

The Forest That Was Planted Twice

Along a river in Borneo, two teams disagree about the fastest way to grow a rainforest. Both of them are right.

7 min read

Before you read

- **degraded** — damaged in quality or condition, but not destroyed
- **canopy** — the layer of leaves and branches formed by the tops of tall trees
- **corridor** — a strip of habitat connecting two larger areas of habitat
- **monoculture** — an area planted with a single species
- **succession** — the natural sequence by which species replace one another over time
- **fragmentation** — the breaking of a continuous habitat into separated patches
- **viable** — able to survive and continue over the long term
- **mitigate** — to make something less severe without removing it altogether



The Kinabatangan: forest survives as a ribbon along the river, hemmed by plantation

¹ From the air, the lower Kinabatangan looks like a mistake that has been tidied up. A dark, untidy ribbon of forest follows the river as it loops across the floodplain of eastern Sabah. On either side, running to the horizon in disciplined rows, is oil palm. The boundary between the two is not a gradient. It is a line.

² That ribbon is one of the most-watched pieces of degraded forest in Southeast Asia. It holds orangutans, proboscis monkeys, pygmy elephants and hornbills, and it holds them in numbers that look

healthy until you notice the shape of the thing they are living in. In places the forest is less than a hundred metres deep. An elephant crossing from one patch to the next must cross a plantation, a road, or both.

The problem is not only area

³ It is tempting to measure the damage in hectares lost, because hectares are easy to count.

Fragmentation is the harder problem and the more serious one. A population split into isolated patches is not one population; it is several small ones, each breeding within itself. Small populations lose genetic variation, and a species that was never scarce can become unviable long before its last individual dies.

⁴ This is why so much restoration work along the river is shaped like a corridor rather than a block. The aim is not simply more forest but connected forest: narrow planted strips linking surviving patches, bought parcel by parcel from willing sellers, so that an orangutan can move between them through the canopy rather than across open ground.

Plant it, or leave it?

⁵ Here the restoration teams part company. One approach is active planting: clear the dense grasses and vines that colonise abandoned land, raise seedlings of native dipterocarps in a nursery, plant them in lines, and weed around each one for three or four years until it is tall enough to look after itself. It is slow, expensive and reliable, and it produces measurable results that a funder can photograph.

⁶ The other approach is to do almost nothing. Fence the land, stop the fires and the grazing, and wait. Where seed-carrying birds and fruit bats still reach the site, natural succession will do the work for free, and will do it with a species mix no nursery would have thought to plant. It costs a fraction of the planted approach. It also fails completely where the nearest seed source is too far away, or where a grass such as *Imperata* has formed a mat that nothing else can push through.

⁷ So the disagreement is not really about which method is better. It is about which site you are standing on. A degraded patch fifty metres from intact forest will usually regenerate on its own; the same patch five kilometres away, under grass and burnt twice, will not recover within any useful timeframe without planting. The expensive method is for the sites the cheap method cannot reach.

What restoration cannot do

⁸ A planted forest at fifteen years old has a closed canopy and looks, from the road, like forest. Inside, it is still missing most of what makes a rainforest function: the deadwood, the soil fungi, the hollow veteran trees that hornbills need for nesting, the particular insects attached to particular plants. Those arrive over decades, if the connections exist for them to arrive along. Restoration mitigates the loss. It does not reverse it.

⁹ There is an argument, made quietly by some ecologists and loudly by almost nobody, that restoration projects can make clearance easier to justify. If forest can be replaced, the reasoning goes, then removing it is a delay rather than a loss, and the cost of replacement becomes simply another line in a budget. Everyone who works on the Kinabatangan has heard this argument. Most of them accept that it has some force and keep planting anyway, on the grounds that the corridor in front of them is needed now and the philosophical problem can wait.

¹⁰ The honest summary is that the river is not being returned to what it was. It is being kept connected enough to work. Whether that is a success or a managed failure depends on what you measured against, and the people doing the work tend to be too busy planting to argue about it.

Part A Choose the best answer

Circle the letter next to the right answer.

1. Why does the writer say the boundary between forest and plantation 'is not a gradient'?

- A Because the plantation is higher than the forest
- B Because the change is abrupt rather than gradual
- C Because the forest is still expanding into the plantation
- D Because the river separates the two

2. According to the passage, why is fragmentation more serious than area lost?

- A Fragmented forest burns more easily
- B Hectares are difficult to count accurately
- C Isolated populations lose genetic variation and may become unviable
- D Plantations surround fragments on every side

3. What determines whether natural regeneration will work on a site?

- A The size of the budget available
- B Whether seed sources are near enough and grasses have not taken over
- C Whether the land has been fenced
- D The number of species a nursery can raise

4. What does the writer say a fifteen-year-old planted forest is still missing?

- A A closed canopy
- B Native tree species
- C Deadwood, soil fungi, hollow veteran trees and specialised insects
- D Protection from fire and grazing

5. What is the 'argument made quietly by some ecologists'?

- A That planting is a waste of money compared with natural regeneration
- B That corridors are too narrow to be useful
- C That the ability to restore forest can make clearing it easier to justify
- D That orangutans cannot use planted corridors

Part B Write your answer

Answer in two or three sentences, using the passage as your evidence.

6. Explain why restoration along the Kinabatangan is shaped as corridors rather than blocks of forest.

7. The writer says the disagreement between the two methods 'is about which site you are standing on'. Explain what is meant by this.

8. Why might a funder prefer the active planting method, even on a site where natural regeneration would also work?

9. The passage ends by calling the outcome either 'a success or a managed failure'. Explain how the same result could be described in both ways.

Part C Think deeper

There is no single right answer here. Say what you think, and say why.

10. Should restoration ever be allowed to count as compensation for clearing forest somewhere else? Argue one side, and deal honestly with the strongest point on the other.

11. The ecologists keep planting even though they accept the objection to their work has 'some force'. Is it reasonable to act on something you have not fully resolved? Use the passage and one example of your own.

12. The writer notes that hectares are measured because they are easy to count. Where else do you think people measure the easy thing instead of the important one? Explain your example and what it costs.

Answer key

For parents and teachers

Part A

1. **B** — Because the change is abrupt rather than gradual | 2. **C** — Isolated populations lose genetic variation and may become unviable | 3. **B** — Whether seed sources are near enough and grasses have not taken over | 4. **C** — Deadwood, soil fungi, hollow veteran trees and specialised insects | 5. **C** — That the ability to restore forest can make clearing it easier to justify

Part B

6. Because the problem is isolation rather than only total area: linking surviving patches lets animals move between them through the canopy, keeping separated populations functioning as one. Accept any answer reaching connectivity or movement between patches.

7. That neither method is better in general — the right choice depends on the conditions of the particular site, chiefly its distance from a seed source and whether grass has taken hold. Accept answers that identify site conditions as the deciding factor.

8. Because planting produces visible, measurable, photographable results on a predictable timetable, which is easier to report on than waiting. Credit any answer about visible or demonstrable results, accountability, or the need to show where money went.

9. Measured against the original intact forest it is a failure, since what returns is poorer and incomplete; measured against the likely alternative of a severed, non-functioning floodplain it is a success. The judgement depends on the chosen baseline. Require the idea of comparison against a standard, however phrased.

Part C

These answers vary. Mark the reasoning, not the answer.

10. Strong answers engage with the 'delay rather than a loss' framing directly: either accepting compensation while naming conditions that would stop it being abused (like-for-like habitat, restoration completed first), or rejecting it while acknowledging that refusing all compensation can mean no funding for restoration at all. Weak answers assert a position and ignore the counterpoint.

11. Either answer can be strong. Look for the distinction between acting under uncertainty and acting in bad faith — the ecologists have judged urgency against an unresolved principle, not ignored the principle. Reward a personal example where the student names what made the delay unaffordable.

12. Mark the quality of the example and the cost identified, not the choice of topic. Common strong answers: exam marks standing in for learning, hours worked standing in for output, follower counts standing in for influence. Prompt with: what gets neglected because it is harder to measure?

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