

# Opening Remarks: Island Ecosystem Symposium<sup>1</sup>

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The first symposium on island ecosystems was held at the 10th Pacific Science Congress in Honolulu in 1961. It was focused on Man's place in this type of ecosystem, but included a number of background papers with, in the introduction, a short explanation of the ecosystem concept and a brief essay on the island ecosystem. That symposium was published by the B. P. Bishop Museum and has been rather widely read and quoted. Here there is no need to repeat the explanation of the ecosystem concept, as it has not much changed since the 1961 symposium. A symposium on islands and island ecosystems was conducted in 1964 on board ship en route to the Galapagos, as a part of the University of California Expedition to these islands. There the subject was further developed (Fosberg, 1966).

In very simple terms, an ecosystem is a habitat of any magnitude, simple or complex, with all of the plants and animals included in it. It is an interacting system in which the components influence each other in various ways and to varying degrees. There is a strong tendency toward equilibrium and the steady-state condition, and in well developed systems there are more or less effective homeostatic mechanisms. These are not well understood but seem to be a function of the complexity of the system. There are also mechanisms of self-repair, which have not been much studied.

As has been brought out in earlier discussions (Evans 1956; Fosberg 1961, 1963); the size of an ecosystem is strictly a matter of convenience for study and may vary from a droplet of water with a bacterium in it to the earth itself, with all the plants and animals in it, or, conceivably, to the universe with all of its inhabitants—if there are any beyond earth's confines. Simple artificial ecosystems have been much studied. They range from a bacterial culture on a plate of agar-medium to cultivated fields and plantations. They have seldom been called ecosystems, but if all the data available from such studies were to be collected and organized from this viewpoint, our understanding of ecosystems would be greatly advanced.

Natural ecosystems are at the same time much more complex than these artificial ones, and far harder to study. Of course, when such artificial ecosystems as cities are looked at, they also are found to be immeasurably complex; and the social sciences, which are the branches of ecology that study them, have likewise found them difficult to handle and understand. The amount of vagueness, uncertainty, and disagreement in the writings of these scientists is a good indication of the inherent difficulties in understanding such systems.

Of major ecosystems, those on the land areas of continents are so complex that in spite of the enormous accumulation of knowledge, they are scarcely

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beginning to be understood. One of the problems is that factoring them (pulling them apart to study their components) destroys the systems and gives little idea of how they work. More understanding can be gained, possibly, by looking at them and comparing them as wholes. This is unbelievably difficult. Islands may be looked at as smaller and simpler versions of continents. Study and comparison of islands may be one of the best ways to approach the complexity of the continental systems in which most of us live. My colleague, Dr. Sachet, will develop this theme later in the symposium.

Suffice it to say in this introduction that Professor Numata has brought together a number of people who have been studying aspects of islands to discuss their work and to give us some advance glimpses of their results. I wish to welcome them and to ask them to be as informal in their presentations and discussions as they care to be. I also wish to welcome the audience and to encourage them to take part in the discussion very freely, to question the speakers and to induce them to clarify any points that may be obscure to those who have not studied the subjects in such depths as have the speakers. Will each person who participates in the discussion clearly identify himself as he may not be well known to all members of the audience?

### References

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