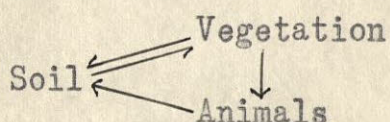


INTRODUCTION.

Under natural conditions, the vegetation, climate, (sens. lat.) and soil conditions may be regarded as being in a state of dynamic equilibrium. It is also considered logical to include the fauna as a constituent of the system, since it is dependent, and may have a considerable influence upon the vegetation. (Phillips, 1930).

In a rain forest area, for example, the soil is protected against erosion by the vegetation. There is an efficient conservation of soil nutrients, and no wholesale removal of them. Such nutrients as are locked up in the vegetation eventually return to the soil in the form of vegetable debris and the excreta of animals or their dead bodies. Nutrients removed by the slow process of geological erosion are believed to be replenished by the slow weathering of the parent material from which the soil has been derived. For practical purposes, the nutrients may be regarded as moving in a closed cycle:-



The climate within a forest tends to be much more equable than outside it, i.e. general climatic conditions are considerably modified within a great mass of vegetation, and it has been suggested that the effect may be discernible beyond the immediate forest boundaries. (Moor, 1939).

Felling the forest prior to the cultivation of the land disturbs the natural equilibrium, and the changes which follow in the climate (sens. strict.), soil and vegetation, are little short of catastrophic. It is seldom realised how great these changes are, and the reactions which follow are not fully understood. The nutrient cycle is broken, a proportion of the available nutrients is removed in the agricultural products, and

most of the remainder is leached out by rain. The soil is laid bare to the extreme climatic conditions which develop, so that it becomes dried out when there is no rain and eroded when rain falls. Cultivation prevents the natural regeneration of vegetation which would normally follow, and by the time that it is allowed to operate, the soil has become considerably impoverished. (Vageler, 1933). It appears that each successive cultivation impoverishes the soil further, especially if no anti-erosion measures are taken, and conditions are so altered, that the normal succession is replaced by a different one, culminating in vegetation of a poorer type adapted to the more severe conditions. In many cases, progress beyond a certain stage may be prevented by fire.

The colonisation of abandoned land by a weed flora very different from that which would be present under natural conditions, is a well known phenomenon in the agricultural areas of tropical countries. It is also recognised that the flora develops by a series of stages, so that eventually the vegetation should, in theory, approximate to what was originally there. More often than not, the succession is not allowed to proceed very far, especially in a thickly populated area where the practice of shifting cultivation is the rule. In the Todd's Road area of Trinidad such is the case. The general practice is to cultivate a piece of land for two years, or until there is no further chance of obtaining a crop, whichever is the longer, and then to abandon it. The land is left untouched for periods varying from two to three years, or longer, according to circumstances, before it is again brought into cultivation.

Investigation of the major ecological features of the vegetation of Trinidad, has been carried out by the Forestry Department, with a view to estimating the frequency of economic

tree species. So far as the author is aware, no detailed studies have been made of the individual ecological units or their constituents in Trinidad, nor of the plant succession initiated when these are interfered with. This applies particularly to land which has been under cultivation and has been subsequently abandoned.

Literature on the subject from other tropical countries is neither abundant nor detailed. The reasons for this, in most cases, appear to be inadequate knowledge of the flora, and the fact that the investigation has been undertaken as a side line, and not as the main object for research. There is, therefore, no adverse reflection on the authors of such papers, rather the reverse.

The object of the present investigation was to find out what plants invaded the different peasant cultivations on the various soil types, and to attempt to trace the plant succession as far as possible when these are abandoned. It cannot be regarded as more than a preliminary survey, in view of the author's inadequate knowledge of the flora, and the lack of standardised numerical methods for the investigation of vegetation of this type. In view of the ^zsize of the area, it was considered advisable to see as much of it as possible, rather than to concentrate on a few small areas in different places, in order to acquire a working knowledge of the commoner plants and a general impression of their distribution in relation to soil type and human interference. Having done so, which took rather longer than expected, it was possible to select examples to illustrate the salient points. In the lists of plants given in this thesis, frequencies are denoted by their initials as follows:

D = Dominant

O = Occasional

A = Abundant

R = Rare

F = Frequent

L = Locally

No numerical methods were used in estimating frequencies and distribution, since they have not been found to be wholly satisfactory, and it would not have been possible to try them out in a short time. Such results as have been obtained are based solely on observation, which is adequate in most cases for the discernment of major differences. No attempt was made to distinguish small differences, which could have been done only by the judicious use of a numerical method.

Three types of vegetation are distinguished by the Trinidad peasant, and these represent the major stages in the plant succession which is instituted when cultivated land is abandoned. Lastro is the term applied to the vegetation which springs up immediately after the land has been abandoned. It is composed of a number of worthless species of herbs and shrubs, which nevertheless provide a certain amount of cover for the soil and so assist in checking erosion. In time the Lastro is replaced by High Bush, which consists largely of dense thickets of large shrubs and small trees, chiefly Melastomaceae, and dense clumps of giant herbs. There is also a considerable proportion of tall forest trees. This type of vegetation is often referred to in the literature as Second Growth Bush; it may contain timber of commercial proportions and a considerable amount of lumber suitable for conversion into charcoal. High Wood is the term used for secondary forest, but no distinction is made between this and primary forest so far as the use of the term is concerned.