



The Lorax leaves in despair after failing to save his ecosystem from poisoning by the Thneed factory, run by the greedy, green-armed Once-ler.

IN RETROSPECT

The Lorax

Emma Marris reflects on a classic children's fable that still has lessons for environmental policy 40 years on.

Theodor Seuss Geisel, better known as Dr Seuss, wrote more than 40 children's books, beloved for their zany rhymes and sinuous illustrations. In August 1971 — the year after the creation of the US Environmental Protection Agency and celebration of the first Earth Day — Seuss published a book that became a kind of *Silent Spring* for the playground set.

Thousands of children have learned about environmental destruction from the *The Lorax*, Seuss's tale of ecological ruin brought on by greed. The book still resonates: Universal Studios is due to release a feature-length animation of it next year. It packs in a lot of sophisticated concepts for a picture book, from the interconnectedness of ecosystems to the effects of industrial pollutants on freshwater systems. There is even a trophic cascade — a shift in top predators that triggers changes through a food chain.

And what initially seems like a simplistic take on environmental policy — industry bad, activists good — turns out to be more subtle. The hero does not save the day; that task falls to the next generation. This downbeat, if realistic, plot arc makes me hesitant about introducing the book to my young daughter.

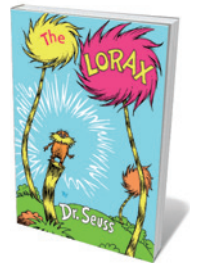
An ecologist might classify the book's lost paradise as a 'Truffula savannah'. The keystone species are the Truffula trees, which look like candy-coloured palms. In the story, every last one is chopped down by a faceless entity, the Once-ler, to provide the raw material for a multipurpose garment called a Thneed — anticipating Snuggies and Slankets by some four decades.

Clearing the Truffula trees sets off a chain reaction that demonstrates the interdependence of life. Without Truffula fruits, the ursine Brown Bar-ba-loots have nothing to eat.

This being a children's book, they don't go extinct. Rather, they are packed off, with much lamentation, to points unknown by the creature who gives the book its title: the Lorax, a diminutive, grandly moustached character who acts as advocate for the ecosystem's species.

The Lorax also complains about the unregulated Thneed factory, which belches out smog and dumps into a pond an astonishing quantity of industrial by-products known as Gluppity-Glupp and Schloppity-Schlopp. (According to the US National Resources Defense Council, textile factories pollute 200 tonnes of water per tonne of fabric produced.) The smog chases off the ecosystem's avian endemics, the Swomee Swans, and the polluted water gums the gills of the Humming Fish, which must traipse away in search of cleaner ponds. Eventually, the bright Truffula savannah is replaced by a lifeless wasteland.

Naturally, the Once-ler gets his comeuppance. By harvesting too many Truffula trees too quickly, he put himself out of business and retreats to his ruined factory



The Lorax
DR SEUSS
First published by
Random House: 1971.
Republished by
HarperCollins
Children's Books:
2009. 64 pp. £4.99

to ruminate on the costs of not having a sustainable business plan.

The Lorax leaves in despair, and the Once-ler hands over the task of restoring the Truffula ecosystem by giving the world's last Truffula seed to a child.

The Lorax himself is a parody of a misanthropic ecologist: "He was shortish. And oldish. And brownish. And mossy. And he spoke with a voice that was sharpish and bossy." He hectors and pleads, he "speaks for the trees", but the Once-ler pays no attention until it is too late, saying, "All you do is yap-yap and say, 'Bad! Bad! Bad! Bad!'" That approach seems a little dated in this era of 'win-win' solutions. But Seuss understood, even back then, the limits of gloom and doom. The Lorax fails. Nevertheless, Seuss clearly had great affection for his impassioned little nag, as do the book's legions of fans.

Perhaps the source of its enduring appeal has less to do with Seuss's prescience about the futility of ecological doomsaying than with environmentalists' nostalgia for a time when such problems seemed more black and white. *The Lorax* portrays a world without the complexities of carbon trading, the pricing of ecosystem services, uncertainties over baseline states and the existence or not of pristine wilderness. For Seuss, wild nature is a paradise, industry is a malignant cancer and heroes take a stand.

Then again, that old narrative has not been entirely displaced by the bureaucrats who set green targets at international meetings. Diverse natural land is threatened by industries; smog chokes skies; Gluppity-Glupp fouls waterways; people use natural resources like there is no tomorrow. We still need heroes to speak for the trees.

Will I read my daughter *The Lorax* when she graduates from *Pat the Bunny*? I'm not sure. It captures the basics of why mismanagement and overexploitation of ecosystems are a bad idea in a way that children can understand. And because I believe that her generation's challenge will be to manage the planet consciously, perhaps it is not too early to teach those lessons. But this is a gloomy book. The final image — of the Truffula seed hurtling into a tiny pair of hands — puts a lot of responsibility on small shoulders. Perhaps it is more important for her to learn the pleasures and beauty of nature first. Afternoons spent poking in the mud, catching cicadas and mapping out squirrel routes may be more likely to turn her green than the spectre of a world without Truffula trees. ■

Emma Marris writes for Nature from Columbia, Missouri.

HISTORY

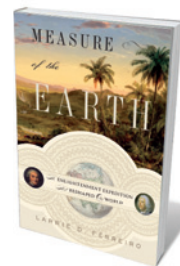
How Earth shaped up

Andrew Robinson enjoys an account of the first expedition to the equator to calibrate latitude.

What was the world's first international scientific expedition? Scientist-explorers of the Enlightenment, such as Alexander von Humboldt, would have answered without hesitation: the French government's eight-year geodesic mission to the Spanish colony of Peru, beginning in 1735. The mission — the subject of *Measure of the Earth* — calculated the precise length of a degree of latitude at the equator, thereby helping to define Earth's shape.

Today, the geodesic mission's fame has faded. Until this book, no modern history of the mission has been published in English (unpublished academic studies exist). It was virtually ignored in Ken Alder's prize-winning account of the surveying of the arc of the meridian and the origins of the metric system, *The Measure of All Things* (Free Press, 2002). Neil Safier's *Measuring the New World* (University of Chicago Press, 2008) focused instead on the Amazon explorations of its best-known member, Charles-Marie de La Condamine. But in 2006, the French geodesic mission was the basis for one episode in a BBC television series, *Voyages of Discovery*, for which the historical consultant was science writer and naval historian Larrie Ferreiro. In *Measure of the Earth*, Ferreiro puts this important, dramatic and gruelling trip back on the map.

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For more on measuring the meridian:
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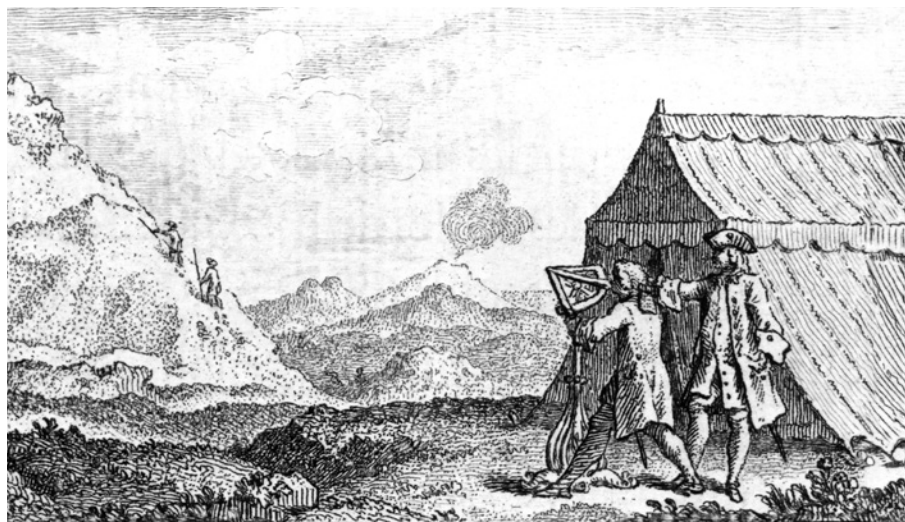


Measure of the Earth: The Enlightenment Expedition That Reshaped Our World
LARRIE D. FERREIRO
Basic Books: 2011.
376 pp. \$28, £15.99

The geodesic mission was organized by the French Academy of Sciences, under the sponsorship of the French minister of the navy acting in wary collaboration with his Spanish counterpart in Madrid. Spain sent two naval officers, also astronomers, to learn from and keep an eye on the French.

Along with a similar French scientific mission to the Arctic Circle in 1736–37, the expedition determined that a degree of latitude is shorter at the equator (where it measures a length of 56,753 toises, or 110.54 kilometres) than at Paris (57,060 toises) or towards the North Pole (57,437 toises). Thus it proved that Earth was not a sphere but an oblate spheroid: it bulges slightly at the equator and is slightly flattened at the poles.

This asymmetry explains why the force of gravity is slightly less near the equator than in Paris. This was first observed by a puzzled French astronomer measuring the period of a pendulum clock in Guyana in 1672, and seized on by Isaac Newton in his *Principia Mathematica* of 1687. Newton predicted the oblate shape of Earth from his theory of



The 1730s French geodesic mission revealed that Earth bulges at the equator.

ROYAL ASTRON. SOC./SPL