This paper by Graeme Caughley has been extremely influential in conservation biology. It raised some controversies, but with hindsight it stimulated an extremely important re-setting of the conservation biology agenda. It is a great example of how good common sense can turn into important science.

At the time this paper was published, conservation biology had become a popular new applied subject. The origins of the discipline (from Michael Soule, Bruce Wilcox and Peter Brussard) was quite theoretical. There had been a strong influence from population genetics, and much of the early conservation biology literature was based around studies of inbreeding depression and the rate of loss of genetic variability in small populations. The prevailing paradigm then was therefore about the conservation of small populations, and the science was largely theoretical population biology examining largely stochastic demographic and genetic factors that might increase extinction risks in small populations with long run stable population sizes. Caughley’s criticism of the small-population paradigm was that it treats an effect (smallness) as if it is a cause, and it attempts to answer a trivial question – how long will a population persist if nothing unusual happens? Conservation practice was at the time quite strongly directed towards increasing population sizes, setting aside new protected areas, and avoiding the deleterious effects of inbreeding.

In contrast, Caughley drew attention to another conservation paradigm – the declining population. He pointed out that most conservation priorities result from much more deterministic processes (attributable to people) that are reducing the size of populations, and therefore driving their numbers downwards towards extinction. The priority, he emphasised is therefore the diagnosis of the causes of the declines, some investigation of whether these can be managed, and what effect this will have on the fate of the population. The declining-population paradigm, he suggested, is short on theory and generalization, because the causes of decline are different for each species, but
determining the causes of decline is relevant to most problems in conservation. He concluded that the declining-population paradigm urgently needed more theory and the small-population paradigm needed more practice.

This paper has had lasting consequences. Conservation biology tools now explicitly address both small and declining population paradigms, his work brought together the unfashionable work from wildlife management into fashionable conservation biology, and I am sure that it has greatly influenced conservation practice for the better.

I have a personal recollection of this paper. Graeme Caughley and Anne Gunn came to London in 1992 for a workshop for which I was a co-organiser. He gave a talk about his views on conservation biology (quite robustly presented!) and he talked about the difficulty of getting this perspective published given that it was a critique of the status quo. At that time Steve Albon was editor of Journal of Animal Ecology, and my colleague at the Institute of Zoology. Steve knew Caughley and Gunn through a shared interest in vertebrate population dynamics, and encouraged Graeme to submit the paper to Journal of Animal Ecology (Caughley 1994) rather than a conservation journal, although it was in Conservation Biology that the subsequent (lively) discussion on the ideas ensued (Hedrick et al. 1996, Young & Harcourt 1997, Clinchy & Krebs 1997).

Sadly, Graeme Caughley died in 1994, very shortly after this paper was published, but much of its message is carried through into the 1996 book, Caughley & Gunn (1996). Graeme’s obituary was subsequently published in Journal of Animal Ecology (Gunn & Walker 1994).

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