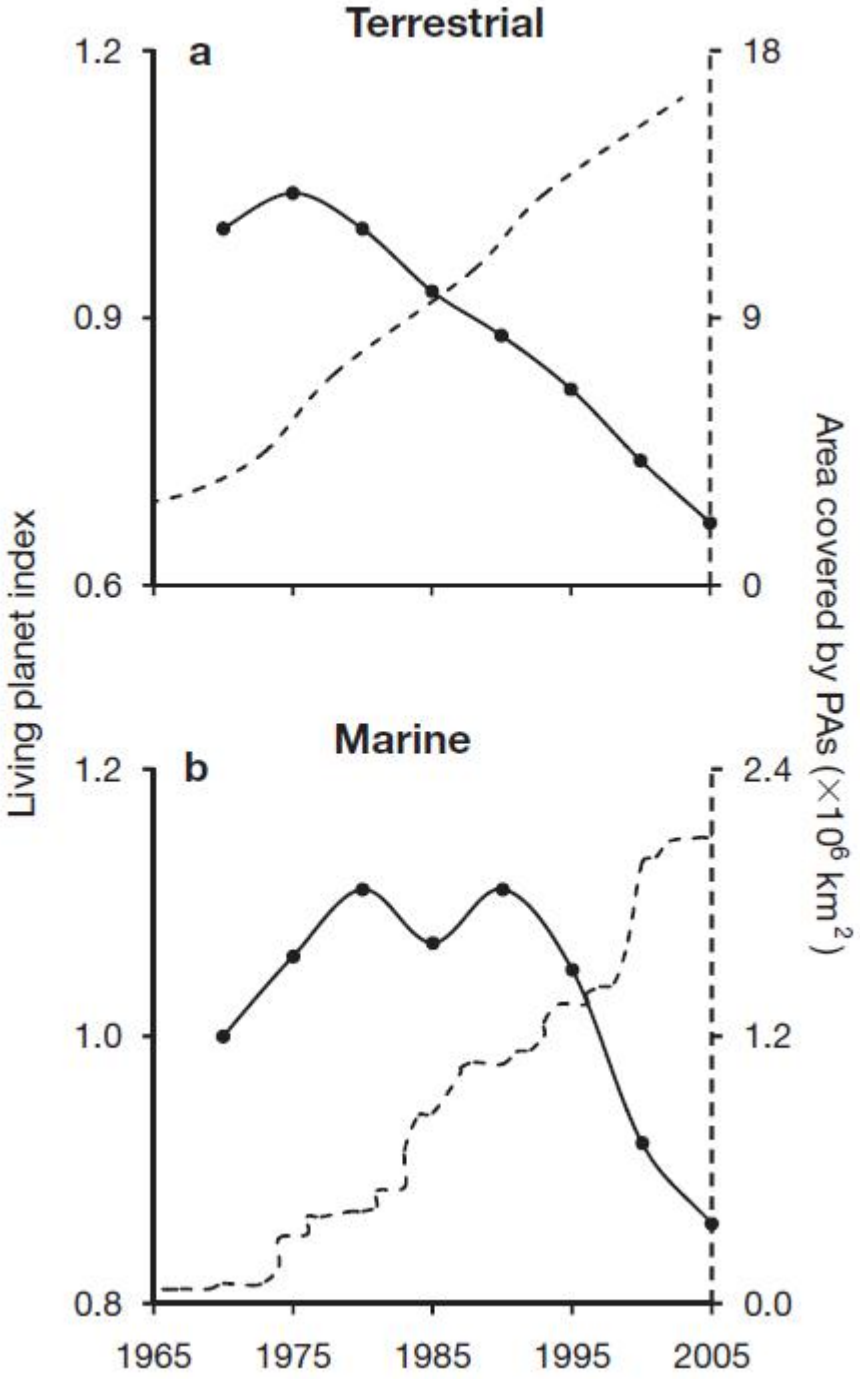
A new paper in the Marine Ecology Progress Series open access journal (peer-reviewed) tells it like it is in ways that environmental scientists are often reluctant to do. Authors Camilo Mora and Peter F. Sale took a very big-picture look at how well reserves are protecting biodiversity, on land and at sea. The analysis is necessarily crude, but attention-getting. They find that the area devoted to reserves has gone up steeply over the past 40 years, while biodiversity has been declining just as steeply.



Trends in extent of protected areas (dashed lines) and biodiversity status (solid lines) from 1965 to 2005. Source: C. Mora and P.F. Sale, Ongoing Global Biodiversity Loss and the Need to Move Beyond Protected Areas: A Review of the Technical and Practical

Shortcomings of Protected Areas on Land and Sea, 434 Marine
Ecology Progress Series 251, 254 (2011).

That doesn't mean, of course, that establishing protected areas causes biodiversity declines. In fact, the authors are careful to say that they are not opposing establishment of reserves. But their data does make a convincing case that the protected area strategy isn't enough.

Perhaps that's just because protected areas aren't well enough protected. In a global review like this one, that's a very real possibility. Reserves might be established in the wrong places; they might not be big enough or well enough connected to other reserves; their restrictions on human activity might be insufficient; or those restrictions might not be effectively enforced.

But Mora and Sale are not just saying we need to do a better job of creating and operating reserves. They point out that reserve creation and maintenance is often controversial and likely to become more so as reserves increasingly come into conflict with other demands on lands and waters. Furthermore, in today's world there are crucial threats to biodiversity that cannot be stopped by any reserve boundary. Climate change is the most obvious example, but invasive species and more conventional pollution are also important.

So far, the argument is pretty conventional. These authors are hardly the first to notice that reserves are porous. Usually the next step is to propose coupling the reserve strategy with some form of regulation of pollution or other direct threats to biodiversity.

But Mora and Sale don't bother with that step. They are more courageous, or perhaps more naive. They wade right in:

> In our view, the only scenario to achieve sustainability and to resolve the ongoing loss of biodiversity and its underlying causes will require a concerted effort to reduce human population growth and consumption and simultaneously increase the Earth's biocapacity through the transference of technology to increase agricultural and aquacultural productivity.

In other words, we can't effectively conserve biodiversity in a world in which people already capture 40% of the planet's primary productivity and are grasping for more. Unless we learn some form of self-restraint, there's little hope for many of the species that share our planet.