

1560 J. E. COHEN (Harvard University) Animal Aggregations Revisited.

Allee and other students of animal aggregations showed experimentally that, for many species, there is an optimum number of individuals in a group which faces a problem of survival. To understand the survival value of group size when the number of individuals is not experimentally imposed, it seems useful to study the forms of frequency distributions of group size in nature, and how those distributions arise. Discrete probability distributions and the models leading to them are a natural tool.

Eight observed distributions (human pedestrian groups, automobile occupants, vervet monkey sleeping clusters, gibbon groups, baboon groups, howling monkey groups, prairie dog burrows, and bottled small mammals) can all be described by the (truncated) Poisson or negative binomial distributions. The sorts of probability models which are appropriate to each differ considerably, however. In some cases, the finding that two species have the same distribution suggests only that the same probability mechanism, irrelevant to the nature of either species, is at work. But some similarities tempt phylogenetic speculations. More than just frequency data seem necessary to decide which model is most useful in each case.