

Number Of Species Mist Netted In An Area

Preston (1960) showed that the number of breeding species added to a list in each observation period remained constant for successive doublings of observational time. Caughley (1965) expanded this relationship, and indicated that the rule applied irrespective of the breeding status of the species concerned. He also noted that the number of species added to the list in successive doublings of time tends to increase after a certain period of time, due to the greater chance of inclusion of "accidental" visitors. Both of these concepts appear to be valid for numbers of species mist netted in similar habitats in an area.

Between October, 1963, and February, 1966, mist netting was carried out in the coastal heaths of north-eastern New South Wales on 141 occasions, giving data for seven successive doublings. In all some 70 species were netted, with an average of 8.8 species per day.

Slightly better "fits" are possible by the judicious choice of the starting day, but the table (below) starts at the first mist netting day and follows straight through. No allowance has been made for variation in netting hours on different days, nor for variation in weather conditions; these variants tend to cancel out over longer periods, but can have a marked influence upon the number of new species taken for the first few netting days.

The increased number of "new" species netted during the last two doublings is due to two factors:

(1) the long calendar period over which the netting took place allowed increased numbers of migrants and "accidental" visitors to be netted. Examples of these accidental visitors would include Swift Parrots (*Lathamus discolor*) and a Shining Bronze Cuckoo (*Chalcites lucidus*), species which may not be re-netted in the area for many years.

(2) the number of nets was increased from seven to ten at about mist netting day 34, and simultaneously all nets were tethered on both top and bottom shelf strings, making them far more efficient than the former untethered nets.

A speculative extension of the table indicates that regular netting once per week over a lifetime, say to the end of the present century, would yield about 130 species, or an additional 60 species above those netted in the initial two and a half years. This appears quite reasonable, as about 20 additional species have been noted in or just over the heaths, and the area is well within the range of an additional 20 or so regular migrants or nomads which one would expect to net sooner or later.

From a mist netting point of view, I find the whole concept of interest, as it shows in numerical form the inevitability of a decrease in the rate of netting "new" species in an area.

References:

- Caughley, G. (1965), "A Method of Comparing the Numbers of Species in Areas Covered by Different Periods of Observation". *Emu*, 65:115-118.
 Preston, F. W. (1960), "Time and Space and the variation of Species". *Ecology*, 41: 785-790.

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New Secretary Of The ABBS

Mr David Purchase succeeded Mr Warren Hitchcock as Secretary of the Australian Bird-banding Scheme as from January 1, 1967. Mr Purchase joined the CSIRO Division of Wildlife Research in 1957 and soon became closely associated with bat-banding, then in its infancy in Australia. In 1962 he resigned from Wildlife on appointment as a Biologist with ANARE, and spent a total of 29 months, between December, 1962 and March, 1966, on Macquarie Island, where he worked on the Royal Penguin—a long-term population study involving a large-scale banding programme. He also took the opportunity to study certain aspects of population regulation in the Southern Skua, a highly territorial species that lends itself to a study of this nature.

Mist netting days	1	2	3-4	5-8	9-16	17-32	33-64	65-128	(129-141)
New species netted	4	7	4	7	8	7	15	17	(1)