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Noble Rot

Protecting the natural world means creating tomorrow's ancient habitats.

We have a slow food movement and a slow travel movement. But we're missing something, and its absence contributes to our escalating crisis. We need a slow ecology movement, and we need it fast.

The majority of the world's species cannot withstand any significant disruption¹ of their habitat by humans. Healthy ecosystems depend to a great extent on old and gnarly places, that might take centuries to develop, and are rich in what ecologists call "*spatial heterogeneity*": complex natural architecture. They need, for example, giant trees, whose knotty entrails are split and rotten; great reefs of coral or oysters or honeycomb worms²; braiding, meandering rivers full of snags and beaver dams; undisturbed soils reamed by roots and holes. The loss of these ancient habitats is one of the factors driving the global shift³ from large, slow-growing creatures to the small, short-lived species able to survive our onslaughts. Slow ecology would protect and create our future ancient habitats.

At the moment, we're going in the opposite direction. Self-serving nonsense cooked up by governments and their advisers, such as "*natural capital accounting*"⁴ and "*biodiversity net gain*"⁵ treat one habitat or feature as exchangeable for another. Don't lament the twisted old oak we're felling: we'll plant 10 saplings in plastic rabbit guards in its place. Then we'll call it a "*net gain*".

But there's no substitute for an ancient tree, or an ancient anything else. Big old trees are the "*keystone structures*"⁶ of forests, on which many other species depend. The very trees that foresters have tended to weed out – forked, twisted, lightning-struck, rotten, dead – are those that harbour the most life. For example, a single species of bracket fungus, that grows on rotten branches (dryad's saddle) harbours 246 species of beetle⁷.

Bats shelter in splits in the trunk. Forks hold tiny pools of water or pockets of soil. Jagged wounds where limbs have sheared, burrs and excrescences, scrapes from which resin bubbles, ivy, vines, lichens and mosses, tangles of twigs and derelict nests, peeling bark and fire scars are all crucial wildlife habitats⁸. But the most important features of ancient trees – and many other habitats – are holes.

¹ <https://www.nature.com/articles/nature24457>

² <https://www.ecowatch.com/sabellaria-reefs-2638515153.html>

³ http://www.pelagicos.net/MARS6400/readings/Hepell_et_al_2005.pdf

⁴ <https://www.theguardian.com/commentisfree/2018/may/15/price-natural-world-destruction-natural-capital>

⁵ <http://publications.naturalengland.org.uk/publication/6049804846366720>

⁶ <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0041864>

⁷ <https://conbio.onlinelibrary.wiley.com/doi/abs/10.1111/cobi.12388>

⁸ <https://www.sciencedirect.com/science/article/abs/pii/S1470160X17305411>

Between 10 and 40% of the world's forest birds and mammals need holes in trees⁹ in which to nest or roost. Many other animals – amphibians, reptiles, invertebrates¹⁰ – depend on them. But these species suffer from a void of voids, an absence of absences.

Holes take many forms: hollow trunks or branches, galleries mined by insects, cavities dug by woodpeckers. Woodpeckers are keystone species, whose tunnelling makes homes¹¹ for other nesting birds and mammals. They appear to spread fungal spores¹² on their beaks in the way that bees spread pollen, and this helps create the soft wood into which they can drill. The trees they need are big, old and rotten¹³.

But almost everywhere, trees like this are disappearing. Research in Poland¹⁴, France, Scandinavia¹⁵, the Balkans and the Carpathians¹⁶ shows that forests unmanaged by people have far greater numbers of crucial features even than those whose trees are harvested in the most sensitive ways. In France, for example, the number of broken forks increased by nearly 300%¹⁷ in the 50 years since forests were last harvested, and holes made by woodpeckers by 500%.

A study in Australia¹⁸ showed that, following one of the devastating fires now scorching the continent, the great majority of trees with holes were wiped out. It will take up to 120 years without further disturbance for their full ecological complexity to recover.

Our tidy-minded forestry and our habit of treating trees as interchangeable are devastating to wildlife¹⁹. “Replacing” an old tree is no more meaningful than replacing an Old Master. The same applies to all ecosystems. When a trawler ploughs through biological structures on the seabed, they can take hundreds of years fully to recover. When a river is dredged and straightened, it becomes, by comparison to what it once was, an empty shell.

So what would a slow ecology movement look like? As Henry David Thoreau said, we are rich in proportion to the number of things we can afford to let alone. To the greatest extent possible, we should allow our complex natural architectures to recover. This means keeping trawlers out of all the places farcically listed as “marine protected areas”, most of which are nothing but lines on the map²⁰. It would mean, in nature reserves, less reliance on grazing by livestock, which tend to keep living systems in a state of arrested development. It would mean letting rivers run free.

⁹ <https://www.tandfonline.com/doi/abs/10.1080/02827581.2017.1360389>

¹⁰ https://link.springer.com/chapter/10.1007/978-3-319-75937-1_21

¹¹ <https://academic.oup.com/condor/article/106/1/1/5563079?login=true>

¹² <https://academic.oup.com/condor/article/106/1/37/5563348?login=true>

¹³ <https://onlinelibrary.wiley.com/doi/full/10.1002/ece3.4245>

¹⁴ <https://bioone.org/journals/natural-areas-journal/volume-34/issue-4/043.034.0404/Tree-Cavity-Resources-in-Spruce-Pine-Managed-and-Protected-Stands/10.3375/043.034.0404.short>

¹⁵ <https://www.tandfonline.com/doi/abs/10.1080/02827581.2017.1360389>

¹⁶ <https://www.sciencedirect.com/science/article/abs/pii/S0378112718305462>

¹⁷ <https://www.sciencedirect.com/science/article/abs/pii/S0378112716312300>

¹⁸ <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0041864>

¹⁹ <https://www.sciencedirect.com/science/article/abs/pii/S000632071730349X>

²⁰ <https://www.theguardian.com/environment/2019/sep/11/europes-marine-sanctuaries-are-paper-parks>

Wherever possible, we should allow the trees killed by ash dieback and other diseases to remain standing. If one good thing arises from these plagues, it could be an increase in the amount of standing and fallen dead wood, both of which are crucial habitats. “Salvage logging” – removing dead or dying trees – is one of the most damaging²¹ human activities. Perhaps it also means a general preservation order for all trees, living or dead, greater than 100 years old: you would need express permission to fell one. It would mean a new and deeper respect for the entanglements of nature.

We need to create today the knurled and wizened ecosystems that only our grandchildren will see.

Restoring the living world means restoring complexity, and complexity takes ages to develop. So it's time we began.

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²¹ <https://science.sciencemag.org/content/338/6112/1305.summary>