



Tree-Planting Is No Solution Without Animals

光靠种树解决不了气候问题，还需要动物来帮忙

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Tree-planting — the main so-called “nature-based solution” intended to help **draw down** carbon dioxide from the atmosphere — has become a **synonym** for climate action. Governments and companies make forestry promises that **spring up** like eager **saplings**. That’s become a convenient way to **assuage** consumer and corporate guilt. Trees are wonderful, but they’re not a quick solution to the climate crisis.

植树是主要的旨在减少大气中二氧化碳的所谓“基于自然的解决方案”，已经成了气候行动的代名词。政府和企业纷纷承诺植树造林，这已经成为一种减轻消费者和企业负罪感的便捷方式。树木好是好，但它们无法快速解决气候危机。

Indeed, there’s plenty of evidence to suggest that we’re not actually thinking through trees properly. One study found that 50% of them died within five years in **tropical** and sub-tropical forest restoration efforts. In the UK, National Highways planted 850,000 saplings along one 21-mile **stretch** of road. Three years later, 75% of them had **perished**. The carbon **offset** market also **arguably incentivizes** single-species plantations that are fast and cheap to grow but come with little ecological co-benefit, store less carbon and are more **vulnerable** to pests and disease.

事实上，有大量证据表明我们实际上对树木缺乏正确的认识。一项研究发现，在热带和亚热带的森林恢复工作中，50%的树木在五年内死亡。在英国，高速公路管理局沿着一条 21 英里长的公路种了 85 万棵树苗。三年后，75%的树苗死亡。碳补偿市场按理说也鼓励了那些种植速度快、成本低的单一树种林场，但这些林场几乎没有生态效益，储碳较少，更容易

598 Words

draw down 减少，下降 | If we don’t cut costs our reserves will draw down. 如果我们不削减开支，储备金就会减少。

synonym [ˈsɪnənɪm] *n.* 同义词

spring up 迅速出现，突然兴起 | New theatres and arts centres sprang up all over the country. 新的剧院和艺术中心突然在全国各地涌现出来。

sapling [ˈsæplɪŋ] *n.* 幼树，树苗

assuage [əˈswɛɪdʒ] *v.* 缓和，减轻 | Nothing could assuage his guilt. 什么都不能减轻他的内疚。

tropical [ˈtrɑːpɪkl] *adj.* 热带的，产于热带的

stretch [stretʃ] *n.* (尤指狭长的) 一片地域，一片水域；连续的一段时间；伸展 *v.* 伸展，拉紧 | a beautiful stretch of countryside 一片美丽的乡村

perish [ˈperɪʃ] *v.* 死亡，毁灭 | Without greater public support the arts will perish. 没有更多人的支持，艺术就会消亡。

offset [ˈɒːfset] *v.* 抵消，弥补，补偿 | Prices have risen in order to offset the increased cost of materials. 为补偿原料成本的增加而提高了价

受到病虫害的影响。

In our laser-eyed focus on trees, we've developed a **static** understanding of the carbon cycle: They absorb carbon dioxide, end of story. The reality is that trees don't **thrive** alone. They exist within complex communities, helped along by each other as well as the animals they coexist with. We've also forgotten that woodland isn't nature's only **carbon sink**: Grasslands, oceans and **tundra** also contribute to negative emissions — and rely on a healthy amount of biodiversity.

我们只盯住树木不放，对碳循环形成了一种静态的理解：树木吸收二氧化碳，仅此而已。事实上，树木并不是单独成长起来的。它们生活在复杂的群落中，得到其他树木还有共存动物的帮助。我们也忘记了林地并不是大自然唯一的碳汇：草原、海洋和苔原也会产生负排放，它们都依赖于丰富的生物多样性。

That's what the paper, published in *Nature's climate change* journal, wants to **get across**. Co-author Oswald J. Schmitz, a professor of ecology at Yale University, said trees might not be able to do their carbon-uptake job efficiently without the right animals in their ecosystem. For example, a study sampled 650 plots over 48,000 square-kilometers of tropical forest in Guyana. Tree and soil carbon storage increased by about four times as **arboreal** species in the 100m² plots went from 10 to 70. However, carbon storage in those same plots was about five times higher when the types of **mammals** present increased from five to 35.

这就是发表在《自然气候变化》杂志上的一篇文章想要传达的信息。合著者奥斯瓦尔德·J·施密茨是耶鲁大学的生态学教授，他说，如果没有合适的动物生活在其生态系统中，树木可能无法有效地吸收碳。例如，一项研究对圭亚那超过 4.8 万平方公里的热带森林中 650 个地块进行了抽样调查。在 100m² 的地块上，树木种类从 10 种增加到 70 种时，树木和土壤的碳储量增加了约 4 倍。然而，当哺乳动物的种类从 5 种增加到 35 种时，相同地块的碳储量增加了约 5 倍。

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格。

arguably ['ɑ:rgjuəbli] *adv.* 可论证地，可以说，按理说 | He is arguably the best actor of his generation. 按理他是他那一代中最优秀的演员。

incentivize [in'sentɪvaɪz] *v.* 激励，奖励 | You need to incentivize your existing customers to stay with you. 你得奖励并留住现有客户。

vulnerable ['vʌlnərəbl] *adj.* 脆弱的，易受……伤害的 | Old people are particularly vulnerable members of our society. 老年人是社会中尤为明显的弱势群体。

static ['stætɪk] *n.* 静止的，静态的 | Economists predict that house prices will remain static for a long period. 经济学家预测，房价将长期保持稳定。

thrive [θraɪv] *v.* 茁壮成长，兴旺发达，繁荣 | This type of plant thrives in cool conditions. 这种植物在凉快的条件下长势旺盛。

carbon sink 碳汇（指能从大气中吸收二氧化碳的森林、海洋或其他自然环境）

tundra ['tʌndrə] *n.* 原，苔原（树木不生，底土常年冰冻的北极地区）

get across 解释清楚，传达 | It took him ages to get his point across. 他花了好长时间才把他的意思说清楚。

arboreal [ɑ:r'bɔ:riəl] *adj.* 树木的，生活在树上的 | arboreal

That's because animals “animate the carbon cycle” — in the words of the paper — through their behavior and roles in the ecosystem. That goes far beyond forests. Take **wildebeests**. They turn the **Serengeti** into a carbon sink by **grazing**, which reduces wildfire risk. Their **waste**, which contains carbon from the vegetation, is then buried in the soil by insects. In tundra, **herds** of **musk oxen compact** the snow, which keeps the soil frozen, therefore reducing **methane** emissions and increasing **albedo** — or the ability to reflect sunlight, which cools the local environment. Whales and other large ocean creatures take their embodied carbon to the bottom of the sea when they die. Other animals, like **tapirs** or elephants, **engineer** landscapes through their diet, which reduces plant competition, spreads seeds and enhances soil nutrition.

用论文的话说，这是因为动物通过它们在生态系统中的行为和角色“激活了碳循环”。这远远超出了森林能发挥的作用。以牛羚为例，它们通过吃草将塞伦盖蒂草原变成了碳汇，从而降低了野火的风险。它们的排泄物中含有来自植物的碳，后来被昆虫埋在土壤中。在冻土带，成群的麝牛把雪踩实，使土壤保持冻结，因此减少了甲烷的排放，增加了反照率，也就是反射阳光的能力，从而使当地环境温度降低。鲸鱼和其他大型海洋生物死后会带着体内的碳沉到海底。其他动物，如獾或大象，则是通过它们的饮食来改造景观，这减少了植物竞争，传播了种子，增加了土壤的营养。

Data in the paper shows that protecting or restoring populations of just nine animal species and groups — fish, whales, sharks, grey wolves, wildebeest, **sea otters**, musk oxen, African forest elephants and American **bison** — could collectively remove an additional 6.41 billion tons of CO₂ from the atmosphere annually. That's more than 95% of the annual amount needed to eliminate 500 billion tons of CO₂ from the atmosphere by 2100.

论文中的数据显示，仅仅是保护或恢复 9 种动物物种和种群（包括鱼
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mammals 树栖哺乳动物

mammal ['mæml] *n.* 哺乳动物

wildebeest ['wɪldəbi:st] *n.* 牛羚，角马

Serengeti *n.* 塞伦盖蒂（坦桑尼亚西北部的草原，水草茂盛，是非洲唯一仍有众多陆地动物迁移的地区，也是目前保存最完好的原始生态系统）

graze [greɪz] *v.* （动物）吃青草；放牧；擦破（皮肤） | There were cows grazing beside the river. 有些牛在河边吃青草。

waste [weɪst] *n.* 粪便；废物；浪费 | The farmers use both animal and human waste as fertilizer. 农民把牲畜和人类的粪便都用作肥料。

herd [hɜ:rd] *n.* 兽群，牧群；人群

musk oxen *n.* 麝牛

compact [kəm'pækt] *v.* 压实 ['kɑ:mpækt] *adj.* 紧密的，坚实的；紧凑的，体积小的 | The soil settles and is compacted by the winter rain. 土壤沉积下来，然后在冬雨的作用下变得坚实。

methane ['meθeɪn] *n.* 甲烷，沼气

albedo [æl'bi:doʊ] *n.* 反照率

tapir ['teɪpər] *n.* 獾（生活在中南美洲和东南亚的长鼻猪状动物）

engineer [ˌendʒɪ'nɪr] *v.* 设计制造；安排，筹划 | The car is beautifully engineered and a pleasure to drive. 这辆汽车设计完美，工艺精良，开起来过瘾。

sea otter *n.* 海獭

类、鲸鱼、鲨鱼、灰狼、角马、海獭、麝牛、非洲森林象和美洲野牛)，每年就可以从大气中额外减少 64.1 亿吨二氧化碳。这个数字是实现到 2100 年消除大气中 5000 亿吨二氧化碳所需年排放量的 95% 以上。

Of course, **rewilding** isn't a one-stop-solution. To maintain a diverse and healthy planet, we also need to stop polluting. Rewilding also requires approaches **tailored** to unique species, environments and local communities, and more research is required to fill in the gaps in our knowledge. But the message is clear: We need a full picture — with both trees and animals — to **harness** nature's full potential.

当然，再野化并不是一个一站式的解决方案。为了保持地球的物种多样性和健康，我们还需要停止污染。再野化还需要针对独特的物种、环境和当地群落制定方法，还需要更多的研究来填补我们知识上的空白。但信息很明确：我们需要全面认识到树木和动物的作用，充分发挥自然的潜力。

bison ['baɪsn] *n.* 野牛

✧ 背景知识

rewilding

再野化，指采取必要的措施消除或大幅度减少人类干扰活动，恢复自然生态系统的自然属性进而保护生物多样性及其生态过程。

tailored ['teɪlərd] *adj.* 专为……

而做的，定做的 | a tailored jacket
订做的夹克衫

harness ['hɑ:rnɪs] *v.* 利用；给（马

等）上挽具 *n.* 马具，挽具 | We can harness the power of the wind to generate electricity. 我们可以利用风力发电。

➤ 脉络梳理

- Para. 1 引出话题：单靠植树无法快速解决气候危机
- Para. 2 分析原因：大量树苗无法成活，树种单一，无法带来生态效益
- Para. 3-6 说明丰富的物种多样性能够更好地发挥森林的储碳作用
- Para. 7 总结全文，指出再野化并不能一下子解决气候问题，还需要更多来充分发挥树木和动物的作用

➤ 长难句拆解

后置定语，修饰 data 主语+谓语

宾语从句，作 shows 的宾语

Data in the paper shows that protecting or restoring populations of just nine animal species and groups ... could collectively remove an additional 6.41 billion tons of CO₂ from the atmosphere annually. — fish, whales, sharks, grey wolves, wildebeest, sea otters, musk oxen, African forest elephants and American bison —

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