

THE STANDING FOREST · CHAPTER THREE

Where the Ring Leaks

Chapter Three of The Standing Forest

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Chapter Three of The Standing Forest. The whole book, with every chapter, is at business.hautelumiere.life/library/the-standing-forest (DOI https://doi.org/10.5281/zenodo.23989542).

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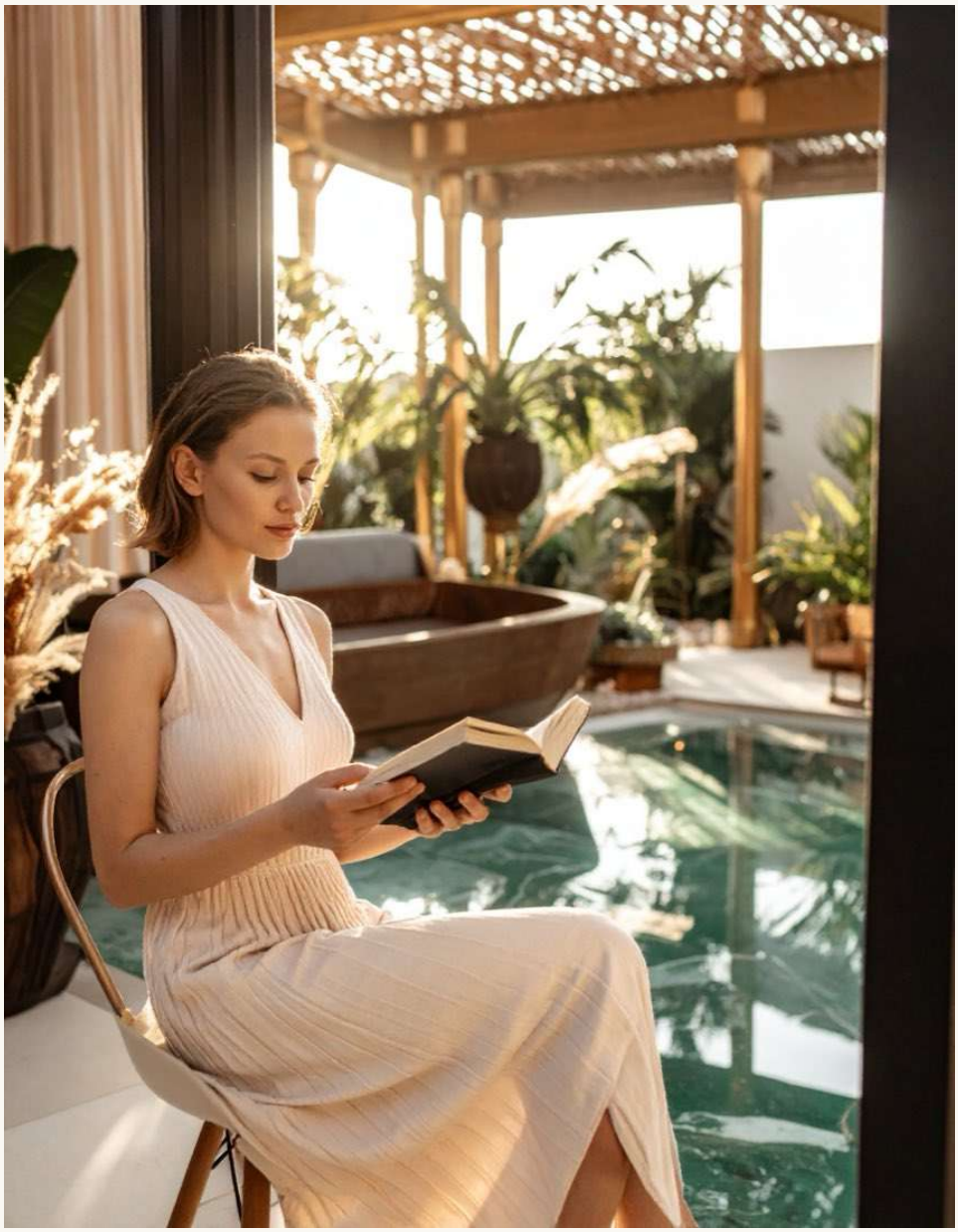
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ABSTRACT

An idea that has never been argued with has not yet been used. The steady state and the doughnut have been argued with for half a century, by economists who were neither careless nor hostile, and the arguments are worth knowing in their best form. A leader who brings the doughnut into a boardroom will meet each of them within the first hour, usually from the most thoughtful person in the room. A household that tries to live by it will meet several of them at the kitchen table. Chapter 2 traced the idea from Mill's stationary state to Kate Raworth's ring. This chapter takes six objections in turn. For each, it states the criticism as its strongest advocate would, says what the evidence supports, and then gives a way through that leaves the idea more useful than before the objection was raised. None of them is fatal. Several of them improve the idea considerably.

CHAPTER THREE

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The courtesy of a good objection

An idea that has never been argued with has not yet been used. The steady state and the doughnut have been argued with for half a century, by economists who were neither careless nor hostile, and the arguments are worth knowing in their best form. A leader who brings the doughnut into a boardroom will meet each of them within the first hour, usually from the most thoughtful person in the room. A household that tries to live by it will meet several of them at the kitchen table.

Chapter 2 traced the idea from Mill's stationary state to Kate Raworth's ring. This chapter takes six objections in turn. For each, it states the criticism as its strongest advocate would, says what the evidence supports, and then gives a way through that leaves the idea more useful than before the objection was raised. None of them is fatal. Several of them improve the idea considerably.

Santa Anna's *Ecstatic Economics* has a habit that suits this kind of chapter: it closes its chapters by naming the ways its own argument can be misread. In one of those passages it says something that ecological economists have been slow to say about their own field:

> *But here's where we must be honest about the limits of the argument: ecological awareness alone won't transform economic behavior.*[22]

That honesty is the right temperature for what follows.

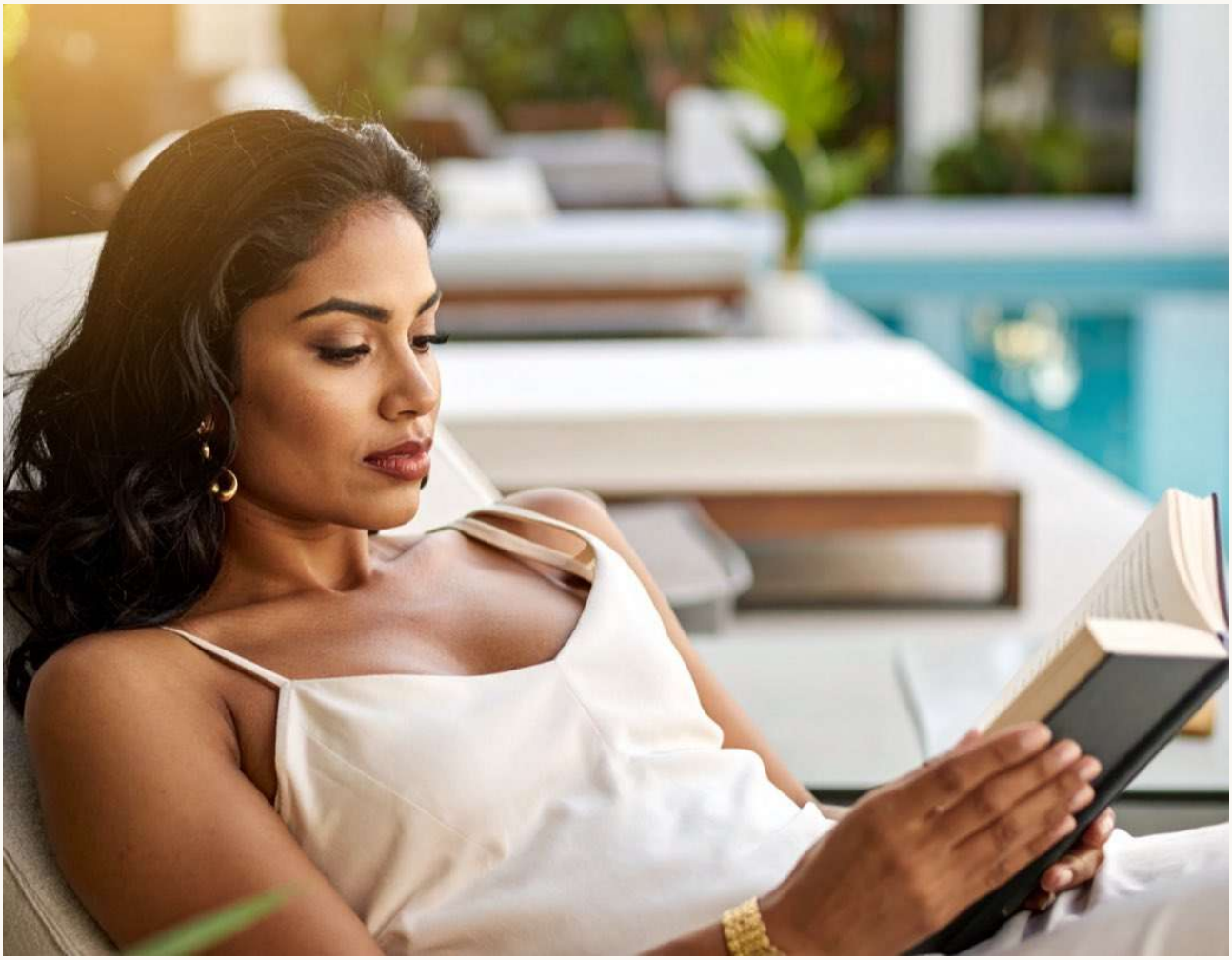
Objection one: substitution will carry us

The objection, at its strongest. Economies have met scarcity before by substituting one input for another: coal for wood, oil for whale fat, fibre optics for copper. Prices rise as a resource tightens, and rising prices call forth invention. The 1972 *Limits to Growth* models, the argument goes, left this mechanism out. William Nordhaus, who would later share the Nobel memorial prize for his work on climate economics, made the case most carefully in 1992, in a long paper in the *Brookings Papers on Economic Activity* titled "Lethal Model 2: The Limits to Growth Revisited". He found that the models' conclusions depended heavily on assumptions about technological change and substitution, and argued that a reasonable allowance for both pushed the limits far out.[23]

What the evidence supports. Substitution is real and has been enormous. But substitution has a direction. It works well between resources that are traded and priced, and poorly for the things nobody owns and nobody bills: a stable climate, the pollinators, the nitrogen balance of a river. Those are exactly the processes the planetary boundaries measure. Nordhaus himself spent the next three decades arguing that the climate needed a price precisely because the market would not supply one.

The way through. Treat substitution as a question to be answered flow by flow, not a faith to be held in general. For each major flow across your coastline, ask: is there a priced substitute, is it available at the

scale we need, and does it relieve the boundary or merely move the load to another one? A firm that swaps one packaging material for another may have relieved landfill and added energy. The question is useful precisely because it forces a specific answer.



Objection two: we can decouple

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Objection two: we can decouple

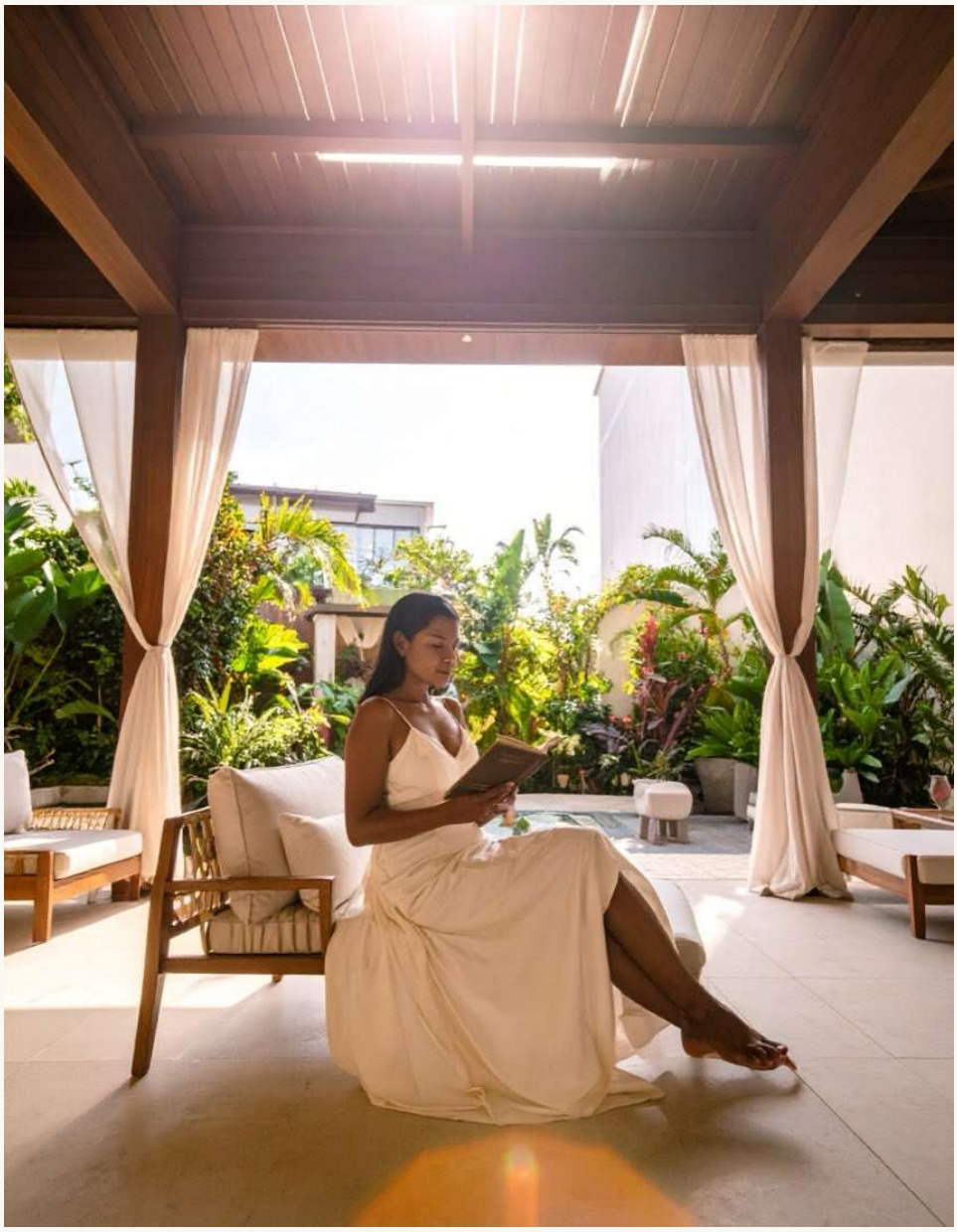
The objection, at its strongest. Growth in GDP is growth in value, not in tonnes. As economies shift towards services, software and design, the value added per unit of material and energy rises. Several rich countries have cut their territorial carbon emissions while their GDP grew. If that continues, the ring need not constrain growth at all; the economy can grow in money while shrinking in matter. This is the position usually called green growth, and it is the working assumption of most national strategies.

What the evidence supports. This is the objection the research has examined most closely, and the findings are now fairly clear. In 2020 Helmut Haberl and colleagues published a systematic review in *Environmental*

Research Letters that synthesised 835 peer-reviewed studies of decoupling.[24] They found relative decoupling, where resource use or emissions grow more slowly than GDP, to be frequent. They found examples of absolute long-term decoupling, where GDP rises while resource use or emissions actually fall, to be rare, though some industrialised countries have recently decoupled GDP from production-based carbon emissions, and more weakly from consumption-based emissions. In the same year Jason Hickel and Giorgos Kallis, reviewing historical trends and model-based projections in *New Political Economy*, concluded that there was no empirical evidence that absolute decoupling from resource use could be achieved on a global scale against a background of continued growth, and that absolute decoupling from carbon was highly unlikely to happen fast enough to hold warming to 1.5 or 2 degrees.[25]

Both papers are careful about what they cannot show. A review of what has happened cannot rule out what has not yet been tried. Hickel and Kallis argue from projections, and projections depend on assumptions.

The way through. Stop arguing about decoupling in general and measure it in particular. The useful distinction is the one Haberl's team drew: relative or absolute, and on what basis, production or consumption. A business can report each of its major flows in absolute units alongside revenue, and say plainly which kind of decoupling it achieved this year. That is a more honest number than most sustainability reports carry, and it settles the argument in the only place where it can be settled: the firm's own ledger.



Objection three: the boundaries are not that precise

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Objection three: the boundaries are not that precise

The objection, at its strongest. The planetary boundaries are estimates set by a group of scientists, at the cautious end of wide ranges of uncertainty. Several have been redefined since 2009. Some, such as novel entities, were not quantified at all until recently. Others are global by nature and say nothing about a particular river or field. Building a business or a city plan on numbers this soft, the critic says, is building on sand.

What the evidence supports. The objection is accurate about the uncertainty and wrong about its consequence. The framework's authors say themselves that a boundary marks the start of a zone of increasing risk, not a cliff. The framework has been revised in the open: Will Steffen and colleagues updated it in *Science* in 2015, and in 2023 Katherine Richardson and colleagues quantified all nine boundaries for the first time and reported in *Science Advances* that six of them were transgressed, with ocean acidification close to its boundary and the transgression level increased for every boundary previously identified as overstepped.[26] A framework that publishes its own revisions is behaving like science.

The way through. Use the boundaries the way a ship's officer uses a chart marked with shoals: as zones of rising risk, not as lines of legality. For a firm, the practical step is downscaling: translating a global boundary into a fair share for a city, a sector or a company. Every method of downscaling rests on a choice about fairness, whether by population, by past emissions, by capacity to pay. The way through is not to avoid the choice but to write it down. A target that names the fairness rule it used can be argued with. A target that hides it cannot.

A short illustration shows why the rule matters more than the arithmetic. Suppose a regional food company wants to know its fair share of a carbon budget. Divided by its share of national employment, it gets one figure. Divided by its share of national value added, it gets another, usually larger, because food processing adds less value per worker than finance does. Divided by its share of the calories its region eats, it gets a third. None of the three is wrong. Each encodes a different belief about what the company is for. Writing the chosen rule at the top of the page, with the other two beside it, turns a hidden value judgement into a decision a board can own. It also makes the target harder to quietly revise when a difficult year arrives.

Objection four: who sets the floor?

The objection, at its strongest. The ceiling at least comes from Earth-system science. The floor, the social foundation, is a list of human needs drawn up by people. Raworth's 2017 dimensions were drawn largely from the Sustainable Development Goals. Another author, in another country or another decade, would draw a different list. A framework that puts a political choice beside a physical measurement, the critic says, borrows the authority of the second for the first.

What the evidence supports. The list is a political choice, and Raworth has never pretended otherwise. But it is not an arbitrary one. The needs on it, food, water, health, education, housing, energy, voice, equity, work, peace, recur in nearly every serious attempt to list what a decent life requires, from Manfred Max-Neef's human-scale development to Amartya Sen's capabilities, which another book in this lineage takes up.

The way through. Treat the floor as something a community sets for itself, in the open, with the people it is for. Elinor Ostrom's design principles for governing a commons, the subject of a neighbouring book, begin

with clearly defined boundaries and with collective-choice arrangements in which the people affected by the rules can take part in changing them. A firm's floor, written with its workers and suppliers rather than for them, carries more authority than one drawn from a textbook, because the people who hold it to account helped draw it.



Objection five: the economy is built to need growth

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Objection five: the economy is built to need growth

The objection, at its strongest. Even if a steady state were desirable, modern economies are wired to require growth. Pensions are invested on the assumption of returns. Public debt is sustainable only if the economy grows faster than the interest on it. Rising productivity means that, without growth, the same output needs fewer workers each year, and unemployment rises. Stop growing, the critic says, and you do not get Daly's glider; you get a stall.

What the evidence supports. The objection describes the present system correctly. Daly's answer, as Chapter 2 noted, was that a steady state has to be designed, not stumbled into, and that a recession is a growth economy failing, not a steady state succeeding. The more recent evidence has moved the argument forward. In 2021 Elena Vogel, Julia Steinberger, Daniel O'Neill and colleagues analysed 106 countries in *Global Environmental Change* to see which social and economic conditions let a country meet human needs with less energy.[27] Public service quality, income equality, democracy and electricity access were associated with higher need satisfaction at lower energy use. Extractivism and economic growth beyond moderate levels of affluence were associated with the opposite. The study is correlational, across countries, and cannot show what would happen if one country changed one factor. But it points to where the design work lies: in the systems of provision that turn energy and materials into a decent life.

The way through. For a nation, that is a matter for policy, and other books in this lineage take it further, notably the one on patient capital and short-termism. For a firm or a household, the same logic applies at small scale. Ask which of your commitments only work if you keep growing: a loan whose repayments assume rising sales, a cost base that only covers itself at higher volume, a family budget that depends on next year's raise. Each one is a place where your own structure, not the planet, is demanding growth. Each can be redesigned, slowly, so that a good year is welcome and a flat year is not a crisis.

Santa Anna's book names the general pattern in its chapter on money, observing that when money is created as debt bearing interest, "the system requires continuous growth simply to service existing debt".[28] Whether that claim holds for the monetary system as a whole is disputed among economists, and this book does not settle it. It holds without dispute for any single borrower.



Objection six: the poorest need growth

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Objection six: the poorest need growth

The objection, at its strongest. A steady state may suit a rich country that already has enough. For a country where a large share of people lack clean water, reliable electricity or a secondary school, a ceiling on growth is a ceiling on escape from poverty. To preach limits to the poor, the critic says, is to pull up the ladder.

What the evidence supports. This is the objection that the doughnut itself was built to answer, and the evidence supports its structure. In 2018 Daniel O'Neill, Andrew Fanning, William Lamb and Julia Stein-

berger, writing in *Nature Sustainability*, compared more than 150 countries on social thresholds and biophysical boundaries and reported that no country meets basic needs for its citizens at a globally sustainable level of resource use. Their finer finding is the more useful one: physical needs such as nutrition, sanitation, access to electricity and the elimination of extreme poverty could likely be met for all people without transgressing planetary boundaries, while the more qualitative goals, high life satisfaction among them, would on current relationships require two to six times the sustainable level of resource use.[29] In a follow-up across more than 140 countries from 1992 to 2015, using eleven social and six biophysical indicators, Fanning, O'Neill, Hickel and Nicolas Roux reported that countries tend to transgress biophysical boundaries faster than they achieve social thresholds. Over the period the share of countries overshooting biophysical boundaries rose from between 32 and 55 per cent to between 50 and 66 per cent, depending on the indicator; social thresholds were met by more countries on five indicators, by fewer on two, social support and equality, and showed little change on the other four.[30] The pattern is two-sided: the richest overshoot the ceiling, the poorest fall short of the floor. The doughnut asks different things of each.

The way through. Raworth's phrase is to be agnostic about growth, which is not the same as being against it. Where the floor is short, growth that fills it is the point. Where the ceiling is overshot, development without further throughput is the point. A firm with operations or suppliers in many countries can apply the same two-sided reading: grow wages and capability where the floor is short, cut throughput where the ceiling is overshot, and stop treating one policy as right for both.

The objection the critics miss

There is a seventh weakness, and it comes from inside the movement rather than from its critics. It is the belief that once people see the data, they will change. Santa Anna's book states it directly:

> *The information hasn't been the bottleneck.*[31]

And it gives a reason most ecological economists would not:

> *You cannot guilt or shame people into ecological behavior when their nervous systems are organized around survival.*[32]

That is a claim about people, not physics, and the book does not offer controlled evidence for it. But it matches what any leader has seen in a room where a frightening slide is shown. Fear narrows attention. A team that feels its own position is under threat will not take on a planetary one. The book's answer, which Chapter 4 takes up, is that structural change and inner change have to move together:

> *Consciousness transformation and structural transformation must proceed together. Neither can substitute for the other.*[33]

The way through, for a leader, is practical. Do not open with the boundary chart. Open with what the organisation already does well inside the ring, the flows it has already reduced, the needs it already meets, and then name the one flow that is overshooting. People who feel secure in what they have done can look at what they have not.

What this chapter cannot settle

Six objections and six ways through do not settle the debate between ecological and mainstream economics, and this chapter does not claim to. The decoupling evidence is strong on the past and silent on what has not been tried. The cross-country studies are correlational. The boundaries are honest estimates with honest error bars. What the review does support is narrower and more useful: every one of the objections can be turned into a question that a specific household or firm can answer with its own figures. That is the test this book applies throughout.

The Tool: The Objection Register

A standing document for any board, team or household that has decided to work inside the ring. Its purpose is to keep every objection on the table, answered and tested, rather than dismissed or allowed to stall the work. It takes ten minutes to add a line and is reviewed once a quarter, alongside the Two-Ring Ledger from Chapter 2.

Columns.

#	THE OBJECTION, IN THE WORDS OF THE PERSON WHO RAISED IT	RAISED BY, AND DATE	WHICH OF THE SIX IT BELONGS TO (OR NEW)	WHAT OUR OWN FIGURES SAY	THE TEST THAT WOULD SETTLE IT	OWNER	REVIEW DATE	STATUS

How to fill it.

1 · Record the objection in the raiser's own words. Do not tidy it. A tidied objection is easier to answer and less likely to be the real one.

2 · Classify it. Most objections are one of the six above: substitution, decoupling, precision, the floor, growth dependence, or the needs of the poorest. If it is none of these, mark it new; new objections are the most valuable lines in the register.

3 · Answer from your own figures first. Before reaching for a study, write what your own ledger shows. If the objection is about decoupling, the answer is your own absolute flows against your own revenue.

4 · Write the test. Every objection that cannot be answered from existing figures gets a test: a measurement, a trial, a comparison, with a date. A test with no date is not a test.

5 · Close it honestly. Status is one of four words: *answered* (our figures settle it), *testing* (a trial is running), *conceded* (the objection is right and we have changed the plan), or *open*. The register is healthy when it has at least one *conceded* line in a year. An organisation that has never conceded an objection has not been listening.

Two rules.

- Nobody may close their own objection. The person who raised it, or someone else in the room, marks it answered.
- Read the *conceded* lines aloud at the start of each annual plan. They are the best record you have of what the ring has taught you.

References

1. Santa Anna, A. *Ecstatic Economics*, manuscript `ch02.md`, the section following "This isn't mysticism". Luminous Prosperity Inc., 2026.
2. Nordhaus, W. D., Stavins, R. N., & Weitzman, M. L. (1992). Lethal Model 2: The Limits to Growth revisited. *Brookings Papers on Economic Activity*, 1992(2), 1–59. https://doi.org/10.2307/2534581. A modelling critique; it tests the sensitivity of the *Limits* results to assumptions and cannot settle which assumptions are correct.
3. Haberl, H., Wiedenhofer, D., Virág, D., Kalt, G., et al. (2020). A systematic review of the evidence on decoupling of GDP, resource use and GHG emissions, part II: synthesizing the insights. *Environmental Research Letters*, 15(6), 065003. https://doi.org/10.1088/1748-9326/ab842a. A review of published studies; it describes what has occurred and cannot rule out future absolute decoupling.
4. Hickel, J., & Kallis, G. (2020). Is green growth possible? *New Political Economy*, 25(4), 469–486 (published online 2019). https://doi.org/10.1080/13563467.2019.1598964. Partly based on model projections, whose conclusions depend on their assumptions.
5. Steffen, W., Richardson, K., Rockström, J., Cornell, S. E., et al. (2015). Planetary boundaries: Guiding human development on a changing planet. *Science*, 347(6223). https://doi.org/10.1126/science.1259855. Richardson, K., Steffen, W., Lucht, W., Bendtsen, J., et al. (2023). Earth beyond six of nine planetary boundaries. *Science Advances*, 9(37). https://doi.org/10.1126/sciadv.adh2458. Both are global assessments; neither allocates a boundary to a nation or a firm.
6. Vogel, J., Steinberger, J. K., O'Neill, D. W., Lamb, W. F., et al. (2021). Socio-economic conditions for satisfying human needs at low energy use: An international analysis of social provisioning. *Global Environmental Change*, 69, 102287. https://doi.org/10.1016/j.gloenvcha.2021.102287. Cross-country and correlational; it cannot show the effect of changing one factor in one country.
7. Santa Anna, A. *Ecstatic Economics*, manuscript `ch04.md`, the section on money and community currencies. Luminous Prosperity Inc., 2026. Quoted as a phrase within a sentence.
8. O'Neill, D. W., Fanning, A. L., Lamb, W. F., & Steinberger, J. K. (2018). A good life for all within planetary boundaries. *Nature Sustainability*, 1(2), 88–95. https://doi.org/10.1038/s41893-018-0021-4. Finding checked against the paper's abstract as reproduced in the authors' university repositories, 19 October 2026. National indicators cannot show distribution within a country.
9. Fanning, A. L., O'Neill, D. W., Hickel, J., & Roux, N. (2022). The social shortfall and ecological overshoot of nations. *Nature Sustainability*, 5(1), 26–36. https://doi.org/10.1038/s41893-021-00799-z. Findings and percentages checked against the abstract as reproduced in the LSE and White Rose repositories, 19 October 2026.
10. Santa Anna, A. *Ecstatic Economics*, manuscript `ch02.md`. Luminous Prosperity Inc., 2026.
11. Ibid.
12. Santa Anna, A. *Ecstatic Economics*, manuscript `ch03.md`, "Common Pitfalls: Romanticization, Appropriation, and Premature Synthesis". Luminous Prosperity Inc., 2026.

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