Dominance curves

Dominance plot is the convenient generic name for a family of curves also known as *ranked species abundance plots*, which can be computed for abundance, biomass, % cover or other biotic measure representing quantity of each taxon. For each sample, or pooled set of samples, species are ranked in decreasing order of (say) abundance. Their relative abundance (i.e. percentage of the total abundance in the sample) is plotted against the increasing rank (*x* axis), the latter on a log scale. The *y* axis can consist either of relative abundance or cumulative relative abundance, the former therefore always decreasing and the latter always increasing. The cumulative plot is often referred to as a *k*-dominance plot. There is a third possibility, a partial dominance curve, in which the *y* axis is the abundance of each species relative to the total of its own abundance plus that of all other less-abundant species. The idea of the latter is to ameliorate the way standard dominance curves tend to be dictated by the most abundant species, by looking at the dominance pattern of the remaining assemblage having removed the most abundant species, then the next most abundant, etc.

A further possibility is to put dominance curves for abundance and biomass, separately calculated, onto the same plot. This is referred to as an Abundance-Biomass Comparison (ABC) curve. A number of published studies have demonstrated a characteristic change in the relative position of these curves under disturbance, particularly for organic enrichment of marine macrobenthos, but a similar paradigm (loss of low-abundance large-bodied species and increased abundance of small-bodied ones) has been described for other faunal groups under impact (fish, birds, dragonflies, small mammals, etc.). The method of display is due to Warwick RM 1986, *Mar Biol* 92: 557-562.

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