

tration within the Ponerinae and Cerapachyinae of central tropical Asia, New Guinea, the Solomons, and Fiji. These measures are coupled with land mass and total faunal size and the correlations shown graphically in figure 4. It will be seen that the percentage contribution of interpenetrating species of a given archipelago is nearly the same as its percentage share of the land mass. Note that it is theoretically possible, and interesting, to substitute percentage share of population size for percentage share of land mass. The contribution of interpenetrating species is not linearly correlated with percentage share of total faunal size, as one might intuitively expect. The dif-

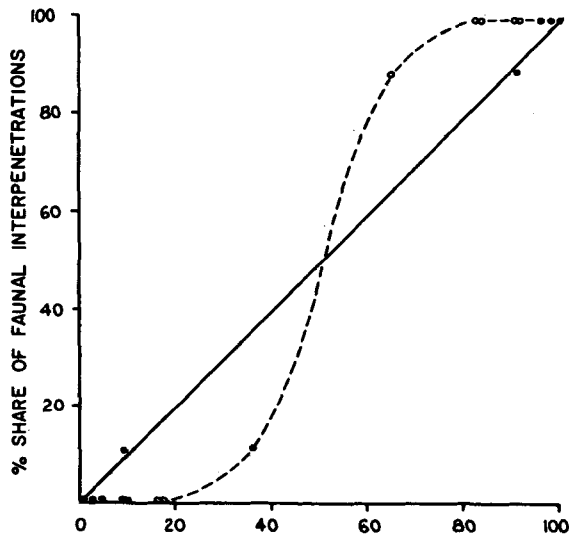


FIGURE 4. The correlation of share of interpenetrating ponerine and cerapachyine species with share of land area (solid circles and line) and with share of total number of species in competing pairs of archipelagoes (open circles and dashed line). See also table 2 and further explanation in the text.

ference between these two measures is significant at the 95 per cent level in the case of New Guinea versus central tropical Asia. A formal statistical difference cannot be demonstrated in the case of the smaller archipelagoes, due to smallness of sample size. But the relationship is numerically absolute in each case, that is, the contribution of interpenetrating species of the smaller archipelagoes is zero.

Faunal interpenetration is here defined as a direct indicator of faunal dominance. This interpretation is clarified if we consider what the joint contributions would be to an intermediate island of exactly equal accessibility. The faunas of the two source archipelagoes would "compete" to fill the island's faunal quota. It can be inferred that their percentage share of faunal contributions would be the same as the percentage share of interpenetrating species exchanged between them.