>Themeda triandra</i>	1
1773 <i>Vernonia schweinfurthia</i>	1

Site 325. Sampled on 22.12.55. Map ref: 322700.010440.

Location: 1.50 miles north of Kakoge, Mengo.

Position: valley side. Elevation: 3550 ft. Slope: $\frac{1}{8}^{\circ}$.

Aspect: NNE. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: colluvial. Grazing: regular.

Not cultivated. Wild life: small game.

Soil Profile

Type: B

Depth & clar.	0-5" fs	5-16 d	16-29 fs	29-60 +
Colour	5YR4.1 dk.grey	10YR5.2 grey-br.	7.5YR6.2 pinkish -grey	7.5YR7.2 pinkish -grey
Disposal	U	U	U	U
Min.Skeleton				
Structure	amorphous	amorphous	amorphous	amorphous
Vis.Poros.	+small	+small	+small	
Handl.cons.	friable	friable	abrasive- plastic	abrasive- plastic
Org.matter	3	2	2	1
Roots	4	3	2	1
Water conds.	M	M	M	M
Sec.Chem. & Min.				
Fauna				

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10-20'/10%
Number of species	40	Shrubs	
Physiognomy	scattered tree grassland	Herbs	1 5'/50%
Inclusions	anthill thickets (not estimated).		2 100%
			3 20%
			4

Site 395. Composition

Woody species

Acacia seyal v. multijuga	X
Acacia sp.	X
Albizzia coriaria	1
Albizzia zygia	S *
Combretum binderanum	2
Grewia mollis	X
Lantana salvifolia	X
Stegenotaenia araliacea	X

Herb species

Acalypha villicaulis	1
Asparagus pauli-guilelmi	X
Aspilia sp. 1998	1
Berkheya spekeana	X
Brachiaria brizantha	2
Brachiaria decumbens	2
Brachiaria platynota	2
Commelina africana	X
Cymbopogon afronardus	4
Digitaria diagonalis	2
Digitaria scalarum	1
Hyparrhenia filipendula	1
Indigofera sp.	2
Justicia sp. 1718	1
Lactuca capensis	X
Mariscus macer	X
Oxalis corniculata	1
Panicum maximum	2
Phyllanthus nummulariifolius	X
Rhynchelytrum repens	X
Setaria sphacelata	1

*

S = Seedlings

Site 395. Sampled on 13.4.56. Map ref: 521615.005020.

Location: mile 16.50 Luwero - Wakyato, Mengo.

Position: upper hillside. Elevation: 3590 ft. Slope: 3°.

Aspect: E. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion: eluvial - colluvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clarity	0-4" fs	4-24 +
Colour	5YR 3.3 dk.red-brown	5YR 3.4 dk.red-brown
Disposal	U	U
Texture	FSL	FSCL
Min.Skeleton	occ. Q.pebble	Q.ang.& sub-ang.50%
Structure	crumb	
Visible porosity	+small pores & cracks	+small pores & cracks
Handling consist.	friable	loose
Organic matter	3	1
Roots	4	2
Water conditions	M	M
Sec.Chem.& Min.		
Fauna		

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees(a)	30' / 10%
Number of species	29	(b)	10' / 10%
Physiognomy	scattered tree grass: :land.	Shrubs	
Inclusions	anthill thickets - not estimated.	Herbs	1 5' / 80%
			2 30%
			3 10%
			4

Notes: boundary 395/6 tones on same type?

Site 396. Composition.

Woody species

<i>Acacia hebecladoides</i>	X
<i>Acacia seyal</i> v. <i>multijuga</i>	X
<i>Acacia sieberiana</i>	X
<i>Albizia zygia</i>	2
<i>Bridelia brideliifolia</i>	X
<i>Combretum binderanum</i>	2
<i>Combretum ghasalense</i>	X
<i>Hymenocardia acida</i>	X
<i>Securidaca longipedunculata</i>	X
<i>Vitex doniana</i>	X

Herb species

<i>Acalypha villicaulis</i>	1
<i>Aspilia</i> sp. 1998	1
<i>Berkheya spekeana</i>	1
<i>Brachiaria platynota</i>	3
<i>Clerodendrum myricoides</i>	X
<i>Cymbopogon afronardus</i>	4
<i>Eragrostis chalcantha</i>	2
<i>Gloriosa simplex</i>	X
<i>Helichrysum undatum</i>	X
<i>Kyllinga albiceps</i>	1
<i>Lactuca capensis</i>	X
<i>Mariscus macer</i>	1
<i>Mariscus mollipes</i>	1
<i>Oxalis corniculata</i>	1
<i>Panicum maximum</i>	1
<i>Phyllanthus nummulariifolius</i>	1
<i>Polygala amboniensis</i>	X
<i>Sporobolus pyramidalis</i>	1

Site 396. Sampled on 13.4.56. Map ref: 321605.005020.

Location: 16.75 miles Luwero - Wakyato, Mengo.

Position: hilltop. Elevation: 3620 ft. Slope - Aspect -

Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: C

Depth & clarity	0-5"	5 +
Colour	7.5YR 3.2 dk.brown	
Disposal	U	
Texture	FSCL	
Min.Skeleton	min.Q	Q.ang.1" 80%
Structure	crumb	
Visible porosity	+small	
Handling Consistency	friable	
Org.matter	3	
Roots	4	
Water conditions	M	
Sec.Chem.& Min.		
Fauna		

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees (a 20'/20%
Number of species	28	(b 10'/20%
Physiognomy	scattered tree grassland.	Shrubs
Inclusions	aggregations of shrubby species on anthills.	Herbs 1 5'/60%
		2 30%
		3 10%
		4

Site 405. Composition

Woody species

<i>Acacia seyal</i> v. <i>multijuga</i>	X
<i>Annona chrysophylla</i>	1
<i>Bridelia brideliifolia</i>	X
<i>Bridelia scleroneuroides</i>	X
<i>Combretum binderanum</i>	2
<i>Combretum gueinzii</i>	2
<i>Gymnosporia senegalensis</i>	X
<i>Hymenocardia acida</i>	X
<i>Pavetta crassipes</i>	X
<i>Piliostigma thonningii</i>	X
<i>Terminalia velutina</i>	X
<i>Vitex doniana</i>	X

Herb species

<i>Acalypha villicaulis</i>	1
<i>Aframomum</i> sp. A.	1
<i>Aspilia</i> sp. 1998	X
<i>Beckeropsis uniseta</i>	X
<i>Brachiaria brizantha</i>	1
<i>Brachiaria decumbens</i>	2
<i>Brachiaria platynota</i>	1
<i>Cymbopogon afronardus</i>	4
<i>Digitaria scalarum</i>	X
<i>Diplolophium abyssinicum</i>	1
<i>Hyparrhenia filipendula</i>	3
<i>Imperata cylindrica</i> v. <i>africana</i>	X
<i>Indigofera</i> sp.	2
<i>Justicia</i> sp. 1718	1
<i>Lactuca capensis</i>	X
<i>Lippia adoensis</i>	X
<i>Loudetia arundinacea</i>	2
<i>Panicum maximum</i>	X

Site 405. Sampled on 14.4.56. Map ref: 322600.005105.

Location: mile 3.85 Luwero - Wakyato, Mengo.

Position: lower hillside. Elevation: 3600 ft. Slope: 2°.

Aspect: ENE. Macrorelief: low rolling. Microrelief: anthills.

Drainage: free. Burning: annual/biennial.

Erosion effect: eluvial - colluvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: A

Depth & clarity	0-4" d	4-24
Colour	7.5YR 3.2 dk.brown	7.5YR 4.2 brown
Disposal	U	U
Texture	FSL	FSL
Min.Skeleton		Q .ang. $\frac{1}{8}$ " 20%
Structure	crumb	crumb(matrix)
Visible porosity	++small	++small
Handling consist.	friable	friable
Organic matter	4	2
Roots	4	2
Water conditions	M	M
Sec.Chem.& Min.		
Fauna		

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	15-25'/10%
Number of species	30	Shrubs	5-10'/small
Physiognomy	scattered tree grassland	Herbs	1 5'/60%
Inclusions	anthill thickets -		2 40%
	not estimated.		3 10%
			4

Site 428. Composition

Woody species

Acacia siebariana	X
Combretum binderanum	X
Gymnosporia senegalensis	X
Hymenocardia acida	X
Stereospermum kunthianum	X
Vitex doniana	X

Herb species

Commelina sp.	X
Digitaria diagonalis	1
Digitaria maitlandii	1
Hyparrhenia dissoluta	1
Hyparrhenia filipendula	2
Justicia sp.	X
Loudetia arundinacea	4
Microchloa kunthii	2
Polygala amboniensis	1
Setaria sphacelata	1
Themeda triandra	1

Site 428. Sampled on 12.5.56. Map ref: 320635.005820.

Location: mile 11.67 Wakyanto - Ngoma, N. Mengo.

Position: valley side. Elevation: 3570 ft. Slope: $\frac{1}{8}^{\circ}$.

Aspect: NNW. Macrorelief: low rolling. Microrelief: anthills.

Drainage: lower layers, S.W. Burning: annual/biennial.

Erosion effect: colluvial - illuvial. Grazing: occasional.

Not cultivated. Wild life: small game & elephant.

Soil Profile

Type: B

Depth & clar.	0-5" fs	5-14 fs	14-26 fs	26-34 fs	34-60+
Colour	10YR4.1 dk.grey	10YR4.2 dk.grey-br.	10YR6.3 pale br.	10YR6.3 pale br.	10YR6.3 pale br.
Disposal	U	U	U	M	M
Texture	LFS	LFS	FS	LFS	FSL
Min.skel.					
Struct.	crumb	crumb	crumb	granule	massive clod
Vis.Por.	+small	+small	+small		
Handl.cons.	friable	friable	friable	powdery	plastic- abrasive
Org. matter	3	1			
Roots	3	2	1	1	
Water conds.	M	M	W	S	S
Sec.Chem. & Min.					
Fauna					

Weather conditions prior to sampling: wet, at sampling: dry.

Vegetation

Area sampled	1600 sq.yards	Trees	10'/5%
Number of species	17	Shrubs	
Physiognomy	grassland	Herbs	1 5'/80%
Inclusions	431 (A,Th.)		2 20%
			3 30%
			4

Site 452 Composition

Woody species

<i>Acacia seyal</i> v. <i>fistula</i>	X
<i>Borassus aethiopum</i>	X
<i>Ficus</i> sp.	X
<i>Kigelia aethiopica</i>	X

Herb species

<i>Bothriochloa inaequalis</i>	1
<i>Brachiaria soluta</i>	1
<i>Chloris gayana</i>	2
<i>Digitaria diagonalis</i>	2
<i>Eragrostis tenuifolia</i>	1
<i>Fimbristylis monostachya</i>	2
<i>Heteropogon contortus</i>	X
<i>Hyparrhenia filipendula</i>	3
<i>Panicum meyerianum</i>	2
<i>Panicum porphyrrhizos</i>	X
<i>Setaria holstii</i>	1
<i>Setaria incrassata</i>	4
<i>Sporobolus festivus</i>	2
<i>Sporobolus ? pellucidus</i>	1
<i>Sporobolus pyramidalis</i>	2
<i>Themeda triandra</i>	3
<i>Vernonia gerberaeformis</i>	1

Site 452. Sampled on 10.7.56. Map ref: 320230.013220.

Location: near River Kafu, N. Mengo.

Position: river fringe. Elevation: 3400 ft. Scope: negligible.

Aspect - Macrorelief: lake fringe. Microrelief: gentle

undulation. Drainage: imp. profile S.W. Burning: annual/

biennial. Erosion effect: illuvial. Grazing: intermittent.

Not cultivated. Wild life: small game.

Soil Profile

Type: D

Depth & clarity	0-3"	3-60 +
Colour	black	black
Disposal		
Texture	FSCL	C
Min. Skeleton		
Structure		
Visible Porosity		cracks when dry
Handling consistency	plastic	plastic
Organic matter	4	2-0
Roots	4	2-0
Water conditions	D	M-W
Sec. Chem. & Min.		? CaCO ₃

Weather conditions prior to sampling: dry, at sampling: dry.

Vegetation

Area sampled	2500 sq.yards	Trees	15-45' / v. small
Number of species	21	Shrubs	
Physiognomy	grassland.	Herbs	1
			2 100%
			3 30%
			4

Appendix B. Soils Analysis Data.

The soil samples were analysed by members of the Chemistry Section, Kawanda Research Station, Uganda, under the direction of Dr. E.M. Chenery. The following provisional limits have been worked out by Dr. Chenery from the data of field observations and pot tests. Further tests are being made to define these limits more accurately.

Lower Limits for certain nutrients.

Nutrient	Unit	Sands and Sandy Loams			Clays and Clay Loams		
		Abundant	Adequate	Deficient	Abund.	Adeq.	Defic.
P ₂ O ₅	p.p.m.	100	50	10	300	100	30
C	%	2.0	0.5	0.05	3.0	1.0	0.1
N	"	0.25	0.15	0.05	0.4	0.25	0.1
Ca	Me %	8.0	1.0	0.5	15.0	5.0	1.0
Mg	"	2.0	0.5	0.2	10.0	2.0	0.5
K	"	0.6	0.2	0.1	1.0	0.3	0.2
Mn	"	0.1	0.02	0.01	0.2	0.05	0.01
Na		3.0			5.0		

P₂O₅ = True parts per million;

C = Organic matter X $\frac{1}{3}$ %; N = Total N%;

Bases = milliequivalents per 100 gm. air-dry soil;

Less than lower limit deficient = acutely deficient.

Site No.	Ledger No.	Depth Ins.	pH	%C	%N	P ₂ O ₅	Ca	Mg	K	Mn
300	11884	0 - 5	5.60	0.95	.088	12	26.0	16.9	0.5	0.08
	11885	5 -10	5.38	0.67		5	22.1	11.9	0.3	0.06
	11886	10-30	5.50	0.65		5	22.9	15.0	0.3	0.06
301	11891	0 - 5	5.56	1.24	.116	7	16.6	12.5	0.6	0.02
	11892	5 -15	5.70	0.90		0	14.1	11.9	0.2	0
	11893	15-48	5.72	0.59			15.0	11.3	0.4	0
302	11894	0 - 6	5.45	1.34	.137	0	12.6	9.4	0.5	0
	11895	6- 12	5.65	0.93		4	13.3	13.8	0.2	0
	11896	12-30	5.60	0.74		0	12.6	10.0	<.2	0
	11897	30 -48	5.45	0.54		0	14.1	12.5	0.3	0
303	11887	0 - 6	5.58	1.27	.140	9	14.2	9.4	0.3	0.03
	11888	6-12	5.75	0.84		4	11.8	10.0	0.2	0.03
	11889	12-24	5.72	0.68		0	14.2	8.7	0.2	0.02
	11890	24-48	6.00	0.48		9	15.8	8.7	0.3	0.02
304	11898	0 - 7	5.22	1.25	.147	4	7.3	7.3	<.2	0.03
	11899	7 -15	5.40				9.1	6.3	<.2	0
	11900	15 -25	5.34	0.76		1	9.8	9.4	0	0
	11901	25 -48	5.25	0.56		3	10.7	6.3	0	0
305	11902	0 - 8	5.40	1.06	.131	11	3.7	2.4	<.2	0.05
	11903	8-18	5.00	0.68		5	3.6	1.6	0.2	0.04
	11904	18-39	5.24	0.50		3	4.6	1.6	0	0
	11905	39-48	4.90	0.45		-	4.5	3.8	0	0
306	11906	0 - 8	6.12	0.32	.079	-	0.9	1.6	0.4	0.04
	11907	8 -20	5.74	0.44		18	1.6	1.8	<.2	0.03
	11908	20 -34	5.60	0.32		6	3.1	1.6	0	0.02
	11909	34 -48	5.60	0.17		3	4.2	1.0	0	0
307	11910	0 - 9		0.68	.117	8	0.8	<.6	0	0.09
	11911	9-25		0.21		4	0.8	<.6	0	0.06
	11912	25 -40		0.13		8	<.8	0	0	0.04
	11913	40 -48	5.30	0.11		8	<.8	0	0	0.03
308	11914	0 - 3	5.48	0.65	.098	8	<.8	0.6	<.16	0.07
	11915	3 -12	5.14	0.57		-	<.8	0	0	0.05
	11916	12 -30	5.40	0.43		-	0	0	0	0.06
	11917	30 -48	5.62	0.38		6	<.8	0.6	0	0.06
309	11918	0 - 5	5.25	0.68	.106	4	<.8	1.3	<.16	0.13
	11919	5 -17	5.45	0.50		5	<.8	0	0	0.03
	11920	17 -30	5.60	0.39		3				
	11921	30 -48	5.55	0.38		3				

For Units, refer to table on page 390.

Site No.	Ledger No.	Depth Ins.	pH	%C	%N	P ₂ O ₅	Ca	Mg	K	Mn	Na
310	11922	0-7	5.48	0.76	.098	6					
	11923	7-15	5.20	0.64		3					
	11924	15-30	5.62	0.37		1					
	11925	30-48	5.88	0.33		11					
316	12230	0-5	5.98	1.35	.162	12	11.1	4.4	T	.069	0
	12231	5-16	5.54	0.54		4	6.5	1.1	0	0	0
	12232	16-24	5.10	0.20		3	4.5	1.0	0	0	0
	12233	24-32	4.88	0.53		3	19.3	5.0	1.060		2.6
	12234	32-72	5.60	0.31		3	21.3	10.0	1.070		3.2
317	12235	0-7	5.76	0.59	.118	15	4.9	1.3	0.36	.038	0
	12236	7-26	4.92	0.18		3	3.3	0	0	0	0
	12237	26-72	5.05	0.03		2	3.1	1.1	0	0	0
318	12238	0-7	4.90	1.34	.151	11	8.7	4.2	0.91	T	0
	12239	7-18	5.00	0.79		3	3.7	1.5	T	.031	0
	12240	18-43	4.94	0.42		2	3.7	1.0	T	.044	0
	12241	43-72	4.90	0.50		3	3.4	1.0	T	T	0
319	12242	0-5	5.15	1.19	.123	15	5.7	2.7	1.57	.037	0
	12243	5-21	5.00	0.53		4	T	1.0	T	T	0
	12244	21-29	5.10	0.44		7	.043	0	T	T	0
	12245	29-60	5.05	0.52		4	.067	0	T	.035	0
320	12246	0-5	5.34	1.55	.135	14	8.4	4.5	0.53	.06	0
	12247	5-19	4.78	0.77		2	4.5	1.9	T	T	0
	12248	19-48	4.80	0.57		2	11.2	14.4	T	T	1.6
321	12257	0-6	5.92	0.46	.123	16	5.1	1.5	0	0	0
	12258	6-14	5.42	0.32		8	1.9	1.4	0	0	0
	12259	14-39	5.50	0.03		4	0.16	0.9	0	0	0
	12260	39-60	5.00	0.02		4	.046	0	0	0	0
322	12253	0-8	4.88	0.58	.142	53	6.1	3.2	0	0	0
	12254	8-28	4.90	0.47		13	4.1	1.1	0	0	0
	12255	28-35	4.88	0.17		6	3.3	1.1	0	0	0
	12256	35-60	4.95	0.11		6	3.1	1.1	0	0	0
323	12249	0-5	4.80	0.90	.131	13	4.5	2.1	0.72	.041	0
	12250	5-20	4.64	0.56		4	20.11	0	0	0	0
	12251	20-31	4.98	0.39		1	.041	0	0	0	0
	12252	31-60	4.92	0.42		4	.031	0	0	0	0
324	12261	0-6	5.72	1.00	.074	23	9.7	4.6	0.51	.052	0
	12262	6-12	5.40	0.33		6	5.2	2.1	T	T	0
	12263	12-20	5.30	0.32		2	13.1	7.5	0.63	T	0
	12264	20-60		0.23		3	7.5	2.1	.404	0	0

Site No.	Ledger No.	Depth Ins.	pH	%C	%N	P ₂ O ₅	Ca	Mg	K	Mn	Na
325	12265	0- 5	5.80	0.99	.111	14	6.6	2.4 0		.041	0
	12266	5-16	4.65	0.41		7	3.3	1.4 0		0	0
	12267	16-29	4.58	0.06		4	v.high	1.1 0		0	0
	12268	29-60	4.52	1.36		5	4.4	3.7 0		0	0
326	12269	0- 7	5.96	1.52	.156	11	8.0	4.1	1.02	T	0
	12270	7-12	5.00	1.08		12	3.9	2.5	0.53	.05	0
	12271	12-38	Rock Sample								
327	12272	0- 5	5.50	1.29	.163	12	6.1	2.3	1.19	.031	0
	12273	5-22	4.62	0.72		4	0.15	0.9	0	0	0
	12274	22-44	4.85	0.39		3	.088	0	0	0	0
	12275	44-60	5.30	0.32		1	.074	0	0	0	0
328	12443	0- 8	6.04	1.10	.090	21	4.2	3.4	.16	.05	0
	12444	8-20	5.65	0.57		5	4.0	3.8	<.16	.04	0
	12445	20-42	5.70	0.44	.535	5	9.4	7.6	.45	<.02	0.5
	12446	42-68	7.62	0.20		7	12.0	19.5	.36	<.02	0.5
	12447	68 -	7.84	0.13		6	16.4	11.0	.28	.03	0.8

329	12448	0- 7	7.32	0.81	.101	63	3.5	1.5	.22	0	0
	12449	7-21	6.04	0.42		10	<.8	.8	.45	.02	0
	12450	21-43	5.00	0.26		8	<.8	<.6	<.16	<.02	0
	12451	43-75	5.02	0.14		8	<.8	<.6	.16	<.02	0
	12452	75-86	5.40	0.13		8	1.8	1.0	.23	<.02	0
330	12453	0- 5	6.08	1.44	.154	13	4.4	2.7	.31	.06	0
	12454	5-11	5.62	1.05		5	2.7	1.0	.17	.07	0
	12455	11(21 (38	5.52	0.53		1	2.1	<.6	<.16	.05	0
	12456	21)37 38)45	5.90	0.30		-	2.1	<.6	<.16	<.02	0
	12457	37)60 45)	6.05	0.38		-	2.3	<.6	.27	.04	0
331	12458	0- 6	5.55	0.95	.118	2	1.7	1.3	.16	.08	0
	12459	6-12	5.00	0.58		-	<.8	<.6	<.16	.04	0
	12460	12-36	5.04	0.41		-	<.8	0	<.16	.05	0
	12461	36-48	5.40	0.25		-	<.8	0	<.16	.06	0
	12462	101-103	5.22	0.23		-	<.8	<.6	0	.08	0
332	12463	0- 6	5.48	1.43	.124	6	3.8	3.1	.16	.13	0
	12464	6-59	5.12	0.92		-	<.8	<.6	0	.10	0
333	12465	0- 5	5.34	1.04	.111	5	<.8	1.5	.17	.09	0
	12466	5-19	5.38	0.86		1	2.5	2.5	<.16	.08	0
	12467	19-25	4.98	0.56		2	<.8	<.6	0	0	0
	12468	25-60	5.14	0.47		-	0.9	0.6	0	0	0

Site No.	Ledger No.	Depth Ins.	pH	%C	%N	P ₂ O ₅	Ca	Mg	K	Mn	Na
334	12469	0- 4	5.65	0.83	.095	2	1.8	0.7	0	0.13	0
	12470	4-12	5.16	0.62		2	<.8	<.6	0	0.14	0
	12471	12-36	5.32	0.41		5	<.8	0	0	0.14	0
	12472	36-69	5.20	0.32		2	<.8	0	0	0.14	0
335	12473	0- 5	5.32	0.83	.096	6	1.7	0.7	0	0.09	0
	12474	5-19	5.00	0.74		-	<.8	<.6	0	0.10	0
	12475	19-36	5.10	0.47		-	<.8	0	0	0.10	0
	12476	36-55	5.55	0.41		6	<.8	0	0	0.15	0
	12477	55-72	5.30	0.53		-	1.4	<.6	0	0.23	0
336	12478	0- 5	4.80	0.56	.081	2	<.8	<.6	0	0.09	0
	12479	5-11	4.80	0.50		1	<.8	0	0	0.06	0
	12480	11-24	4.94	0.35		7	<.8	0	0	0.06	0
	12481	24-46	4.95	0.29		7	<.8	0	0	0.06	0
	12482	46-53	5.20	0.35		12	<.8	0	0	0.06	0
337	12483	0- 5	5.92	0.72	.094	9	2.6	0.8	0	0.07	0
	12484	5-20	5.54	0.53		11	1.7	0.7	0	0.16	0
	12485	20-32	5.22	0.40		11	2.5	0.7	0	0.08	0
	12486	32-48	5.34	0.21		10	4.1	0.9	0	0	0
	12487	48-60	5.50	0.37		10	10.2	4.2	0	0	0
338	12488	0- 5	5.42	1.30	.137	29	5.1	3.3	0.27	0.03	0
	12489	5-10	5.05	0.58		14	5.1	2.9	0	0.05	0
	12490	10-18	5.02	0.48		11					
	12491	18-73	5.90	0.53		14	12.1	6.5	0.31	<.02	0
339a	12492	0- 5	5.12	0.74	.097	16	<.8	<.6	0.16	0.10	0
	12493	5-11	5.08	0.61		8					
	12494	11-35	5.25	0.38		8	<.8	0	0	0.08	0
	12495	35-69	5.30	0.29		12	<.8	0	0	0.05	0
340	12496	0- 4	5.75	0.63	.093	8	<.8	0.6	0.16	0.06	0
	12497	4-17	5.34	0.56		11	<.8	<.6	0.16	0.09	0
	12498	17-30	5.05	0.42		11	<.8	<.6	0	0.12	0
	12499	30-38	5.30	0.35		7	<.8	0.7	0	0.14	0
341	12500	0- 5	5.96	0.39	.063	9	<.8	<.6	0	<.02	0
	12501	5-13	5.95	0.31		4	<.8	<.6	0	<.02	0
	12502	13-51	5.08	0.18		5	<.8	0	0	0	0
	12503	51-64	6.28	0.03		8	<.8	0	0	0	0
342	12504	0- 4	6.00	1.34	.126	6	4.8	2.9	0.22	0.02	0
	12505	4-15	5.75	0.75		3	4.0	1.8	0	0.02	0
	12506	15-20	5.92	0.38		1	4.0	0.9	0	<.02	0
	12507	20-34	6.30	0.35		1	8.0	3.4	0.33	<.02	0.5

Site No.	Ledger No.	Depth Ins.	pH	%C	%N	P ₂ O ₅	Ca	Mg	K	Mn	Na
352a	12702	0-7	6.60	0.48	.089	0	1.6	0.9	0	0.03	0
	12703	7-16	5.72	0.27		-	<.8	0.6	0	0	0
	12704	16-38	5.15	0.15		-	<.8	<.6	0	0	0
	12705	38-71	5.10	0.10		-	<.8	0.8	0	0	0
	12706	71-84	5.00	0.06		-	0.8	0.9	0	0	0
353a	12707	0-9	5.48	0.80	.095	6	<.8	<.6	0	0.05	0
	12708	9-22	5.70	0.60		5	<.8	<.6	0	0.03	0
	12709	22-26	5.70	0.65		6	<.8	<.6	0	0.10	0
354a	12710	0-8	5.22	1.05	.104	10	<.8	0.7	0	0.05	0
	12711	8-23	5.54	0.63		6	<.8	0	0	0.03	0
	12712	23-26	5.60	0.66		7	<.8	0	0	0.06	0
355	12713	0-10	6.05	0.43	.072	10	0.8	0.6	0	0.03	0
	12714	10-36	5.25	0.11		13	<.8	0	0	0.01	0
	12715	36-68	4.96	0.20		7	<.8	0.6	0	0	0
	12716	68-84	4.92	0.14		3	1.3	0.6	0	0	0
356	12717	0-3	5.65	1.35	.132	83	3.5	1.3	0.33	0.08	0
	12718	3-17	5.66	0.20		13	<.8	<.6	0	0	0
	12719	17-20	5.85	0.05		8	<.8	0.6	0	0	0
	12720	20-30	5.20	0.40		12	4.4	4.0	<.1	0.01	0
	12721	30-41	5.50	0.20		11	4.0	5.9	<.1	0	0
	12722	41-48	5.52	0.14		0	5.0	3.9	<.1	0	0
	12723	48-53	5.52	0.14		0	5.0	3.9	<.1	0	0
357	12723	0-4	5.55	0.86	.109	31	1.48	0.7	0.28	0.04	0
	12724	4-18	4.96	0.56		15	<.8	.6	0	0.01	0
	12725	18-43	5.40	0.38		13	<.8	0	0	0.04	0
	12726	43-48	5.44	0.51		9	<.8	0	0	0.03	0
358	12727	0-6	5.70	1.60	.140	53	3.5	2.3	0.28	0	0
	12728	6-12	5.25	0.83		29	2.9	2.5	T	0	0
	12729	12-23	5.68	0.20		17	<.8	0	0	0	0
	12730	23-35	4.94	0.38		12	6.2	5.7	0.47	0	0
	12731	35-44	4.92	0.24		9	7.0	10.2	0.48	0	0
359	12732	0-5	6.30	1.13	.145	193	4.3	1.4	0.22	0	0
	12733	5-37	6.14	0.25		9	2.7	0	0	T	0
	12734	37-59	6.80	0.12		6	3.8	0	0	T	0
	12735	59-84	7.66	0.06		9	5.8	0	0	0	0
360	12736	0-5	5.60	1.13	.127	13	1.3	1.6	0.28	0.03	0
	12737	5-11	5.32	0.93		2	<.8	0	0	T	0
361	12738	0-3	5.65	1.28	.152	12	1.3	1.6	0.52	0.04	0
	12739	3-34	5.44	0.68		6	<.8	0	T	T	0
	12740	34-	5.50	0.66		6	<.8	0	0	0.03	0

Site No.	Ledger No.	Depth Ins.	pH	%C	%N	P ₂ O ₅	Ca	Mg	K	Mn	Na
362	12741	0-23	5.12	0.50	.063	12	<.8	<.6	0	0.06	0
	12742	23-37	5.35	0.34		10	<.8	0	0	0.02	0
	12743	37+	5.68	0.11		31	<.8	0	0	0	0
363a	12744	0- 5	5.85	0.51	.066	43	<.8	1.4	0	0	0
	12745	5-18	5.38	0.39		20	<.8	2.0	T	T	0
	12746	18-84	5.60	0.18		20	<.8	0.6	T	0.02	0
364	12747	0- 4	5.60	0.50	.068	39	<.8	<.6	0.25	0.03	0
	12748	4-13	5.52	0.47		22	<.8	0.6	0	0.03	0
	12749	14-58	5.44	0.26		16	<.8	0	0	0.02	0
	12750	58-84	5.75	0.15		7	<.8	0	0.25	0	0
365	12890	0- 4	6.15	0.97	.119	26	2.5	1.8	0	0.04	0
	12891	4-23	5.48	0.65		9	0.8	<.6	0	0.04	0
	12892	23-32	5.40	0.30		4	<.8	0	0	0.06	0
366	12893	0- 4	5.64	0.97	.166	15	3.1	1.6	0.20	0.02	0
	12894	4-22	5.20	0.76		5	<.8	0	0	0	0
	12895	22-29	5.20	0.30		4	<.8	0	0	0	0
367	12896	0- 5	5.55	1.33	.137	22	1.3	<.6	0	0	0
	12897	5-17	5.60	0.47		6	6.2	1.6	0	0	0
	12898	17-48	5.66	0.45		8	5.9	2.4	0	0	0
368	12899	0-11	5.75	1.86	.194	15	1.6	0	0	0.03	0
	12900	11-20	5.20	1.08		7	2.6	0	T	0.09	0
	12901	20-63	5.38	0.43		9	2.7	4.1	T	0	1.4
	12902	63-76	5.34	0.34		10	11.2	5.0	T	0	0
	12903	76+	5.60	0.27		9	<.8	0	0	0	0
369	12904	0-10	5.40	1.43	.142	30	3.4	1.2	T	T	0
	12905	10-14	5.56	0.63		10	<.8	1.2	T	0	0
	12906	15-48	6.30	0.31		9	11.7	12.3	0.39	0	1.6
370	12917	0- 8	5.25	0.15	.183	20	2.9	1.3	0.25	0.05	0
	12918	8-48	4.90	0.48		4	7.5	3.1	T	0.02	0
371	12907	0- 7	6.24	1.05	.133	22	2.6	1.8	T	0.03	0
	12908	7-19	5.50	0.52		3	<.8	0	T	T	0
	12909	19-39	5.90	0.06		2	<.8	0	0	0	0
	12910	39-49	5.95	0.04		4	<.8	0	0	0	0
	12911	49+	5.46	0.05		7	<.8	0	0	0	0
372	12912	0- 4	5.80	1.59	.147	35	2.3	2.2	0.25	0.03	0
	12913	4-17	5.28	0.96		10	<.8	<.6	0	0.02	0
	12914	17-44	6.05	0.54		9	<.8	0	0	0	0
	12915	44-50	5.90	0.53		8	<.8	0	0	0	0
	12916	50+	5.74	0.23		9	<.8	0	0	0	0

Site No.	Ledger No.	Depth Ins.	pH	%C	%N	P ₂ O ₅	Ca	Mg	K	Mn	Na
373	12919	0-3	5.42	1.91	.068	45	3.7	1.2	0.23	0.07	0
	12920	3-23	5.38	0.37		10	<.8	0	0	0.03	0
	12921	23-48	4.78	0.37		10	5.6	1.9	0	0	0
	12922	48-72	4.62	0.22		7	6.2	2.2	0	0	0
374	12923	0-4	5.90	1.08	.108	69	2.7	1.7	T	T	0
	12924	4-11	5.16	0.69		9	<.8	<.6	T	T	0
	12925	11-23	5.05	0.59		5	<.8	<.6	T	T	0
	12926	23-44	5.20	0.38		4	<.8	0	T	T	0
	12927	44-72	5.36	0.20		15	<.8	0	0	0	0
375	12928	0-4	5.44	1.11	.107	47	1.3	1.3	T	0.02	0
	12929	4-9	5.04	0.77		5	<.8	0.6	0	0.03	0
	12930	9-25	4.95	0.63		5	<.8	0	0	0.01	0
	12931	25-71	5.54	0.26		6	<.8	0	0	0	0
	12932	71-84	5.55	0.22		8	<.8	0	0	0	0
376	12933	0-3	6.75	1.76	.255	65	5.7	0	0.52	0	0
	12934	3-14	5.25	0.70		14	<.8	3.1	0	0	0
	12935	14-31	4.90	0.44		10	<.8	1.3	0	0	0
	12936	31-41	5.32	0.43		1	<.8	0	0	0	0
	12937	41-84	5.55	0.25		13	<.8	<.6	0	0	0
377	12938	0-4	5.65	2.37	.177	44	5.2	0	0	0.05	0
	12939	4-9	5.35	1.34		21	3.7	1.9	T	0.05	0
	12940	9-13	5.50	0.95		17	4.7	2.0	T	0.03	0
	12941	13-48	6.00	0.27		13	6.6	1.8	0	0	0
378	12942	0-5	5.85	1.08	.099	54	1.9	6.9	T	T	0
	12943	5-10	5.68	0.36		10	<.8	1.4	T	T	0
	12944	10-13	5.80	0.14		6	<.8	0.8	0	0	0
	12945	13-28	5.12	0.32		9	3.2	1.3	T	T	0
	12946	28-31	6.20	0.03		8	<.8	0	0	0	0
	12947	31-39	5.35	0.09		17	1.25	1.7	0	0	0
	12948	39-47	5.10	0.05		16	1.33	2.34	0	0	0
	12949	47-72	4.84	0.04		8	1.95	2.71	0	0.02	0
379	12950	0-3	5.80	2.39	.168	39	3.43	1.58	0.34	0.04	0
	12951	3-17	5.50	0.43		7	1.72	0	0	0	0
	12952	17-33	4.82	0.42		5	7.16	5.55	0	0	.68
	12953	33-72	4.80	0.12		5	6.05	4.54	0	0	.65
380	12954	0-3	6.60	2.28	.263	62	7.16	3.15	0.35	0	0
	12955	3-19	5.15	0.98		6	1.56	<.6	0	0	0
	12956	19-45	5.34	0.59		119	1.25	0	0	0.02	0
	12957	45-84	5.86	0.32		64	1.25	0	0	0	0

Site No.	Ledger No.	Depth Ins.	pH	%C	%N	P ₂ O ₅	Ca	Mg	K	Mn	Na
381	12958	0-6	6.08	1.34	.141	96	3.20	1.51	0	0	0
	12959	6-21	5.44	0.75		55	2.11	<.6	0	0	0
	12960	21-32	5.40	0.09		4	<.8	0	0	0	0
	12961	32-50	5.40	0.02		6	<.8	0	0	0	0
	12962	50-68	5.30	0.03		9	<.8	0	0	0	0
	12963	58-84	4.65	0.04		7	1.33	1.13	0	0	0
382	12964	0-3	6.30	1.18	.145	47	1.95	1.26	0.34	0	0
	12965	3-8	5.54	0.89		15	1.56	<.6	0.27	0	0
	12966	8-33	5.15	0.08		3	0.86	0	0	0	0
	12967	33-84	5.46	0.17		12	<.8	0	0	0	0
383	12968	0-6	5.30	1.16		20	1.41	<.6	0	0	0
	12969	6-17	4.95	0.79		9	<.8	0	0	0	0
	12970	17-70	5.44	0.32		5	<.8	0	0	0	0
	12971	70-84	5.65	0.30		9	<.8	0	0	0	0
384	12972	0-6	6.08	0.61	.089	27	1.25	0	0	0	0
	12973	6-12	6.00	0.20		20	1.02	0	0	0	0
	12974	12-27	5.94	0.09		17	<.8	0	0	0	0
	12975	27-65	5.40	0.03		15	<.8	0	0	0	0
	12976	65-84	5.90	0.02		9	<.8	0	0	0	0
385	12977	0-4	5.94	2.07	.185	43	3.74	2.52	0.43	0.05	0
	12978	4-9	5.40	0.89		13	1.25	<.6	0	0	0
	12979	9-26	5.15	0.38		10	0.78	0	0	0	0
	12980	26-60	4.40	0.22		12	3.36	1.45	0	0	0
386	13062	0-3	5.94	2.06	.290	22	5.5	1.6	0	0	0
	13063	3-20	5.02	0.80		13	1.6	<.6	0	0.06	0
	13064	20-37	5.50	0.41		13	1.2	0	0	0	0
	13065		Rock Sample								
387	13071	0-10	6.00	0.87	.123	9					
	13072	10-27	5.90	0.53		7	0.9	0.6	0	0.04	0
	13073	27-39	5.68	0.15		4	<.8	0	0	0	0
	13074	39-54	5.50	0.08		4	<.8	0	0	0	0
	13075	54-72	5.52	0.07		6	<.8	0	0	0	0
388	13066	0-5	5.70	1.71	.167	99	1.2	0.8	0.5	0.06	0
	13067	5-18	5.05	0.65		31	1.6	0.7	0.23	0	0
	13068	18-22	5.20	0.35		15	1.2	<.6	0	0	0
	13069	22-28	4.90	0.53		17	3.2	1.4	0.34	0	0
	13070	28-60	5.40	0.29		17	5.5	2.7	0.50	0	0
389	13076	0-4	5.60	2.27	.202	95	6.9	3.3	0.8	0.05	0
	13077	4-24	4.90	0.38		5	10.9	6.9	0.45	0	0

Site No.	Ledger No.	Depth Ins.	pH	%C	%N	P ₂ O ₅	Ca	Mg	K	Mn	Na
390	13078	0- 5	5.54	1.61	.168	57	3.9	2.3	0.38	0.04	0
	13079	5-14	5.25	0.77		7	2.0	1.0	0.17	0	0
	13080	14-19	5.05	0.50		9	1.3	0.8	0	0.04	0
	13081	19-	4.94	0.59		4	1.4	5.8	1.03	0	0
391	13082	0- 8	6.70	0.44	.081	27	1.5	0.6	0	0	0
	13083	8-19	6.40	0.30		23	0.8	<.6	0	0.03	0
	13084	19-43	6.08	0.13		17	<.6	<.6	0	0	0
	13085	43-63	6.05	0.03		13	<.8	0	0	0	0
	13086	63-84	5.78	0.02		9	<.8	0	0	0	0
392	13087	0- 4	5.62	1.34	.191	41	1.4	<.6	0.61	0.05	0
	13088	4-14	5.00	0.74		10	<.8	0	<.16	0.05	0
	13089	14-27	5.32	0.56		6	<.8	0	0	0.05	0
	13090	27-42	5.40	0.38		12	<.8	0	0	0.05	0
	13091	42-54	5.50	0.44		6	<.8	0	0	0.06	0
393	13092	0- 5	5.38	2.12	.195	43	3.9	2.4	0.45	0.12	0
	13093	5-17	5.05	0.30		7	1.4	<.6	0.17	0.02	0
	13094	17-36	4.80	0.34		4	2.5	1.9	0.36	0	0

394	13095	0- 8	6.00	1.19	.190	157	2.8	0.9	<.16	0.03	0
	13096	6-22	5.80	1.11		24	3.4	0.9	0.16	0.07	0
	13097	22-47	6.20	0.11		13	0.8	<.6	0	0.02	0
	13098	47-64	5.94	0.08		17	0.9	<.6	0	0	0
	13099	64-84	6.10	0.08		15	0.9	<.6	0.22	<.02	0
395	13100	0- 4	6.15	1.77	.217	39	3.7	2.0	0.50	0.03	0
	13101	4-24	5.30	1.02		13	1.4	<.6	0.17	0.07	0
396	13102	0- 5	5.80	1.54	.194	38	2.9	1.3	0.19	0.05	0
397	13103	0- 2	5.70	1.50	.157	33	1.7	0.6	0.16	0.03	0
	13104	2-17	5.20	0.56		12	<.8	0	0	0.09	0
	13105	17-39	5.30	0.45		18	<.8	0	0	0.08	0
	13106	39-84	5.58	0.26		27	<.8	0	0	0.08	0
398	13107	0- 3	5.90	2.59	.215	104	5.5	2.7	0.52	0.05	0
	13108	3-11	5.60	0.86		38	2.0	<.6	0.17	0.04	0
	13109	11-19	5.84	0.47		31	1.6	<.6	0.17	<.02	0
	13110	19-26	5.86	0.57		20	4.1	2.9	0.69	0	0
	13111	26-48	6.00	0.33		19	5.8	3.0	0.75	0	0.3
399	13112	0- 3	5.95	1.56	.143	38	3.3	1.4	0.36	0.05	0
	13113	3-11	5.76	0.47		12	6.2	3.0	0.80	0	0.6
	13114	11-31	5.68	0.11		6	0.8	<.6	0.16	0	0
	13115	31-48	5.10	0.21		23	<.8	0	0	0	0

Site No.	Ledger No.	Depth Ins.	pH	%C	%N	P ₂ O ₅	Ca	Mg	K	Mn	Na
400	13116	0- 4	5.60	2.00	.157	46	3.1	1.1	0.45	0.03	0
	13117	4-20	5.40	0.37		20	1.6	<.6	0.17	0	0
	13118	20-33	5.20	0.47		6	6.6	3.9	0.16	0	0
	13119	33-48	5.25	0.23		7	15.6	5.7	0.28	0	<.3
401	13120	0- 5	6.58	1.52	.159	42	8.6	1.6	0.59	0	0
	13121	5-13	5.30	0.68		27	1.7	<.6	0.25	0.09	0
	13122	13-19	5.14	0.59		23	1.5	<.6	0.20	0.05	0
	13123	19-38	5.40	0.35		20	<.8	<.6	0	<.02	0
	13124	38-58	5.70	1.50		7	<.8	<.6	0	0	0
	13125	58-84	5.55	0.98		10	<.8	<.6	0	0	0
402	13126	0- 6	6.50	1.52	.190	31	8.7	2.5	1.0	0	0
	13127	6-27	5.42	0.65		9	1.0	<.6	0	0.05	0
	13128	27-56	5.88	0.33		12	<.8	<.6	0	0.03	0
	13129	56-69	6.20	0.32		9	<.8	0	0	0.03	0
	13130	69-84	6.10	0.20		12	<.8	<.6	0	0.02	0
403	13131	0- 4	6.20	2.12	.123	9	4.4	2.4	0.20	0.04	0
	13132	4-14	6.35	0.72		14	3.0	0.9	0	<.02	0
	13133	17-48	5.45	0.47		11	7.5	4.6	0.27	0	1.2
404	13134	0- 5	7.10	3.54	.362	132	12.1	3.7	0.83	0	0
	13135	5-11	6.04	1.05		13	4.8	3.4	0.55	0.04	0
	13136	11-21	5.50	0.46		15	3.0	2.1	0.31	0.03	0
	13137	21-26	5.68	0.24		6	2.0	0.7	0	0.02	0
	13138	26-48	5.50	0.44		10	6.7	2.1	0.56	<.02	0
405	13139	0- 4	6.60	2.58	.169	94	8.4	2.1	0.48	<.02	0
	13140	4-24	6.35	1.07		12	3.0	<.6	0.33	<.02	0
406	13141	0- 5	5.30	1.55	.179	12	2.1	0.6	0.25	0.15	0
	13142	5-17	5.05	0.89		8	<.8	<.6	0	0.08	0
	13143	17-48	5.92	0.43		10	<.8	0	0	0.07	0
	13144	48-69	6.60	0.23		9	0	0	0	0.04	0
	13145	69-84	6.04	0.29		9	0	0	0	0.04	0
407	13146	0- 5	5.90	3.03	.226	132	5.5	2.3	0.69	0.07	0
	13147	5- 9	5.70	0.78		20	2.7	1.4	0.30	0	0
	13148	9-36	5.70	0.32		12	6.9	4.3	0.89	0	0.9
408	13149	0- 7	7.80	2.22	.368	650	18.0	5.9	2.57	<.02	0
	13150	7-14	5.74	1.23		76	12.1	3.8	0.78	0.04	0
	13151	14-31	6.00	0.71		20	14.4	3.6	0.64	0.07	0
	13152	31-64	7.40	0.62		160	3.4	2.8	0.30	0.03	0.9
	13153	64-84	7.52	0.47		425	3.3	1.6	0.34	<.02	0.9

Site No.	Ledger No.	Depth Ins.	pH	%C	%N	P ₂ O ₅	Ca	Mg	K	Mn	Na
409	13154	0- 6	6.10	1.07	.105	16	3.5	1.0	0	0.06	0
	13155	6-14	5.90	0.76		17	<.8	<.6	0	0.05	0
	13156	14-22	5.60	0.41		17	1.2	<.6	0	0.06	0
	13157	22-34	4.70	0.22		1	<.8	<.6	0.16	0.03	0
	13158	34-60	5.60	0.17		8	<.8	0.6	0.16	0.02	0
410	13159	0- 5	5.40	1.28	.131	16	<.8	1.1	0.30	0.07	0
	13160	5-23	5.35	0.65		6	<.8	0	<.16	0.02	0
	13161	23-47	5.10	0.44		8	<.8	0	0	0.06	0
	13162	47-65	5.70	0.47		6	<.8	0	0	0.05	0
	13163	65-74	5.62	0.30		3	<.8	0	0	0.04	0
411	13164	0- 2	5.50	3.60	.450	48	9.4	3.5	1.31	0.15	0
	13165	2- 5	5.80	2.32		21	5.2	2.8	1.06	0.08	0
	13166	5-15	5.25	1.37		15	2.3	1.0	0.87	0.05	0
	13167	15-36		1.08		8	not	found			
412	13168	0- 5	5.84	1.50	.130	60	3.8	1.4	0.36	0.04	0
	13169	5-17	5.62	0.54		10	2.3	0.9	<.16	0	0
	13170	17-36	5.45	0.52		10	<.8	5.0	0.86	0	1.5
413	13171	0- 5	6.16	2.12	.299	51	10.9	5.8	1.09	0.02	0
	13172	3-10	5.80	0.80		21	11.7	7.3	1.09	0.02	0
	13173	10-27	5.50	0.50		18	12.1	5.7	1.19	0.04	0.7
	13174	21-72	7.34	0.57		111	12.1	6.9	0.80	0	1.2
414	13175	0- 3	6.70	1.11	.115	51	3.4	1.3	0.30	0.02	0
	13176	3-14	5.75	0.73		9	1.6	<.6	0.16	0.04	0
	13177	14-27	5.45	0.32		7	<.8	<.6	0	0.02	0
	13178	27-48	5.40	0.27		8	<.8	<.6	.16	0.02	0
415	13179	0- 2	5.80	3.42	.440	26	10.1	3.5	0.42	0.03	0
	13180	2- 9	5.44	1.63		10	3.5	1.3	0.23	0.03	0
	13181	9-26	5.20	0.57		27	<.8	0.8	0	0.10	0
	13182	26-67	5.25	0.35		12	1.3	0.6	0	0.14	0
416	13183	0- 4	5.70	1.25	.155	19	1.9	0.9	0.19	0.06	0
	13184	4-29	5.60	0.62		7	<.8	0	0	0.03	0
	13185	29-40	6.22	0.34		5	<.8	0	0	0.05	0
	13186	40-84	5.84	0.23		7	<.8	0	0	0.04	0
417	13187	0- 2	6.00	3.54	.551	64	13.3	5.8	1.34	0.09	0
	13188	2-11	5.60	1.31		16	3.4	1.4	0.66	0.03	0
	13189	11-39	5.00	0.53		10	<.8	<.6	0.19	0.11	0
	13190	39-60	5.70	0.37		15	3.3	<.6	0.16	0.10	0

Site No.	Ledger No.	Depth Ins.	pH	%C	%N	P ₂ O ₅	Ca	Mg	K	Mn	Na
418	13275	0-3	5.70	0.75	.113	24	3.0	<.6	0.25	0.06	0
	13276	3-11	5.24	0.58		27	<.8	<.6	0	0.03	0
	13277	11-45	5.70	0.34		19	<.8	0	0	0.03	0
	13278	45-68	6.05	0.15		14	<.8	0	0	0.02	0
	13279	68-		0.38		8	<.8	0	0	0.02	0
419	13280	0-4	6.48	0.78	.088	54	3.0	0.9	0.25	0.02	0
	13281	4-11	6.04	0.65		32	1.7	0.6	0.17	0.05	0
	13282	11-26	5.40	0.38		25	<.8	<.6	0	0.03	0
	13283	26-44	5.55	0.17		23	<.8	<.6	0	0.03	0
	13284	44-52	5.60	0.10		25	<.8	<.6	0	0.02	0
	13285	52-61	5.40	0.16		27	<.8	<.6	0	0	0
	13286	61-84	5.55	0.15		28	<.8	<.6	0	0	0
420	13287	0-4	5.60	1.48	.157	38	4.2	1.6	0.23	0.02	0
	13288	4-10	5.40	0.93		24	3.5	0.8	0	0	0
	13289	10-17	5.22	0.59		25	2.7	0.7	0	0	0.3
	13290	17	5.00	0.74		25	9.0	4.2	0.25	0	1.0
421	13291	0-5	6.42	0.69	.107	54	2.7	0.6	0.23	0	0
	13292	5-13	5.90	0.61		34	2.2	<.6	0.17	0.03	0
	13293	13-28	5.85	0.27		30	1.4	<.6	0	0.02	0
	13294	28-48	5.48	0.29		28	2.3	<.6	0	0	0
422	13295	0-5	5.60	1.13	.125	19	2.5	0.7	0.20	0.03	0
	13296	5-25	5.54	0.68		5	1.2	<.6	0	0.03	0
	13297	25-37	6.15	0.43		5	<.8	<.6	<.16	0.04	0
	13298	37-67	6.40	0.36		8	<.8	<.6	<.16	0.06	0
423	13299	0-4	5.62	0.80	.099	6	<.8	<.6	0	0.03	0
	13300	4-9	5.35	0.71		3	1.3	0.9	0.40	0.07	0
	13301	9-29	5.60	0.35		5	<.8	0	0	0.02	0
	13302	29-68	5.34	0.21		10	<.8	0	0	0.03	0
424	13303	0-4	5.70	1.40	.130	30	<.8	1.0	0	0.07	0
	13304	4-15	5.35	0.66		16	<.8	<.6	0.23	0.04	0
	13305	15-44	5.95	0.42		5	<.8	0	0	0.02	0
	13306	44-48	5.35	0.21		5	<.8	0	0	<.02	0
425	13307	0-7	5.55	0.86		14	1.6	0.6	0.16	0.06	0
	13308	7-15	5.45	0.72		10	<.8	<.6	0	0.05	0
	13309	15-48	5.40	0.30		10	<.8	<.6	0	0.03	0
426	13310	0-4	5.90	1.13	.121	32	3.1	2.3	0.23	0.04	0
	13311	4-7	5.35	0.89		10	3.2	2.2	<.16	0.05	0
	13312	7-19	5.50	0.46		4	2.7	2.2	0	0.03	0
	13313	19-23	5.44	0.29		8	1.9	1.2	0.28	<.02	0
	13314	23-48	5.18	0.50		6	6.0	5.0	0.94	0	0.9

Site No.	Ledger No.	Depth Ins.	pH	%C	%N	P ₂ O ₅	Ca	Mg	K	Mn	Na
427	13315	0- 9	5.34	1.57	.212	18	2.4	2.6	0.50	0.05	0
	13316	9-17	4.80	1.03		6	2.1	2.1	0.50	0.05	0
	13317	17-26	4.65	0.95		10	2.6	2.4	0.36	0.02	0
	13318	26-35	4.70	0.38		8	2.8	2.1	0.30	<.02	0
	13319	35-44	4.84	0.48		9	5.6	4.4	0.47	<.02	0.5
	13320	44-60	6.58	0.27		13	5.5	4.0	0.47	0	0.4
428	13321	0- 5	6.40	1.11	.154	22	2.7	1.1	0.25	0.03	0
	13322	5-14	6.00	0.53		7	1.3	<.6	0.16	0.04	0
	13323	14-26	5.72	0.32		6	<.8	<.6	0.16	<.02	0
	13324	26-34	5.50	0.24		9	<.8	<.6	0.16	0	0
	13325	34-60	5.10	0.26		5	2.2	0.6	0.25	0	0
429	13326	0- 5	7.00	3.05	.305	124	13.3	4.4	1.02	0	0
	13327	5-21	6.44	1.04		24	7.6	1.8	1.40	0	0
	13328	21-44	7.80	0.41		141	14.0	2.3	2.30	0	0
	13329	44-72	8.10	0.42		147	12.5	5.6	3.43	0	0
430	13330	0- 4	5.85	1.84	.249	26	5.2	5.3	0.52	0.03	0
	13331	4-11	5.90	1.09		20	1.8	0.9	0.42	0.09	0
	13332	11-31	4.85	0.65		10	1.0	0.6	0.28	0.15	0
	13333	31-49	5.20	0.40		20	2.7	<.6	<.16	0.06	0
	13334	49-72	5.48	0.38		17	4.0	<.6	<.16	0.02	0

431	13335	0- 8	5.40	1.73	.172	34	1.6	2.3	0.92	0.02	0
	13336	8-19	4.60	1.16		20	7.3	1.9	0.92	0.05	0
	13337	19-35	5.50	0.75		20	12.0	2.5	0.34	0.02	0
	13338	35-60	7.40	0.47		70	14.0	3.0	0.52	0	.3
	13339	60-84	7.60	0.42		91	15.6	2.8	0.73	0	0.5
	13340			0.47		87	14.7	2.8	0.58	0	0.4
432	13341	0- 6	5.40	1.05	.127	20	2.4	0.8	<.16	0.03	0
	13342	6-10	5.25	0.86		17	<.8	<.6	<.16	0.05	0
433	13343	0- 1	5.80	2.66	.374	45	9.5	2.8	0.44	0.04	0
	13344	1- 9	5.05	1.69		17	3.4	1.7	0.36	0.05	0
	13345	9-32	4.80	0.83		7	1.8	1.1	0.30	0.12	0
	13346	32-35	Rock Sample								
434	13347	0- 7	5.95	1.47	.171	45	5.2	2.0	0.25	<.02	0
	13348	7-13	5.70	1.16		39	3.0	0.9	<.16	<.02	0
	13349	13-36	5.54	0.62		35	0.9	<.6	<.16	0.03	0
	13350	36-40	5.60	0.59		33	<.8	<.6	<.16	0.04	0
435	13351	0- 4	5.60	3.24	.229	144	8.0	3.2	0.47	0.06	0
	13352	4-10	5.30	1.12		41	3.7	4.9	<.16	0.04	0
	13353	10-20	5.20	0.53		38	2.7	0.8	0	0.03	0
	13354	20-48	5.50	0.75		35	9.1	4.5	0.33	0.02	0.6

Site No.	Ledger No.	Depth Ins	pH	%C	%N	P ₂ O ₅	Ca	Mg	K	Mn	Na
436	13355	0-2	6.48	2.40	.297	135	12.9	5.3	1.46	0	0
	13356	2-10	6.70	1.10		100	10.0	4.0	2.44	0	0
	13357	10-17	6.10	0.62		93	9.4	4.2	2.65	0	0
	13358	17-33	7.68	0.44		207	13.2	6.3	1.89	0	0.6
	13359	33-45	7.85	0.39		207	14.7	7.6	1.82	0	0.8
	13360	45-84	7.84	0.37		390	13.2	6.0	1.53	0	1.0

Appendix C.

Lists of the species found in the North Mungo
Lowlands.

Owing to the absence of an up-to-date flora of the region the nomenclature of the Flowering Plants is based on the following publications in the light of recent work, including the published parts of the new Flora of Tropical East Africa (Turrill, W.B. and Milne-Redhead, E. 1952-). In addition the names have been checked by comparing herbarium specimens with material in the East African Herbarium, Nairobi, Kenya, and in Kew Herbarium.

- Burt-Davy, J. (Ed.) 1935. Check Lists of the Forest Trees and Shrubs of the British Empire No.1 Uganda Protectorate. Imp.For.Inst. Oxford.
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SPERMATOPHYTES (No Gymnospermae)

- Abutilon Gaertn. (Malvaceae)
 mauritianum (G. Don) Sweet
 Acacia Willd. (Mimosaceae)
 albida Del.
 campylacantha Hochst. ex A. Rich.
 ethiopia Schweinf.
 hebecladoides Harms.
 macrothyrsa Harms.
 pennata (L.) Willd.
 senegal (L.) Willd.
 seyal Del.
 seyal Del. var. fistula Oliv.
 seyal Del. var. multijuga Schweinf. ex Bak. f.
 siebariana DC.
 suma Kurz
 tortilis (Forsk.) Christensen.
 vermoeseni de Wild.
 Acalypha L. (Euphorbiaceae)
 bipartita Muell. Arg.
 villicaulis Hochst.
 sp.
 Acanthus L. (Acanthaceae)
 pubescens (T. Thoms.) Engl.
 Achyranthes L. (Amarantaceae)
 aspera
 Acriulus Ridl. (Cyperaceae)
 madagascariensis Ridl.
 Acolanthus Mart. (Labiatae)
 heliotropoides Oliv.
 Aerva Forsk. (Amarantaceae)
 lanata Juss.
 Aframomum K. Schum. (Zingiberaceae)
 sp.
 sp.
 Agathisanthemum Klotzsch (Rubiaceae)
 globosa (Hochst. ex A. Rich) ex Hiern Klotzsch.
 Ageratum L. (Compositae)
 conyzoides L.
 Albizzia Durazz (Mimosaceae)
 adanthifolia (Schumach) W. F. Wight
 brachycalyx Oliv.
 coriaria Welw. ex Oliv.
 grandibracteata Taub.
 gummifera (Gmel.) C. A. Sm.
 malacophylla Walp.
 zygia (DC) Macbride

 Alchornea Sw. (Euphorbiaceae)
 cordifolia (Schumach. & Thonn.) Muell. Arg.

- Alectra* Thunb. (Scrophulariaceae)
 communis Hemsl.
 sp. 2229
Allophylus L. (Sapindaceae)
 africanus Beauv.
 alnifolius Radlk ex Engl.
Alloteropsis J. Presl. emend. Hitchc. (Gramineae)
 semialata Hitchc.
 sp. 1821 near *semialata* Hitchc.
Aloe L. (Liliaceae)
 sp. 1453
 sp. 1921
Alysicarpus Neck (Papilionaceae)
 sp. 1305
 sp. 2005
Ammannia L. (Lythraceae)
 prieuriana Guill. & Perr.
Ampelocissus Planch. (Ampelidaceae)
 grantii (Bak) Planch.
Anagallis L. (Primulaceae)
 pumilla Swartz.
Andropogon L. (Gramineae)
 canaliculatus Schumach.
 dummeri Stapf.
 eucornus Nees
 schinzii Hack
 shirensis Hochst. ex A. Rich
Aneilema R. Br. (Commelinaceae)
 aequinoctiale Kunth
 sp. aff *A. Whytei*
Anisopappus Hook. & Arn. (Compositae)
 africanus (Hook. f.) Oliv. & Hiern.
Annona L. (Annonaceae)
 chrysophylla Boj.
Anthericum L. (Liliaceae)
 spicosum Rendle
 uyuiense Rendle
Anthrosolen (Thymeliaceae)
 chrysantha Solms-Laub.
Antidesma L. (Euphorbiaceae)
 meiocarpum Leon.
 membranaceum Muell. Arg.
 venosum Tul.
Aristida L. (Gramineae)
 adscensionis L.
 keniensis Henrard
Asparagus L. (Liliaceae)
 africanus Lam.
 falcatus L.
 pauli-guilelmi Solms-Laub.
 plumosus Bak.
 racemosus Willd.

- Aspilia* Thou. (Compositae)
 kotschyi Benth. & Hook. f.
 sp. 1998
 sp. 2190
Asystasia Blume (Acanthaceae)
 gangetica (L.) T. Anders
Axonopus Beauv. (Gramineae)
 compressus Beauv.
Balanites Del. (Simaroubaceae)
 aegyptiaca Del.
Barleria L. (Acanthaceae)
 sp. 1685
 sp. 1749
Bauhinia L. (Caesalpinaceae)
 fassoglensis Kotschy.
Becium Lindl. (Labiatae)
 kirkii Bak.
 obovatum (E. Mey.) N. E. Br.
 sp. 1486
Beckeropsis Fig. & de Not. (Gramineae)
 uniseta K. Schum.
Berkheya Ehrh. (Compositae)
 spekeana Oliv.
Bersama Fresen (Melianthaceae)
 abyssinica Fresen, subsp. *paullinoides* (Plan ch.) Verdc.
Bidens L. (Compositae)
 coriacea (Hoffm.) Sherff.
Biophytum DC (Oxalidaceae)
 sessile Kunth
Blumea DC (Compositae)
 lacera DC
Boerhaavia Vaill ex L. (Nyctaginaceae)
 sp. 2194
Borassus L. (Palmae)
 aethiopum Mart
Borreria G. F. W. Mey. (Rubiaceae)
 ruelliae (DC.) K. Schum.
 stricta (L.) K. Schum.
Boscia Lam. (Capparidaceae)
 dawei Sprague & Green
Bothriochloa Kuntze (Gramineae)
 glabra A. Camus
 insculpta A. Camus
Brachiaria Gris. (Gramineae)
 brizantha Stapf.
 comata Stapf
 decumbens Stapf
 deflexa Hubbard ex Robyns
 dictyoneura Stapf
 emini (Mez) Robyns
 eruciformis Gris.
 fulva Stapf

- kotschyana Stapf
 leucacrantha Stapf
 mutica Stapf
 platynota Robyns
 semiundulata Stapf
 soluta Stapf
 viridula Stapf
 Bridelia Willd. (Euphorbiaceae)
 atroviridis Muell. Arg.
 brideliifolia (Pax) Fedde
 scleroneuroides Pax
 Bulbostylis Kunth (Cyperaceae)
 atrosanguinea C.B.Cl.
 collina Kunth
 collina Kunth var. boekelerianus Schweinf.
 Burnatia Micheli (Alismataceae)
 enneandra (Hochst) Micheli
 Butyrospermum Kotschy (Sapotaceae)
 parkii Kotschy var. niloticum (Kotschy) Pierre
- Cadaba Forsk. (Capparidaceae)
 farinosa Forsk.
- Caesalpinia L. (Caesalpinaceae)
 decapetala (Roth) Alston
- Canthium Lam. (Rubiaceae)
 lactescens Hiern
- Capparis L. (Capparidaceae)
 acutissima Gilg & Benedict
 elaeagnoides Gilg
 erythrocarpa Isert
 rothii Oliv.
 tomentosa Lam.
 sp. 1308
- Carissa L. (Apocynaceae)
 edulis Vahl
- Cassia L. (Caesalpinaceae)
 absus L.
 bicausularis L.
 mimosoides L.
 singueana Del.
 spectabilis DC.
 tora L
- Cenchrus L. (Gramineae)
 ciliaris L.
- Chaetacme Planch (Ulmaceae)
 aristata Planch
- Chloris Swartz (Gramineae)
 gayana Kunth
 lamproparia Stapf
 pilosa Schumach. & Thonn.
 pynothrix Trin.
 virgata Swartz var. elegans Stapf

- Chlorophora Gaudich (Moraceae)
 excelsa (Welw.) Benth & Hook f.
 Chlorophytum Ker-Gawl. (Liliaceae)
 blepharophyllum Schweinf. ex Bak.
 gallabatense Schweinf. ex Bak.
 sp.1820
 sp.2020
 Chrysanthellum Rich (Compositae)
 americanum (L.) Vatke.
 Cissus L. (Ampelidaceae)
 bambuseti Gilg & Brandt.
 quadrangulus L.
 rotundifolius (Forsk) Vahl
 sp.1755
 Clausena Burm.f. (Rutaceae)
 aniseta (Willd.) Oliv.
 Clematis L. (Ranunculaceae)
 hirsuta Perr & Guill.
 Clerodendron L. (Verbenaceae)
 myricoides (Hochst.) R.Br. ex Vatke
 Coleus Lour. (Labiatae)
 barbatus Benth.
 sp.2180
 Combretum L. (Combretaceae)
 aculeatum Vent.
 apiculatum Sond.
 binderanum Kotschy
 ghasalense Engl. & Diels
 gueinzii Sond.
 racemosum Beauv.
 Commelina L. (Commelinaceae)
 africana L.
 africana L. var. *Krebsiana* C.B.Cl.
 albrescens Hassk.
 benghalensis L.
 forskalii Vahl
 latifolia Hochst. ex A.Rich
 purpurea
 subulata Roth
 Cordia L. (Boraginaceae)
 abyssinica R.Br.
 ovalis R.Br.
 Coreopsis L. (Compositae)
 sp.1207
 sp.2099
 Crassocephalum Moench (Compositae)
 rubens (Jacq) S.Moore
 Crossopteryx Fenzl. (Rubiaceae)
 febrifuga Benth.
 Crotalaria L. (Papilionaceae)
 sp.1235
 sp.1772

- sp.1779
 sp.1905
 sp.2102
Croton L. (Euphorbiaceae)
 macrostachys Hochst. ex A.Rich.
Cryptolepis R.Br. (Asclepiadaceae)
 oblongifolia (Meisn.) Schltr.
Otenium Panzer (Gramineae)
 concinnum Nees var. *indutum* Pilger
Cussonia Thunb. (Araliaceae)
 arborea Hochst. ex A.Rich.
Cyanotis D.Don
 hirsuta Stapf
 joecunda Hassk.
 lanata Benth.
 pauciflora A.Rich.
Cyrenium E. Mey ex Benth. (Scrophulariaceae)
 adoense E. Mey ex Benth.
Cymbopogon Spreng. (Gramineae)
 afroardus Stapf
 excavatus Stapf
 giganteus (Hochst) Chiov.
Cynodon Pers. (Gramineae)
 dactylon Pers.
 plectostachyum Pilger
Cyperus L. (Cyperaceae)
 amabilis Vahl
 cyperoides (L.) Kuntze
 denudatus L.
 difformis L.
 diloloensis Kuekent ex. Chemi.
 distans Linn.f.
 dives Del.
 esculentus L.
 flavidus Retz
 haspan L.
 latifolius Poir
 sp.near *latifolius* Poir
 microlepis Boeck.
 papyrus L.
 phaeorrhizus K.Schum.
 reduncus Hochst. ex Boeck.
 rotundus L.
 rubicundus Vahl
 unioloides R.Br.
 Zollingeri Steud.
 sp.1659
 sp.1789
 sp.1947

- Dactyloctenium* Willd. (Gramineae)
 aegyptium Beauv.
 geminatum Hack
Delonix (Caesalpinaceae)
 regia (Boj. ex Hook) Raf. = *Poinciana regia* Raf.
Desmodium Desv. (Papilionaceae)
 lasiocarpum DC.
 sp. 2243
Dichrostachys DC (Mimosaceae)
 glomerata (Forsk.) Chiov.
Digitaria Hall (Gramineae)
 argyrotricha Chiov.
 diagonalis Stapf
 longiflora Pers.
 maitlandii Stapf & Hubbard
 melanochila Stapf
 scalarum Chiov.
 ternata Stapf
 uniglumis Stapf var. *major* Stapf
 velutina Beauv.
Diplachne Beauv. (Gramineae)
 caudata K. Schum.
Diplolophium Turcz. (Umbelliferae)
 africanum Turcz.
Dissotis Benth. (Melastomaceae)
 rotundifolia Triana
Dombeya Cav. (Sterculiaceae)
 rotundifolia Harv.
Duranta L. (Verbenaceae)
 repens L.
Dyschoriste Nees (Acanthaceae)
 perrottetii Kuntze
 radicans Nees.
- Echinochloa* Beauv. (Gramineae)
 crus-pavonis Schult
 pyramidalis Hitchc. & Chase.
Echinops L. (Compositae)
 emplexicaulis R.E. Fries
 sp. 1177
Eclipta L. (Compositae)
 erecta L.
Elaeodendron J.F. Jacq. ex Jacq. (Colastraceae)
 sp. 2144
Eleocharis R.Br. (Cyperaceae)
 variegata (Poir) Presl.
Eleusine Gaertn. (Gramineae)
 coracana Gaertn.
 indica Gaertn.
Elionurus Humb. & Bonpl. (Gramineae)
 argenteus Nees
 sp. 1945
 sp. 2003

- Emilia* Cass. (Compositae)
integrifolia Bick.
 sp.1748
- Entada* Adans (Mimosaceae)
abyssinica Steud. ex A.Rich.
- Epipactis* Sw. emend L.C. Rich (Orchidaceae)
 sp.2277
- Eragrostis* Beauv. (Gramineae)
aethiopica Chiov.
aspera Nees
chalcantha Trin.
chapelieri Nees
cilianensis Link ex Lutati
ciliaris R.Br.
exasperata Peter
hispida K. Schum.
mildbraedii Pilger
patens Oliv.
perbella K. Schum.
superba Wawr. & Peyr.
tenuifolia Hochst. ex Steud.
tremula Hochst. ex Steud.
 sp.1166
- Erigeron* L. (Compositae)
grantii Oliv. et Hiern
- Eriochloa* H.B. & K. (Gramineae)
nubica Hack & Stapf ex Thell
procera Hubbard
 sp.1853
- Eriosema* E.Mey (Papilionaceae)
cordatum E.Mey
glomeratum (Guill. & Perr.) Hook.f.
velutinum Bak.f. & Haydon
 sp.2287
- Erythrina* L. (Papilionaceae)
abyssinica Lam.
umbrosa H.B.K.
- Erythrococca* Benth. (Euphorbiaceae)
bongensis Pax
- Euclea* Murr. (Ebenaceae)
latidans Stapf.
schimperi (A.DC.) Dandy
 sp.2072
- Eulophia* R.Br. (Orchidaceae)
bella ?
caricifolia Summerh.
chalcantha Schltr.
ocullata Steud.
instata (Sw.) Steud.
pyrophila (Reich b.f.)
subulata Rendle

- wakefieldii* (Reichb.f. & S.Moore) Summerh.
 sp.1669
- Euphorbia* L. (Euphorbiaceae)
bongensis Kotschy & Peyr
candelabrum Trem. ex Kotschy
hirta L.
hypericoides L.
tirucalli L.
- Evolvulus* L. (Convolvulaceae)
alsinoides L.
- Exochaenium* Griseb. (Gentianaceae)
micranthum A.W.Hill
- Fagara* L. (Rutaceae)
chalybea (Engl.) Engl.
stuhlmanni Engl.
- Fagaropsis* Mildbr. (Rutaceae)
angolensis (Engl.) Dale
- Ficus* L. (Moraceae)
brachypoda Hutch.
capensis Thunb.
congoensis Engl.
dekdekana A.Rich.
exasperata Vahl
fisheri
gnaphalocarpa A.Rich.
natalensis Hochst.
sycomorus L.
- Fimbristylis* Vahl (Cyperaceae)
complanata (Retz.) Link
diphylla Vahl
exilis Roem. & Schult.
monostachya Hassk.
subaphylla Boeck.
- Floscopa* Lour. (Commelinaceae)
rivularis (A.Rich.) C.B.Cl.
- Fuirena* Rottb. (Cyperaceae)
pubescens (Lam.) Kunth.
umbellata Rottb.
 sp.1665
- Gardenia* Ellis (Rubiaceae)
jovis-tonantis (Welw.) Hiern
 sp.1230
- Gerbera* Cass. (Compositae)
abyssinica Sch. Bip.
- Glediolus* L. (Iridaceae)
psittacinus Hook.
- Gloriosa* L. (Liliaceae)
simplex L.
- Glycine* L. (Papilionaceae)
javanica L.

- Gnidia* L. (Thymeliaceae)
 sp. 2232
Comphrena L. (Amaranthaceae)
celasoides Mart.
Grewia L. (Tiliaceae)
betulifolia Juss.
bicolor Juss.
mollis Juss.
similis K. Schum.
trichocarpa Hochst. ex A. Rich
 sp. 1162
 sp. 1911
 sp. 1942
Guizotia Cass. (Compositae)
scabra (Vis.) Chiov.
Gymnema R.Br. (Asclepiadaceae)
sylvestre R.Br.
Gymnosporia Wight & Arn. (Celastraceae)
buxifolia (L.) Sziszyl.
senegalensis (Lam.) Loes.
senegalensis (Lam.) Loes. var. *spinosa* Engl. ex Loes.
 sp. 2175
Gynura Cass. (Compositae)
amplexicaulis Oliv. & Hiern
scandans Hoffm.
- Habenaria* Willd. (Orchidaceae)
zambesina Reichb. f.
Haemanthus L. (Amaryllidaceae)
multiflorus Martyn
Haplocoelum Radlk. (Sapindaceae)
foliolosum (Hiern) Bullock
Harpachne Hochst. (Gramineae)
schimperii Hochst.
Harrisonia R.Br. ex A. Juss. (Simaroubaceae)
abyssinica Oliv.
occidentalis Engl.
Heeria Meisn (Anacardiaceae)
reticulata (Bak. f.) Engl.
Helichrysum Gaertn. (Compositae)
gerberifolium Sch. Bip.
nudifolium DC
undatum Loes.
 sp. near *undatum* Loes.
Hemarthria R.Br. (Gramineae)
altissima (Poir) Stapf & Hubbard
Heteranthera Ruiz & Pav. (Pontederiaceae)
callifolia Reichb.
Heteropogon Pers. (Gramineae)
contortus Beauv. ex Roem. & Schult.

- Hibiscus L. (Malvaceae)
 aethiopicus L.
 aponeurus Spragne & Hutch.
 sp. near calophyllus
 cannabinus L.
 sp.1912
- Hippocratea L. (Hippocrateaceae)
 africana (Willd.) Loes. s.l.
 indica Willd.
- Moslundia Vahl (Labiatae)
 opposita Vahl
- Hygrophila R.Br. (Acanthaceae)
 spinosa T.Anders
 sp.1799
- Hymenocardia Wall. (Euphorbiaceae)
 acida Tul.
 sp. 1769
- Hyparrhenia Anderss. (Gramineae)
 collina Stapf
 diplandra Stapf
 dissoluta Hubbard ex Hutch.
 filipendula Stapf
 gazensis (Rendle) Stapf
 lintonii Stapf
 nyassae Stapf
 sp. near nyassae Stapf
 pallipes Anders
 pilgeriana C.E.Hubbard
 rufa Stapf
 sp. near rufa Stapf
 variabilis Stapf
- Hypoxis L. (Hypoxidaceae)
 angustifolia Lam.
 urceolata Nel.
 sp. 2065
- Imperata Cyrill. (Gramineae)
 cylindrica Beauv. var. africana Hubbard
- Indigofera L. (Papilionaceae)
 sp.1181
 sp.1394
 sp.1452
 sp.1499
 sp.1698
 sp.1908
 sp.1978 = sp.1499
 sp.2007
 sp.2115
 sp.2127
 sp.2255
 sp.2261
 sp.2262

- Inula* L. (Compositae)
decipiens E.A. Bruce
- Ipomoea* L. (Convolvulaceae)
aquatica Forsk. = *I. reptans* Poir.
blepharophylla Hallier f.
grantii Oliv.
lilacina Blume
 sp. 1482
- Jasminum* L. (Oleaceae)
eminii Gilg
- Jussiaea* L. (Onagraceae)
stenorraphe Brenan var. *stenorraphe* Brenan
suffruticosa L. subsp. *suffruticosa* var. *linearis*
 (Willd.) Kuntze
 sp. 1759
- Justicia* L. (Acanthaceae)
betonica L.
exigua S. Moore
 sp. 1718
 sp. 1848
 sp. 1949
 sp. 1995
- Kalanchoe* L. (Crassulaceae)
 sp. 1903
- Kigelia* DC. (Bignoniaceae)
aethiopica Decne.
moosa Sprague
- Kohautia* Cham. & Schlecht. (Rubiaceae)
 sp. 2248
- Kyllinga* Rottb. (Cyperaceae)
alba Nees
albiceps Rendle
aurata Nees
controversa Steud.
erecta Schumach. & Thonn.
macrocephala A. Rich.
pumila Mich.
 sp. 1696
- Lactuca* L. (Compositae)
capensis Thunb.
- Landolphia* Beauv. (Apocynaceae)
florida Benth.
- Lannea* A. Rich. (Anacardiaceae)
kerstingii Engl. & Krause
schimperii (Hochst. ex A. Rich.) Engl.
stuhlmannii (Engl.) Engl.
 sp. 1335
- Lantana* L. (Verbenaceae)
salvifolia Jacq.

- Leersia* Swartz (Gramineae)
 hexandra Swartz
Lemna L. (Lemnaceae)
 polyrhiza L.
Leonotis Pers. (Labiateae)
 nepetaefolia (L.) R.Br.
Leptocarydion Hochst. ex Benth. & Hookf. (Gramineae)
 vulpiastium Stapf
Leptochloa Beauv. (Gramineae)
 obtusiflora Hochst.
Leucas R.Br. (Labiateae)
 calostachys Oliv.
 oligocephala Hook.f.
 sp. 1877
Lightfootia L'Herit (Campanulaceae)
 sp. 1707
 2043
Limnanthemum S.G. Gmel (Gentianaceae)
 niloticum Kotschy & Peyr.
 senegalense N.E.Br.
Lipocarpa R.Br. (Cyperaceae)
 pulcherrima Ridley.
Lippia L. (Verbenaceae)
 adoensis Hochst.
Lonchocarpus H.B. & K. (Papilionaceae)
 laxiflorus Guill. & Peyr.
Loranthus L. (Loranthaceae)
 sp. 1295
Loudetia Hochst. ex Steud. (Gramineae)
 arundinacea Steud.
 arundinacea Steud. var. *tricantha* C.E. Hubbard ex Hutch.
 flavida Hubbard
 kagerensis Hubbard ex Hutch.
 phragmitoides Hubbard
 simplex Hubbard
 superba de Not

Maerua Forsk. (Capparidaceae)
 angolensis DC.
 sphaerocarpa Gilg.
 sp. 1503
 sp. 1882
Maesopsis Engl. (Rhamnaceae)
 emlinii Engl.
Margaretta Oliv. (Asclepiadaceae)
 rosea N.E.Br.
Mariscus Gaertn. (Cyperaceae)
 macer Kunth.
 mollipes C.B.Cl.
Markhamia Seem. (Bignoniaceae)
 platycalyx (Bak.) Sprague

- Melanthera* Rohr. (Compositae)
 brownii (DC.) Sch.Bip.
 scandans (Schmach.& Thonn.) Brenan
Melothria L. (Cucurbitaceae)
 punctata (Thunb.) Cogn.
Michelia L. (Magnoliaceae)
 champaca L.
Microchloa R.Br. (Gramineae)
 kunthii Desv.
Microglossa DC. (Compositae)
 densiflora Hook.f.
Mimosa L. (Mimosaceae)
 pigra L.
Monechma Hochst. (Acanthaceae)
 ciliare Linn.f.
Moringa Juss. (Moringaceae)
 oleifera Lam.
Murdannia Royle (Commelinaceae)
 simplex (Vahl) Brenan

Notonia DC. (Compositae)
 abyssinicus A.Rich.
Nymphaea L. (Nymphaeaceae)
 caerulea Savi
 heudelotii Planch.
 lotus L.

Oldenlandia Plumier (Rubiaceae)
 herbacea (L.) Roxb.
 rosulata K.Schum. var. *parvifolia* Brem.
 verticillata Bullock ex Brem. var. *trichocarpa* Brem.
Oncoba Forsk. (Flacoutiaceae)
 spinosa Forsk.
Opilia Roxb. (Opiliaceae)
 celtidifolia Endl.
Oplismenus Beauv. (Gramineae)
 burmannii Beauv.
Ornithogalum L. (Liliaceae)
 sordidum Bak.
 sp.1975
Oryza L. (Gramineae)
 berthii A.Chev.
Osbeckia L. (Melastomaceae)
 sp.1758
 sp.1798
Ottelia Pers. (Hydrocharitaceae)
 ulvifolia Walp.
 sp.1797
 sp.2187
Oxalis L. (Oxalidaceae)
 corniculata L.

- Oxytenanthera Munro (Gramineae)
abyssinica (A.Rich.) Munro
- Pachycarpus E.Mey. (Asclepiadaceae)
grantii (Oliv.) Bullock
- Pandanus L. (Pandanaeae)
sp.
- Panicum L. (Gramineae)
atrosanguineum Hochst.
deustum Thunb.
dregeanum Nees.
fulgens Stapf
heterostachyum Hack
infestum Anders. ex Peter
maximum Jacq.
meyerianum Nees
porphyrrhizos Steud.
repens L.
sp.1246
- Paspalidium Stapf (Gramineae)
geminatum (Forsk.) Stapf
- Paspalum L. (Gramineae)
auriculatum Presl.
commersonii Lam.
conjugatum Berg.
notatum Fluegge
- Pavetta L. (Rubiaceae)
crassipes K. Schum.
schumanniana F.Hoffm. ex K. Schum.
- Pennisetum L.C.Rich (Gramineae)
catabasis Stapf & Hubbard
mezianum Leeke
polystachyon Schult.
purpureum Schumach.
- Perotis Ait. (Gramineae)
indica Kuntze
- Phoenix L. (Palmae)
reclinata Jacq.
- Phragmites Trin. (Gramineae)
mauritanus Kunth
- Phyllanthus L. (Euphorbiaceae)
discoideus Muell.Arg.
guineensis Pax
nummulariifolius Poir.
sp.2239 near guineensis Pax
- Phytolacca L. (Phytolaccaceae)
dodecandra L'Herit
- Ptilostigma Hochst. (Caesalpinhiaceae)
thonningii (Schumach.) Milne-Redh.
- Pistia L. (Araceae)
stratiotes L.

- Plectranthus* L'Herit (Labiatae)
 porpeodon L'Herit
 sp.2135
Pogonarthria Stapf (Gramineae)
 squarrosa Pilger
Poinciana Tourn. (Caesalpinaceae)
 regia Raf.
Polycarpaea Lam. (Caryophyllaceae)
 eriantha (Hochst.) A. Rich.
Polygala L. (Polygalaceae)
 albida
 amboniensis Guerke
 arenaria Willd.
 petitiana A. Rich.
 sp.2047
Polygonum L. (Polygonaceae)
 salicifolium Brouss. ex Willd.
 senegalense Meisn. forma *senegalense*
 sp.1651
Popowia Endl. (Annonaceae)
 djurensis Engl. & Diels
Portulaca L. (Portulacaceae)
 quadrifida L.
Protea L. (Proteaceae)
 mediensis Oliv.
Pseudarthria Wight & Arn. (Papilionaceae)
 hookeri Wight & Arn.
Pseudocedrela Harms. (Meliaceae)
 kotschyi (Schweinf.) Harms.
Pycnostachys Hook. (Labiatae)
 stuhlmanni Guerke
Pycreus Beauv. (Cyperaceae)
 fallaciosus Cherm.
 lanceus Thunb.
 mundtii Nees
 nigricans C.B.Cl.
 polystachyos (Rottb.) Beauv. var. *laxiflorus* (Benth.) C.B.Cl.
 sp.1658
 sp.1680
 sp.1994

Raphia Beauv. (Palmae)
 monbuttorum Drude
Rhamphicarpa Benth. (Scrophulariaceae)
 herzfeldiana Vatke
 tubulosa Benth.
Rhoicissus Planch. (Ampelidaceae)
 erythrodes (Fresen.) Planch.

- Rhus* L. (Anacardiaceae)
 incana Mill var. *tomentosa* (Oliv.) Burt-Davy
 natalensis Bern ex Krause
 ochracea Meikle
 vulgaris Meikle
Rhynchelytrum Nees (Gramineae)
 repens Hubbard
Rhynchosia Lour. (Papilionaceae)
 imbricata Bak.
 sublobata (Schumach.) Meikle
 sp. 1943
Rhynchospora Vahl corr. Willd. (Cyperaceae)
 brownii Roem. ex Schult.
 corymbosa Britton
Ritcheia R.Br. (Capparidaceae)
 duchesnei (de Wild.) Keay
 macrocarpa Gilg
Rotboellia Linn.f. (Gramineae)
 exaltata Linn.f.
Ruellia L. (Acanthaceae)
 patula Jacq.
 sp. 1814
 sp. 1963
 sp. 2034
- Saccharum* L. (Gramineae)
 spontaneum L. var. *aegyptiacum* Hack
 sp. 2297
Sacciolepis Nash (Gramineae)
 africana Hubbard & Snowden
 auriculata Stapf
 brevifolia Stapf
Sansevieria Thunb. (Liliaceae)
 dawei
Scirpus L. (Cyperaceae)
 confusus N.E.Br.
Scleria Berg. (Cyperaceae)
 hirtella Schwartz
 lithosperma (L.) Sw.
 sp. near *melanophala* Kunth
 sp. 1704
 sp. 1895
Scutia Comm. ex Brongn. (Rhamnaceae)
 myrtina (Burm.f.) Kurz
Secamone R.Br. (Asclepiadaceae)
 platystigma K. Schum.
 punctulata Decne
Securidaca L. (Polygalaceae)
 longipedunculata Fresen.
Senecio L. (Compositae)
 discifolius Oliv.
 stuhlmannii Klatt
 sp. 2015

- Sesamum L. (Pedaliaceae)
 angustifolium (Oliv.) Engl.
- Setaria Beauv. (Gramineae)
 aequalis Stapf
 atrata Hack ex Engl.
 caudula Stapf
 holstii Herrmann
 incrassata Hack
 lasifissa
 longiseta Beauv.
 pallidifusca Stapf & Hubbard
 sphaecelata Stapf & Hubbard
 splendida Stapf
 trinervia Stapf
 verticillata Beauv.
- Sida L. (Malvaceae)
 alba L.
 cordifolia L.
- Solanum L. (Solanaceae)
 incanum L.
- Sonchus L. (Compositae)
 oleraceus L.
- Sopubia Buch-Ham.
 densiflora Sken.
 ramosa Hochst.
 simplex Hochst.
 sp. near simplex Hochst.
- Sorghum Pers. (Gramineae)
 purpureo-sericeum Aschers & Schweinf.
 rigidifolium Stapf
 verticilliflorum Stapf
- Spathodea Beauv. (Bignoniaceae)
 campanulata Beauv.
- Sphaeranthus Vaill. (Compositae)
 chandleri Ross-Craig
 randii S. Moore var. *bibracteata* Ross-Craig
- Sporobolus R.Br. (Gramineae)
 capensis Kunth
 festivus Hochst. ex A. Rich
 marginatus Hochst. ex A. Rich.
 molleri Hack
 pellucidus Hochst.
 piliferus Kunth
 pyramidalis Beauv.
 spicatus Kunth
- Stathmostelma (Asclepiadaceae)
 rhacodes K. Schum.
- Steganotaenia Hochst. (Umbelliferae)
 araliacea Hochst.
- Sterculia L. (Sterculiaceae)
 setigera Del.

- Stereospermum* Cham. (Bignoniaceae)
 kunthianum Cham.
Striga Lour. (Scrophulariaceae)
 asiatica Kuntze
 canescens Engl.
 forbesii Benth.
 gesnerioides Vatke
 sp. near glandulifera Engl.
Strychnos L. (Loganiaceae)
 innocua Del.
 myrcioides S. Moore
 wakefieldii Bak.
Stylosanthes Sw. (Papilionaceae)
 mucronata Willd.
Synadenium Boiss. (Euphorbiaceae)
 grantii Hook. f.
- Tacca* J.R. & G. Forst. (Taccaceae)
 involucrata Schumach. & Thonn.
Tamarindus Tourn. ex L. (Caesalpinaceae)
 indica L.
- Tarenna* Gaertn. (Rubiaceae)
 graveolens (S. Moore) Brem.
Teclea Del. (Rutaceae)
 grandifolia Engl.
 nobilis Del.
 trichocarpa (Engl.) Engl.
Tephrosia Pers. (Papilionaceae)
 vogelii Hook. f.
 sp. 1219
 sp. 1906
 sp. 2191
 sp. 2202
- Teramnus* Swartz (Papilionaceae)
 gilletii Bak.
Terminalia L. (Combretaceae)
 brownii Fresen.
 macroptera Guill. & Perr.
 sericea Burch
 spekei Rolfe
 torulosa F. Hoffm.
 velutina Rolfe
- Themeda* Forsk. (Gramineae)
 triandra Forsk.
- Thunbergia* L. (Acanthaceae)
 alata Boj.
- Timnea* Kotschy & Peyr. (Labiatae)
 aethiopica Kotschy & Peyr.
- Trachypogon* Nees (Gramineae)
 plumosus Nees

- Tragus* Haller (Gramineae)
 berteronianus Schult.
Tricalysia A. Rich. (Rubiaceae)
 nianniamensis Schweinf.
Trichilia L. (Meliaceae)
 emetica Vahl
Trichocladus Pers. (Hamamelidaceae)
 nelosanus Bak.
Tridax L. (Compositae)
 procumbens L.
Triumfetta L. (Tiliaceae)
 rhomboidea Jacq.
Typha L. (Typhaceae)
 australis Schumach. & Thonn.
- Urena* Dill. ex L. (Malvaceae)
 lobata L.
Urginea Steinh. (Liliaceae)
 micrantha Solms-Laub.
Urochloa Beauv. (Gramineae)
 panicoides Beauv.
- Vangueria* Juss. (Rubiaceae)
 acutiloba Robyns
 apiculata K. Schum.
Vernonia Schreb. (Compositae)
 amygdalina Del.
 brachycalyx Hoffm.
 duermeri Moore
 gerberaeformis Oliv. & Hiern.
 grantii Oliv.
 pumila Kotschy & Peyr.
 schweinfurthia Oliv. & Hiern.
 smithiana Less.
 violacea Oliv. & Hiern
Vigna Savi (Papilionaceae)
 gracilis Hook. f.
 reticulata Hook. f.
 vexillata Benth.
 sp. 1925
 sp. 1980
 sp. 2246
Vitex L. (Verbenaceae)
 doniana Sweet
 fisheri Guerke
Vossia Wall & Griff (Gramineae)
 cuspidata Griff.

Waltheria L. (Sterculiaceae)
 americana L.
 Wedelia Jacq. (Compositae)
 menotriche Oliv. & Hiern
 Wissadula Medik. (Malvaceae)
 amplissima (L.) R.E.Fries
 amplissima (L.) R.E.Fries var. rostrata (Schumach)
 R.E.Fries

Ximenia L. (Olacaceae)
 americana L.

Ziziphus Mill. (Rhamnaceae)
 abyssinica Hochst. ex A.Rich.
 mauritiana Lam.
 pubescens Oliv.

incomplete identifications: Compositae 1, Bignoniaceae 1.

PTERIDOPHYTA

Asplenium L.
 sp.1923
 Dryopteris Adans
 gongyloides (Schkuhr.) Kuntze
 striata (Schumach.) C.Chr.
 thelypteris (L.) A.Gray
 sp.2298
 Pellaea Link
 viridis Link
 sp.1926
 Polypodium L.
 phymatodes L.

unidentified pteridophyta: 3

BRYOPHYTA

unidentified bryophyta: 4

Note: these lists do not duplicate the herbarium list as a number of species were determined in the field and so do not feature in the herbarium collection; while other species, cited in the herbarium list, were collected outside the North Mingo Lowlands.

Names of authors are abbreviated in accordance with the current practice of the African section of Kew Herbarium.

Appendix D.

A Taxonomic Analysis of the Flora of the
North Mingo Lowlands.

(i)	Total number of species recorded:		717
	Spermaphyta		702
	Angiospermae	702	
	Gymnospermae	0	
	Pteridophyta		11
	Bryophyta		4

The angiosperm flora has been analysed according to the system of classification proposed by Hutchinson in the Families of the Flowering Plants (1926. 1934).

(ii)	Total number of angiosperm species:		702
	Dicotyledones		410
	Archichlamydeae	249	
	Metachlamydeae	161	
	Monocotyledones		292
	Calyciferae	22	
	Corolliferae	43	
	Glumiflorae	227	

These species are classified in 86 families of 57 orders. The following table shows the number of species in each family and order.

SUB-PHYLUM DICOTYLEDONES

Division I Archichlamydeae

ORDERS		FAMILIES	
Magnoliales	1	Magnoliaceae	1
Annonales	2	Annonaceae	2
Ranales	5	Ranunculaceae	2
		Nymphaeaceae	3
Capparidales	14	Capparidaceae	13
		Moringaceae	1
Polygalales	6	Polygalaceae	6
Saxifragales	1	Crassulaceae	1
Caryophyllales	2	Caryophyllaceae	1
		Portulacaceae	1
Polygonales	3	Polygonaceae	3
Chenopodiales	4	Phytolaccaceae	1
		Amarantaceae	3
Geraniales	2	Oxalidaceae	2
Lythrales	4	Lythraceae	1
		Onagraceae	3
Thymeliales	3	Thymeliaceae	2
		Nyctaginaceae	1
Proteales	1	Proteaceae	1
Bixales	1	Flacourtiaceae	1
Cucurbitales	1	Cucurbitaceae	1
Myrtales	15	Melastomaceae	3
		Combretaceae	12
Tiliales	12	Tiliaceae	9
		Sterculiaceae	3
Malvales	9	Malvaceae	9

ORDERS		FAMILIES	
Euphorbiales	24	Euphorbiaceae	24
Leguminosae	78	Caesalpinaceae	10
		Mimosaceae	22
		Papilionaceae	46
Hamamelidales	1	Hamamelidaceae	1
Urticales	11	Ulmaceae	1
		Moraceae	10
Celastrales	7	Celastraceae	5
		Hippocrateaceae	2
Olacales	2	Olacaceae	1
		Opiliaceae	1
Santalales	1	Santalaceae	1
Rhamnales	11	Rhamnaceae	5
		Ampelidaceae	6
Rutales	10	Rutaceae	7
		Simaroubaceae	3
Meliales	2	Meliaceae	2
Sapindales	13	Sapindaceae	3
		Melanthaceae	1
		Anacardiaceae	9
Umbelliflorae	3	Araliaceae	1
		Umbelliferae	2

Division II Metachlamydeae

Ebenales	4	Ebenaceae	3
		Sapotaceae	1
Loganiales	4	Loganiaceae	3
		Oleaceae	1
Apocynales	9	Apocynaceae	2
		Asclepiadaceae	7
Rubiales	17	Rubiaceae	17
Asterales	50	Compositae	50

ORDERS		FAMILIES	
Gentianales	3	Gentianaceae	3
Primulales	1	Primulaceae	1
Campanulales	2	Campanulaceae	2
Boraginales	2	Boraginaceae	2
Solanales	7	Solanaceae	1
		Convolvulaceae	6
Personales	41	Scrophulariaceae	14
		Bignoniaceae	6
		Pedaliaceae	1
		Acanthaceae	20
Lamiales	21	Verbenaceae	5
		Labiatae	16

SUB-PHYLUM MONOCOTYLEDONES

Division I. Calyciferae

Butomales	3	Hydrocharitaceae	3
Alismatales	1	Alismataceae	1
Commelinales	16	Commelinaceae	16
Zingiberales	2	Zingiberaceae	2

Division II. Corolliferae

Liliales	19	Liliaceae	18
		Pontederiaceae	1
Arales	2	Araceae	1
		Lemnaceae	1
Typhales	1	Typhaceae	1
Amaryllidales	1	Amaryllidaceae	1
Iridales	1	Iridaceae	1
Palmals	3	Palmae	3

ORDERS		FAMILIES	
Pandanales	1	Pandanaceae	1
Haemodiales	4	Hypoxidaceae	3
		Taccaceae	1
Orchidales	11	Orchidaceae	11

Division III. Glumiflorae

Cyperales	63	Cyperaceae	63
Graminales	164	Gramineae	164

Appendix E.

The Herbarium Collection.

The collection is arranged according to Hutchinson's classification (1926, 1934). Specimens of Pteridophytes and Bryophytes are placed after the Gramineae.

The following lists are presented with the collection to facilitate cross-reference: a list of the specimens in numerical order, and two lists showing the families of the flowering plants arranged phylogenetically (Hutchinson 1926, 1934), and alphabetically.

All specimens have been air dried, dehydrated and poisoned, and dusted with insecticide. The solution used to dehydrate and poison the specimens was made up as follows:

Mercuric chloride	4 gm.
Creosol	40 cc.
Industrial spirit	3 L

The specimens bear two labels. One gives a field description of the material including transient features such as colour, and describing the plant very generally to avoid confusion of specimens during preparation. This is not intended to be a botanical description of the specimen but rather as a supplement to the information of the specimen itself. The other label gives the main features of the location, topography, soil, vegetation and climate of the site where the specimen was collected.

Specimens prior to number 1160 and those marked X were collected outside the area of the North Mingo Lowlands.

Duplicates of the specimens have been lodged with the East African Herbarium, Nairobi, Kenya, and in the herbarium at Kawanda Agricultural Research Station, Uganda.

Appendix F. Aerial Photographs.

Photographs 1 & 2.

Run : CPE/UG/4 Part 1.
Numbers : 5114 and 5115.
Date of Photography : 22.10.47.
Lens (f) : 154.6 mm. (approx. 6 inches)
Height of aircraft : 19,000 ft.
Ground elevation : 3400 - 3500 ft.
Approximate scale : 1 : 31,000.
Location : centre point of aerial
photograph 1 (5114) is 5 miles
west of Iwampanga, North Mengo.

Notes: Centre points and transferred centre points
marked with crosses and numbered, and joined
by base line. Tie points circled.

Top.
Photo 1.

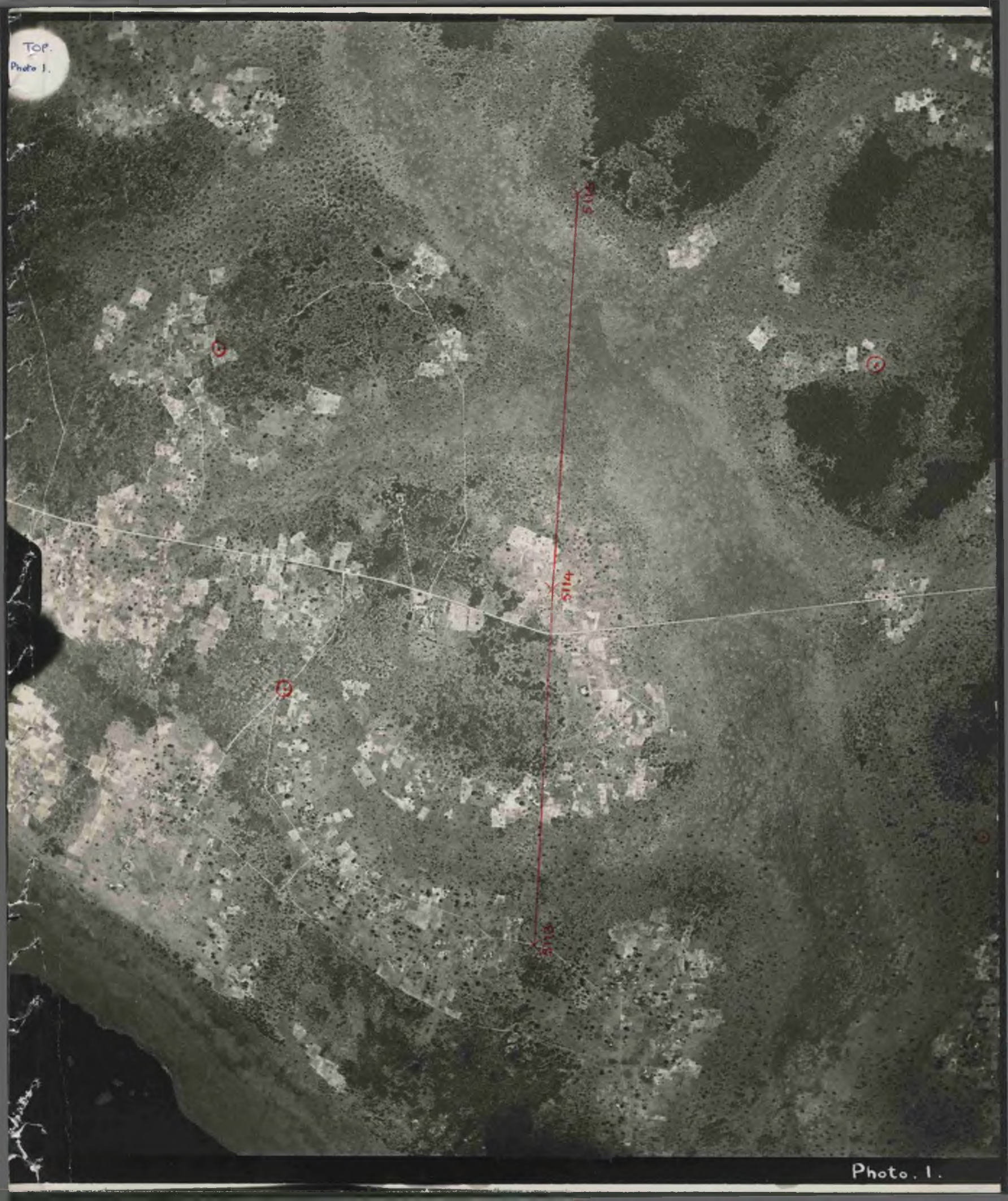


Photo. 1.

TOP

Photo 2.

516

515

514

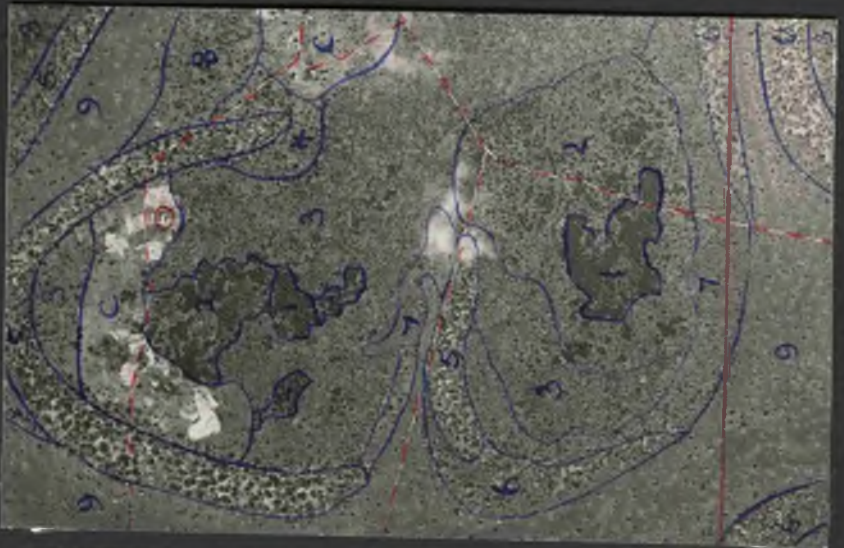
Photo. 2 .

Photographs 3 & 4.

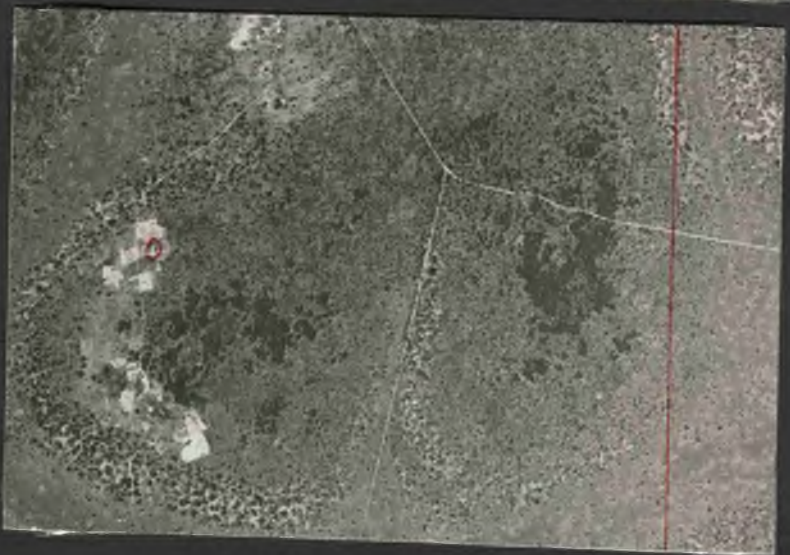
Run : CPE/UG/4 Part I.
Numbers : 5084 & 5086 (a stereo-pair).
Date of Photography : 22.10.47.
Lens (f) : 154.6 mm. (approx. 6 inches).
Height : 19,000 ft.
Ground elevation : 3450 - 3550 ft.
Approximate scale : 1 : 31,000.
Location : the tie-point is about 10 miles west of Lwampanga, North Mengo.

Notes:

1. Part of the overlap of photographs 5084 & 5086 has been mounted for viewing with a lens stereoscope.
2. The solid red lines near, and parallel to, the bottoms of the prints are the mutual base line.
3. One tie point is shown near the tops of the prints, the others are located elsewhere.
4. Useful tracks are marked with dashed red lines.
5. Changes in pattern, tone or texture are delineated in blue, the different areas being designated 1 - 9 and C (cultivation).
6. The difference in the scales of the two prints is due to tilt.



4



3

Appendix G. Photographs of the Vegetation.

Photograph 5.

Site 351a (group 13), site 351b (group 1),
and site 352a (group 9).

- a. Site 352a. The concentration of trees in the left background is part of an adjacent community on the lower hillside.
- b. Site 351a. Grass layers dominated by Setaria sphacelata. The shrubby trees are mostly Combretum spp.
- c. Site 351b. Thicket on valley anthill. About 15 ft. high and 20 ft. wide.

Note: for further details of the communities in these photographs refer to the site data in Appendix A via the group number.

Photograph 6.

Site 352a (group 9) and site 352b
(group 1).

- a. Site 352a.
- b. Site 352b. Thicket centred on anthill on a lower hillside. About 25 ft. high and 60 ft. wide.

5



6



Photograph 7.

Site 450 (group 3).

Extensive thicket round ironstone outcrop (b) and rock pool (c). The height of the main canopy (N.B. Teclea nobilis (a)) is from 15 to 20 ft. Emergent trees (Albizzia coriaria (d)) rise to 40 ft. high.

Photograph 8.

Site 392 (group 4).

- a. The three trees in the foreground (about 35 ft. high) and most of the trees in the background are Combretum gueinzii.
- b. Concentration of trees round a thicket-less anthill.
- c. Hymenocardia acida.

The sparsity of shrubby species is typical of the group 4 communities.

The grass layers are dominated by Loudetia arundinacea. The habit of this grass can be seen better in the next photograph.

7



8



Photograph 9.

Site 309 (on the boundary of communities belonging to groups 4 and 5).

a. Loudetia arundinacea.

Photograph 10.

Site 353a (group 5).

a. Combretum gueinzii (20 - 30 ft. high).

b. Bridelia scleroneuroides (6 ft. & 8 ft. high).

Note also the amount of shrubby growth compared with photo 8, and the free-tillering habit of the grass layers dominated by Hyparrhenia filipendula.

9



a

10



a

a

a

Photograph 11.

Site 364 (group 8).

- a. Acacia siebariana (40 ft.)
- b. Combretum binderanum (12 ft.)
- c. A grass covered anthill can be seen in the middle-distance. Trees (mostly Combretum spp.) are concentrated round the anthill but are not growing on it.
- d. Combretum gueinzii (35 ft.)

The grass layers are dominated by Hyparrhenia dissoluta.

Photograph 12.

Site 447 (group 9) and site 448
(group 3).

- (foreground and left) Site 447, showing Borassus aethiopum (a), 45 ft. high, in Hyparrhenia filipendula - H. dissoluta - Combretum gueinzii scattered tree grassland post cultivation.
- b. Site 448. Anthill thicket.

11

a

b



d

c

12

a

b



Photograph 13.

Site 388 (group 11).

- a. Piliostigma thonningii (9 ft.)
- b. Sorghum rigidifolium.
- c. Acacia hebecladoides (30 ft.)
- d. The concentration of trees in the background is in an adjacent community.

Photograph 14.

Site 300 (group 12) and Site 301
(group 12).

- a. Combretum ghasalense (12 ft.), also present in the middle-distance left (site 301) with Combretum binderanum.
- b. Acacia seyal var. fistula (20 ft.), also in the middle-distance right (Site 300).

The grass layers are dominated throughout by Themeda triandra.

Photographs 13 and 14 illustrate two of the differences between the gently undulating and low rolling country of the North Mengo Lowlands. Photograph 13 shows the lower relief and wider valleys of the gently undulating country in the lake fringe region. Photograph 14 is typical of the low rolling country.

13



14



Photograph 15.

Location: 5 miles west of Luwero, North Mengo.

Vegetation: Cyperus papyrus swamp (group 14).

Photograph 16.

View to the south from Sungira 4198 ft.
(Nakasongola Hill) over the low rolling country of
the North Mengo Lowlands.

- a. Kasagala 3794 ft.
- b. Low rolling country (hilltops c.3600 ft.,
valleys c.3500 ft.)
- c. Sungira.

15



16



ECOLOGICAL SURVEY SHEET 2—SOIL PROFILE

Date

Site number

Profile Number

Nature of the Exposure:

Depth

Colour wet

Colour dry

Texture

Structure

Consistency

Aeration

Drainage

Stones

Roots

Minerals

Carbonate

pH

Organic matter

Additional information

APPENDIX K.

(1) ECOLOGICAL SURVEY SHEETS.

ECOLOGICAL SURVEY SHEET 3—SURFACE SOIL

Date

Site number

Sample number

Approximate depth

Colour wet

Colour dry

Texture

Structure

Consistency

Aeration

Drainage

Stones

Roots

Minerals

Carbonate

pH

Organic matter

Additional information

APPENDIX K.

(1) ECOLOGICAL SURVEY SHEETS.

ECOLOGICAL SURVEY SHEET 4—VEGETATION

Date

Site number

Type

Tree density

Dominant

Abundant

Frequent

Occasional

Rare

Very rare

Collection: Trees numbers

Herbs numbers

Additional information

APPENDIX K.

(1) Ecological Survey Sheets.

ECOLOGICAL SURVEY SHEET 1—GENERAL

Date

Site number

Location : District

Saza

Gombolola

Map reference

Situation : Hilltop, Hillside, Valley

Elevation

Slope

Aspect

Relief

Parent rock

Recent weather conditions

Catenary sequence

Land condition : Deposition, Depletion, Erosion

Soil type

Vegetation type

Cultivable proportion

Additional information

APPENDIX K.

(i) ECOLOGICAL SURVEY SHEETS.

Addendum to Appendix B.

A comparison of the field texture ratings and mechanical analyses of selected profiles.

Site No.	Ledger No.	Field Rating	Mechanical Analysis (< 2 mm.)		
			Clay %	Silt %	Sand %
300	11884	C			
	11885	C	48	10	42
	11886	C	64	6	30
309	11918	FSCL	30	0	70
	11919	FSCL	44	0	56
	11920	FSC	48	2	50
	11921	FSC	45	4	51
343	12508	FSCL	30	4	66
	12509	FSCL	40	6	54
	12510	FSCL	44	2	54
	12511	FSCL	46	4	50
	12512	FSCL	40	4	56
348	12531	FSCL	28	3	69
	12532	FSCL	38	1	61
	12533	FSCL	44	2	54
	12534	FSCL	44	4	52
	12535	FSCL	26	6	68
351a	12695	FSL	12	11	77
	12696	FSL	20	5	75
	12697	FSL	25	7	68
	12698	FSCL	31	6	63
	12699	FSCL	48	0	52
	12700	C	46	5	49
	12701	C	41	7	52
352a	12702	FS	0	6	94
	12703	FS	5	2	93
	12704	FS	0	8	92
	12705	FS	16	2	82
	12706	FSL	15	5	80
358	12727	FSL	24	13	63
	12728	FSL	18	5	77
	12729	FSL	22	13	65
	12730	FSC	54	2	44
	12731	FSC	49	0	51

Site No.	Ledger No.	Field Rating	Mechanical Analysis (< 2 mm.)		
			Clay %	Silt %	Sand %
362	12741	FSCL	26	6	68
	12742	LFS	12	13	75
	12743		10	8	82
378	12942	LFS	12	13	75
	12943	FSL	10	8	82
	12944	SL-S	6	2	92
	12945	FSL	26	4	70
	12946	S	0	0	100
	12947	LS	10	1	89
	12948	LS	8	0	92
	12949	FSL	20	0	80
391	13082	S	5	2	93
	13083	S	5	3	92
	13084	S	4	3	93
	13085	S	3	2	95
	13086	S	6	1	93
426	13310	FSL	16	9	75
	13311	FSL	18	10	72
	13312	FSCL	16	9	75
	13313	SCL	14	4	82
	13314	FSCL	40	4	56

C = Clay

S = Sand

L = Loam

FS = Fine Sand

APPENDIX B. ADDENDUM.

FIELD SOIL DESCRIPTION SHEET *Copy*

Profile No: 391	Locality: 9.37m Batakunwula (main road) - Kakoy	Map Ref: 322500 005935	Series:	General Group:
Sampled by: LB	Site: 391	4-10-54	Type:	World Group:
Date: 12.4.56	Mengo.			
Elev.: 3560 Ft. O.D.	Drainage profile: free draining	Parent Material:	Vegetation (Natural, Crops, Weeds): w/B.A. grazed intermittently when not cultivated. burnt in conjunction with grazing. cultivated 3-8 years ago. small mounds*	Index Data:
Slope: 20	Site: lower hillside	Parent Rock:		Map Symbols:
Aspect: SSE				Map Colour { Series Gen. Grp.
Relief: Macro: low rolling Micro: large ant hills*				
Weather conditions { (1) prior to sampling: heavy rain (2) and at sampling: dry.	Erosion Effect: Colluvial			Rainfall: Temp:

Layer Depth and Clarity	Colour and Disposal	Texture	Min. Skeleton (Stones)	Structure	Constitution		Organic Matter	Roots	Water conditions	Sec. Chem. and Minerals	Fauna #	CO ₂	Bag No.	Ledger No.
					Visible Porosity	Handling Consistency								
0-8" d	10YR 5.1 U grey	sand	abs	granule	Small	loose	3	4	D/M					13082
8-19 f.s.	"	"	"	"	"	"	2	3	D/M					13083
19-43 d	10YR 5.2 U grey brown	"	"	"	"	"	1	3	D					13084
43-63 a	10YR 7.2 U light grey	"	"	"	"	"	1	2	W					13085
63-84	2.5Y 7.2 U light grey.	"	"	crumb.	"	firm	0	1	W					13086

APPENDIX K

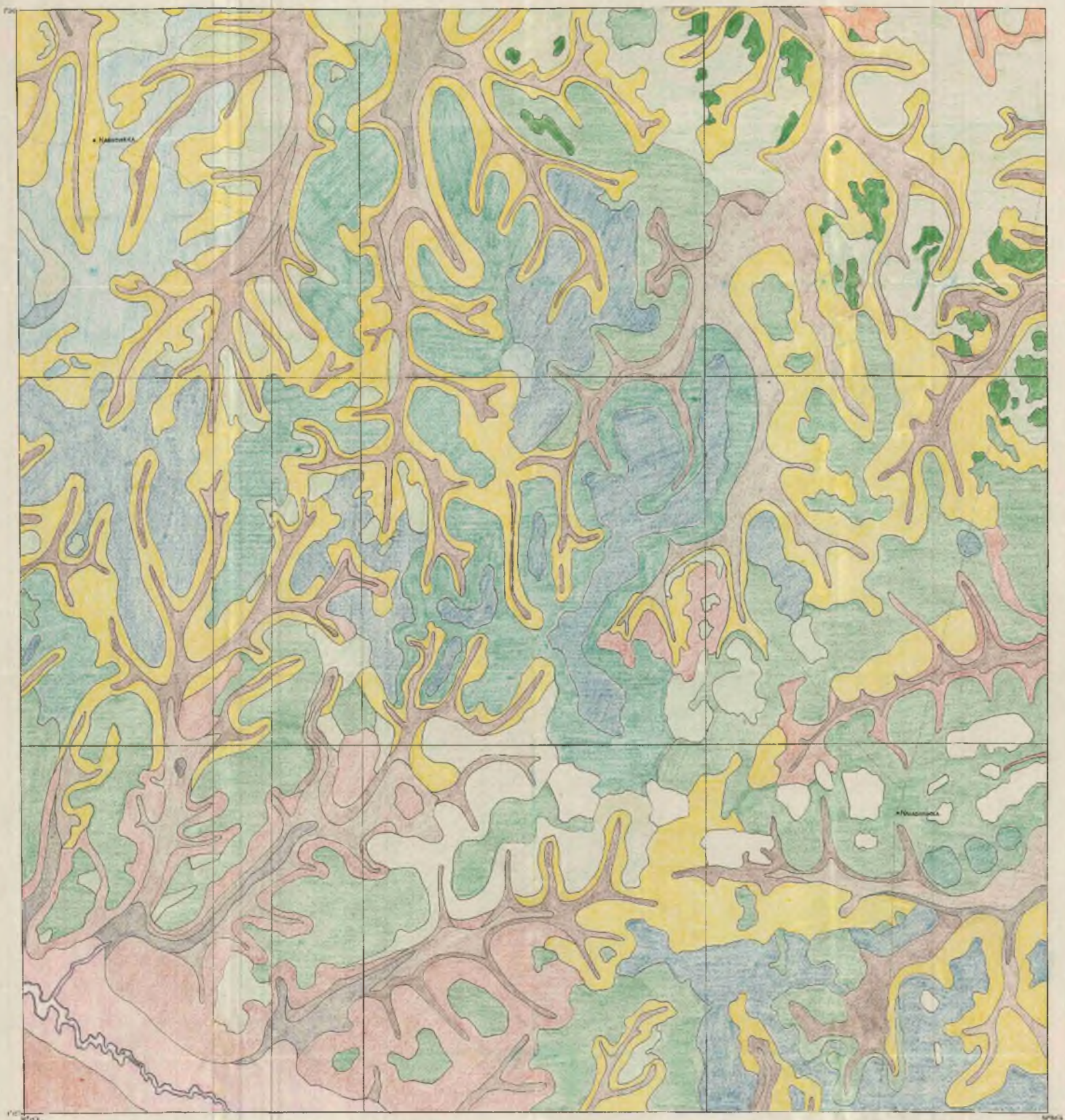
(K) FIELD SOIL DESCRIPTION SHEETS.



APPENDIX H

1:50,000 VEGETATION MAPS

SHEET NORTH A 36 O.3.N.E.



NORTH A36 O.3.NE VEGETATION 1:50,000

Vegetation detail from 1:50,000 various aerial photographs, traverses, and specimens. Photo control based on Uganda Survey Department sheet A36

118-119

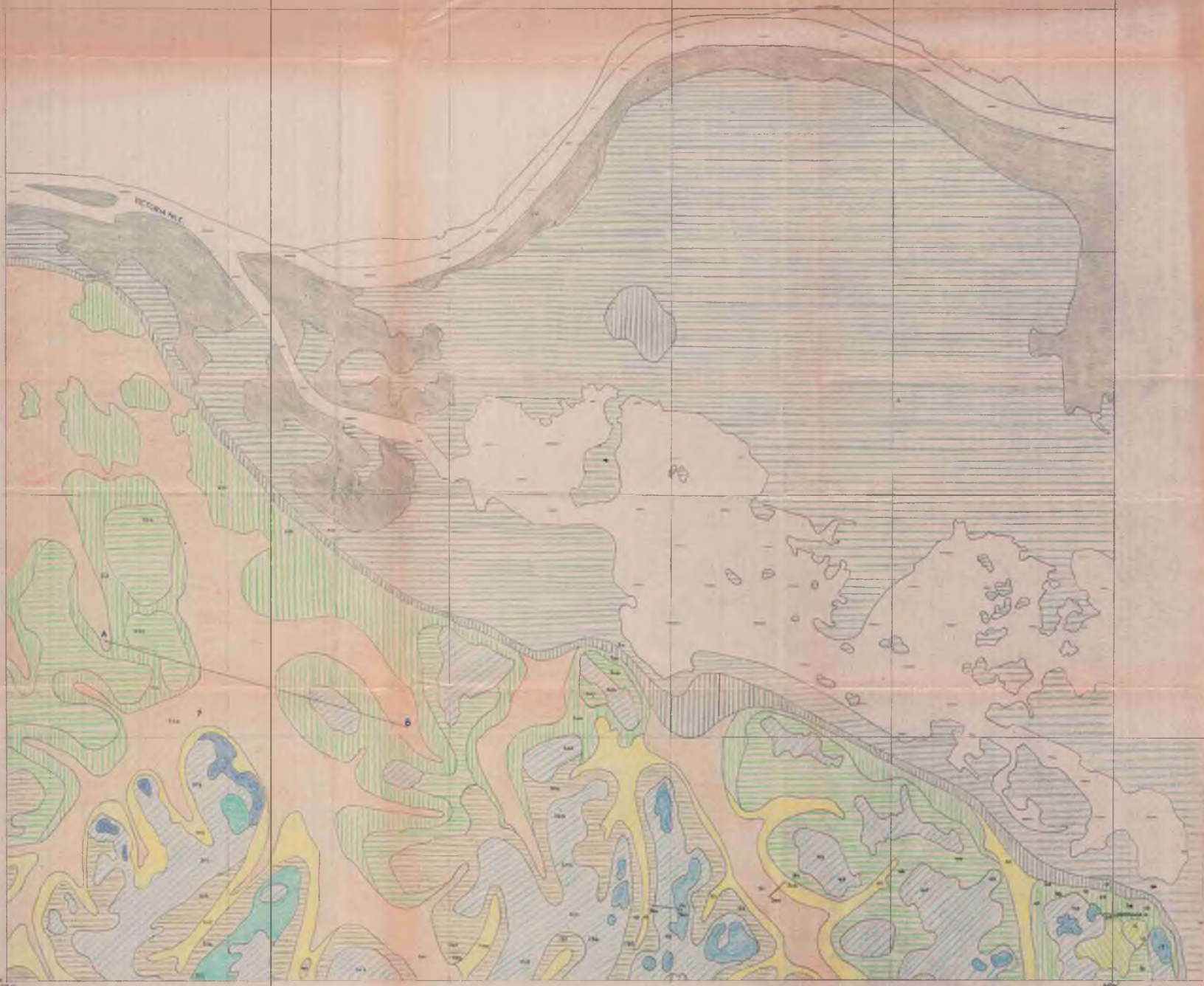
- | | | |
|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| TERNER PLAIN VALLEY BRUSHLAND | <i>Combretum aegyptium</i> - <i>Hybanthus pluriolus</i> with small <i>Trochodendron</i> | <i>Lantana camara</i> - <i>Verbena stricta</i> - <i>Passiflora foetida</i> - <i>Ipomoea pes-caprae</i> |
| <i>Hybanthus bogotanus</i> VALLEY BRUSHLAND | SCATTERED <i>Acacia robusta</i> - <i>Acacia robusta</i> - <i>Euphorbia corollata</i> - <i>Trochodendron</i> | <i>Verbena stricta</i> |
| <i>Hybanthus pluriolus</i> VALLEY BRUSHLAND | <i>Dioscorea alata</i> - <i>Passiflora foetida</i> - <i>A. robusta</i> - <i>Euphorbia corollata</i> - <i>Trochodendron</i> | IRON PILES (NOT MAPPED ON THIS SCALE) |
| <i>Bauhinia glabra</i> - <i>Clusia rosea</i> - <i>Clusia rosea</i> - <i>Artibeus</i> in <i>Hybanthus pluriolus</i> | <i>Hybanthus pluriolus</i> - <i>Combretum aegyptium</i> - <i>Acacia robusta</i> - <i>Trochodendron</i> | BOUNDARIES OF VEGETATION TYPES |
| <i>Passiflora foetida</i> - <i>Acacia robusta</i> - <i>Clusia rosea</i> - <i>Artibeus</i> in <i>Hybanthus pluriolus</i> | <i>Hybanthus pluriolus</i> - <i>Combretum aegyptium</i> - <i>Acacia robusta</i> - <i>Trochodendron</i> | ROAD |
| <i>Passiflora foetida</i> - <i>Acacia robusta</i> - <i>Clusia rosea</i> - <i>Artibeus</i> in <i>Hybanthus pluriolus</i> | <i>Combretum aegyptium</i> - <i>Hybanthus pluriolus</i> - <i>Acacia robusta</i> - <i>Trochodendron</i> | FLOOD RIVER |

APPENDIX H

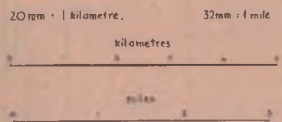
1:50,000 VEGETATION MAPS.

SHEET NORTH A 36 O.I. S.E.

L A N G O



UGANDA VEGETATION
sheet North A 36 O 1 S.E.
Scale 1:50,000.



Vegetation boundaries Sampled sites 2A
Boundary analysis sites 200-206 incl
Number refers to *Kilimanjaro* rept - vol. 19 35-116

- Stem of Strobilium with leaves of and *Phoradendron* (27)*
- Taxodium 5-5 with *Acacia* (4)*
- Podocarpus 5-5 with *Acacia* (27)*
- Celastrus 5-5 (2)*
- Flacaria *Chloris* (4)*
- Podocarpus *Strobilium* (2)*
- Open park*
- Clusia *Strobilium* in *Phoradendron* (2)*

- Acacia *Platanus* *Euphorbia* *Candelabra* *Acacia* *Senecio* *Continuous* (5)*
- Balanites *Acacia* *Senecio* *Continuous* (5)*
- Podocarpus *Celastrus* *Podocarpus* *Continuous* (5)*
- Strobilium *Podocarpus* *Podocarpus* *Continuous* (5)*
- Podocarpus *Podocarpus* *Podocarpus* *Continuous* (5)*
- Acacia *Podocarpus* *Podocarpus* *Podocarpus* *Continuous* (5)*
- Podocarpus *Podocarpus* *Podocarpus* *Continuous* (5)*
- Podocarpus *Podocarpus* *Podocarpus* *Continuous* (5)*

APPENDIX I








1:250,000 GENERAL MAP.

NORTH MENGO LOWLANDS.

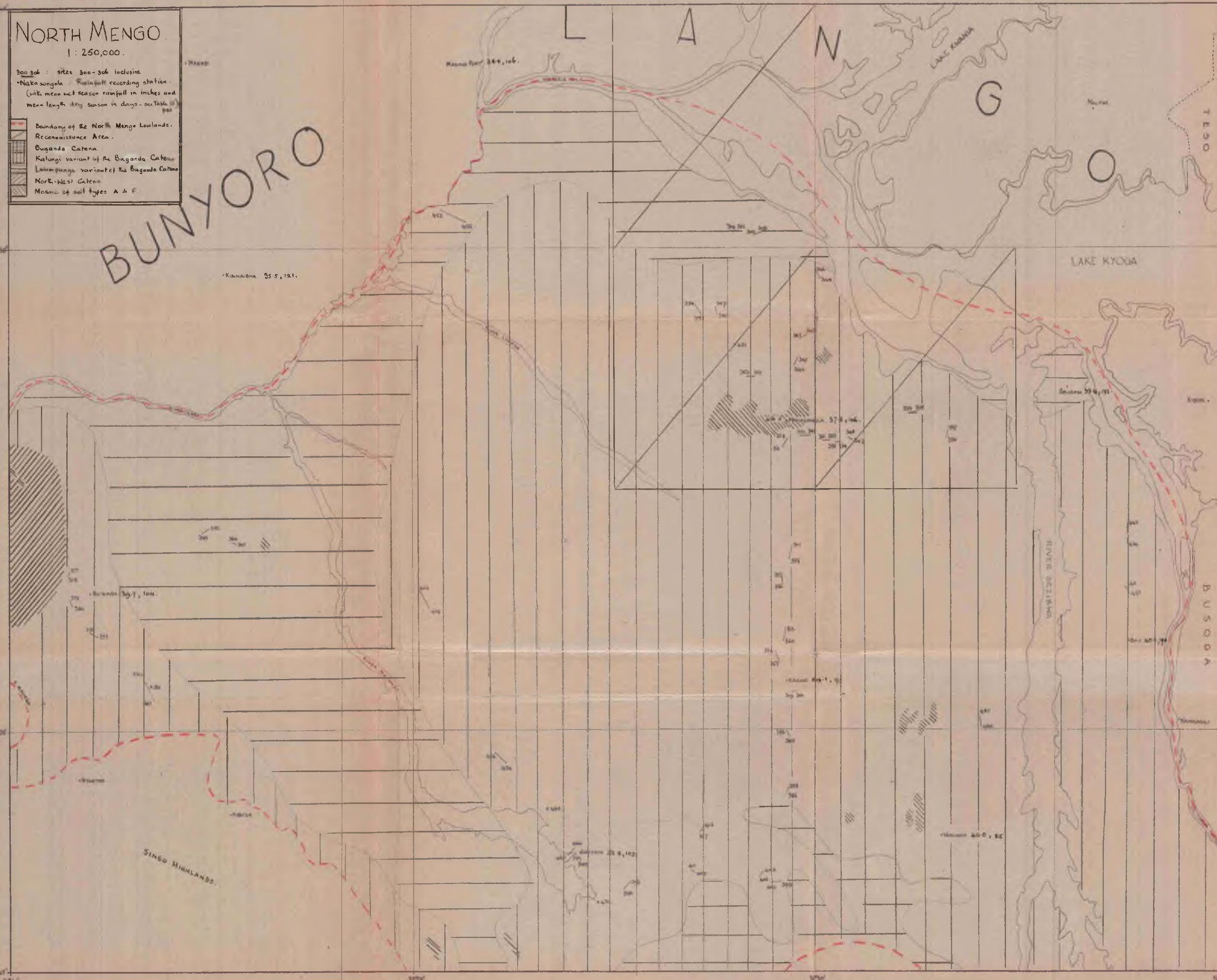
NORTH MENGU.

1 : 250,000.

300 306 : sites 300-306 inclusive
• Nakasongola : Pilsbry recording station.
(with mean wet season rainfall in inches and
mean length of dry season in days - see Table II)

-  Boundary of the North Mungu Lowlands.
-  Reconnaissance Area.
-  Buganda Catena.
-  Katangi variant of the Buganda Catena.
-  Lukimpanga variant of the Buganda Catena.
-  North-West Catena.
-  Mosaic of soil types A & F.

BUNYORO



APPENDIX J

UGANDA SURVEY DEPT: MENGO DISTRICT (WEST) 1:250,000.

