

Contribution to discussion 22 January - Re summary day 10

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From experience conducting forestry inventories and forest monitoring in tropical high forest over a period of more than 30 years, I would recommend making biodiversity surveys as careful and complete as possible. In the 1950s I depended on a cylindrical slide rule and logarithmic tables; and in the 1960s on a mechanical Facit calculator. I had used an electronic computer in the 1950s and again in the 1970s, for multiple regressions to calculate tree volumes, but these machines required punched tape and later punched Hollerith cards, and were probably scarcely more powerful than the programmable hand calculator which I now have. The consequences were that we could not process large amounts of data sufficiently quickly, and had to restrict what we collected -- by limiting the number of species and/or the range of tree size classes. In the 1980s the P.C. arrived and we became able to measure and process the data for all trees above 5 cm bole diameter (which is about the minimum measurable with a steel girthing tape) in one hectare plots -- although we sub-sampled for the smaller size classes in order to make sampling more efficient. Our 1984 P.C. took 5 hours to fully analyse the data for one plot; my 1988 laptop took 1 hour; and my present 1998 computer with WINDOWS 98 takes about 1 minute - and is not particularly fast (only 200 MHz).

The tropical forest changes with time, whether we treat it silviculturally, or exploit it, or do nothing at all. The important thing is to monitor changes in the forest, and to detect the reasons if we can. Even to maintain the status quo requires us to control forest regeneration and growth; but how? For this, the more detailed and precise the information that can be gathered the better -- otherwise we remain in doubt. Because of the complexity of the forest, expert help is needed to name the tree species (or whatever), and we cannot escape this. Rural Africans, however personally knowledgeable, are not sufficiently complete in their knowledge -- although they can help. The sort of expert amateurs that we have in Europe (and I know some) does not exist in Africa -- partly because the task is so challenging.

Between 50 and 150 different tree species (in West Africa) stand on a single hectare, and there are several hundred species within a single forest. Add herbs and shrubs to this, and it may run into 1000s of species. Rural Africans have the advantage that they can rapidly learn a wide range of plant species if they put their minds to it -- because they already have the appropriate pattern recognition abilities developed in their minds. This, the callow European botanist or African brought up in an urban environment cannot usually achieve. From experience it may take 10 years for a European to become a good field botanist in the tropics.

In earlier years, I employed as many local people to help carry out the forest work as I could. They were available and cheaper, and I did not have to pay them travelling allowances or provide transport. Moreover, they were very happy to assist and to earn money, and at the same time their community became very glad to welcome us and to provide food and shelter (for which we paid). By the 1980s this had become difficult,

because lack of ready funds made it difficult to guarantee paying extraneous personnel while work was in progress, and we tended not to employ local people.