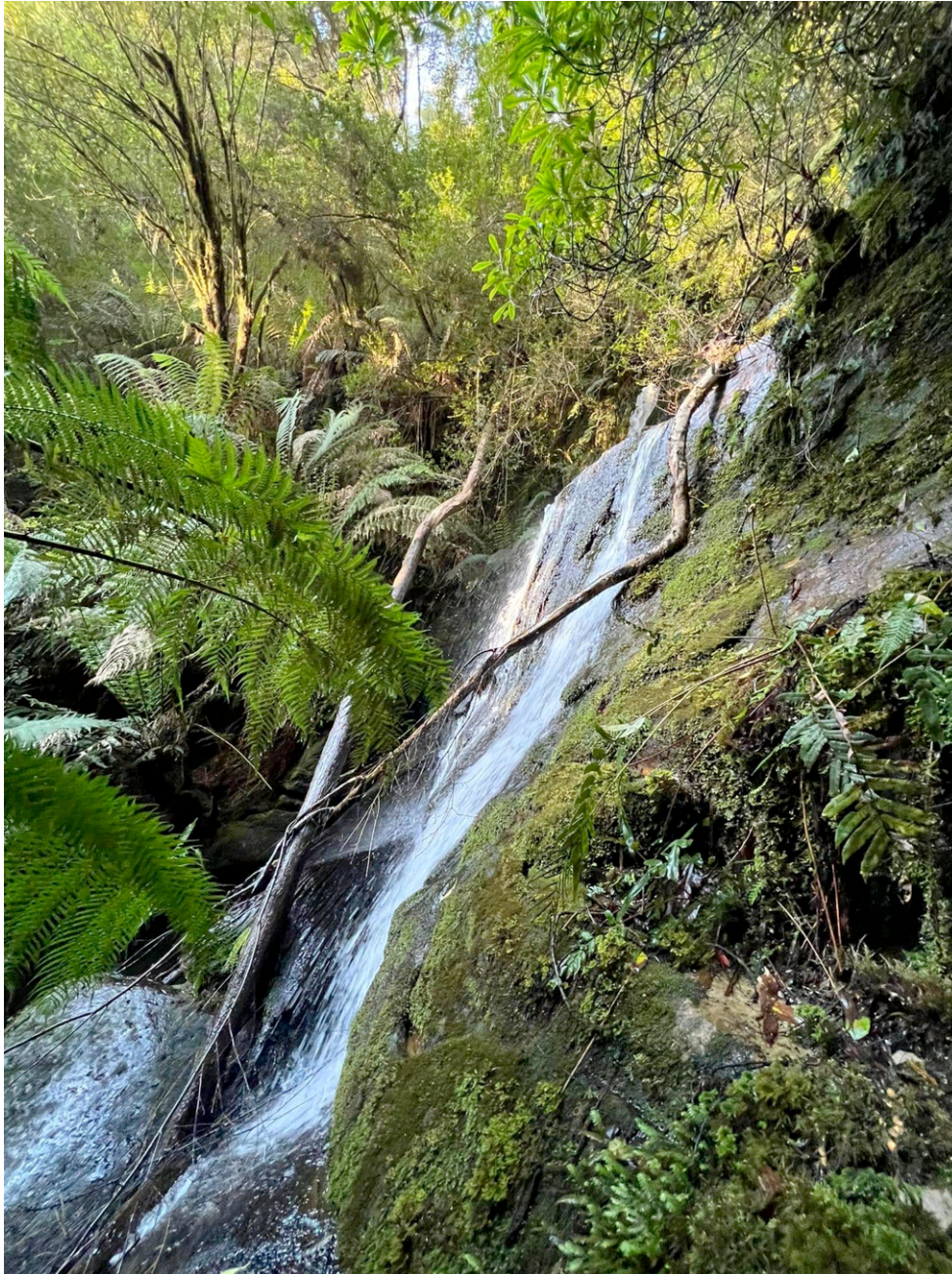


ACTIVATING BRUNY ISLAND's BIOTIC PUMP



Mavista Falls, photo by Paul Allan Grey – it is encouraging to find a small remnant Bruny rainforest area functioning.

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When the wells run dry, look to the trees

Bruny Island's drinking water shortage—over-extracted aquifers, drying creeks, and a landscape that is losing its ancient ability to hold moisture—is not a problem that begins on land and stays there. It is a symptom of a broken water cycle that stretches from the island's highest ridge to the cold currents of the Southern Ocean. And for that, the Bruny BlueBioSphere vision offers not a single technical gadget but a profound shift in how we see our place between the forest and the sea.

The late Dr. Millán Millán¹—a Spanish meteorologist who spent decades unravelling why Mediterranean landscapes were drying out even as global climate models predicted more rain—left us a message of hope. His core finding, drawn from decades of data across Europe, North Africa, and the Americas, is that rainfall in coastal regions depends less on global weather patterns and more on the health of the land itself. Vegetation, especially forests, does not just use water—it creates the conditions for rain by transpiring vast columns of moisture that cool the air, form clouds, and draw in humid maritime air through a biotic pump effect. When trees are cut and soils paved or degraded, this small water cycle collapses. The sea breezes still blow, but they bring less and less rain. The land bakes, the aquifers empty—and every farmer and householder on Bruny knows the rest.

Dr. Millán Millán's life's work can be condensed into a simple sequence, as related by ecological strategist Alpha Lo summing up a recent climate water workshop²:

Slow it, sink it, spread it, sap it, sweat it, sky it.

This is not a technical fix but a profound land management and community commitment to water resilience, and the very core of the BlueBioSphere response to water scarcity.

¹ <https://www.researchgate.net/profile/Millan-Millan>

² <https://climatewaterproject.substack.com/p/living-architecture-slow-it-sink>

The Bruny BlueBioSphere perspective on water

The BlueBioSphere sees Bruny's freshwater not as a separate resource in underground tanks, but as a single living circulation system – a biotic pump³. The sun that drives the winds that fill the Channel with nutrient-rich water also lifts moisture from every leaf on the island. Every gum tree, every patch of she-oak, every swamp paperbark is a fountain pulling water from the soil and breathing it into the sky. That sky, in turn, returns the water as rain on the hills and seeps it through the ground to our springs. The sea is the ultimate source and the land the pump; the island is a living lung.

When we over-extract groundwater, drain wetlands for pasture, or clear forests, we sever that connection. The land stops sweating, the sky stops raining, and the sea—so full and vast—cannot compensate. The BlueBioSphere answer is not to dig deeper wells, bring in tanks on trucks, or pipe in seawater for desalination. These are expensive industrial bandaids that use massive energy and bypass the ecological processes that sustain life for free. Instead, we must restore the island's ability to breathe and reduce our consumption to live within the water household that a healed landscape can provide.

What needs to be done: land management

Every hectare of Bruny Island—from the slopes of Mount Mangana to the coastal scrub—can become a living water sponge.

1. Slow it and sink it. Rehydrate the landscape by stopping water racing off bare or barren ground. On farms, private lots and public land, shape contours with leaky weirs, swales, and woody debris to trap runoff and let it seep into the soil. To hold and nurture its biological life there build up humus content, introduce biochar if needed. To keep sheep from compacting soil, use rotational grazing, avoid wet pastures, and maintain plant cover: apply grazing management and pasture care. These practices prevent hoof pressure from damaging the soil structure. In forested catchments, protect all remaining old-growth and mature regrowth trees—their deep roots are the island's natural water pipes. Ban further clearing, mandate reforestation and encourage forest expansion across—but not only of—key recharge zones, with native species that draw moisture deep from the ground. Every tree planted is a slow, silent pump.

³ <https://hess.copernicus.org/articles/11/1013/2007/>

2. Spread it and sap it. Restore wetlands, soaks, and riparian zones along every creek line that feeds the Neck, the Penguin rookeries, and the coastal lagoons. Wetlands are the kidneys of the water cycle, filtering and slowly releasing moisture. Encourage regrowth of swamp gums, tea-trees, and even grasses that hold water in their tissues and in the humus they build. On grazing land, integrate silvopasture—trees in pasture—so that the landscape sweats over a wider area, seeding clouds.

3. Sweat it and sky it: Indeed, the ultimate goal is to get the island transpiring again, strongly enough to influence local cloud formation. Millán Millán⁴ showed that the loss of forest cover along Spain's eastern coast had reduced summer rainfall by 30–40%, and that reforestation could restore it. Bruny's coastal forests, from Cloudy Bay to the northern beaches, are our rainmakers. The BlueBioSphere calls for a Bruny Biotic Pump Corridor: a continuous belt of regenerating forest connecting the island's spine, designed specifically to lift moisture and trigger rain. This is not sentimental or utopian—it is essential and existential hydrological infrastructure, and it costs far less than a desalination plant.

What needs to change in consumption

A water-cycling landscape can only support a community that learns to live within its means. Bruny's current water stress is a direct result of extraction exceeding the aquifer's natural recharge. No amount of planting will catch up if we keep draining the savings account.

1. Domestic and tourism use: Every household and holiday rental should be part of a Bruny Water Covenant, improving access to communal rainwater tanks, properly sized for year-round use, greywater recycling for gardens, and composting toilets where possible. The island's allure for locals and visitors alike is its natural beauty, not ornamental gardens and lawns. Rates and council permits should more stringently incentivise water efficiency and penalise excessive groundwater extraction.

2. Agriculture and horticulture: The island's small farms can lead the way in regenerative agriculture—no-till cropping, perennial pastures, and livestock water supplies that rely on dams rather than bores. By building soil carbon, farmers and gardeners can quadruple the water-holding capacity of their land, making them more resilient to drought while contributing to the biotic pump. Visitor gardens and botanical parks lead the way by showcasing and teaching nature's climate water art. Oyster and mussel farms, and Bruny Island Seafarms, already use the sea without drawing a drop of fresh water—they are the template for a water-neutral food economy.

⁴ <https://www.resilience.org/stories/2023-07-17/millan-millan-and-the-mystery-of-the-missing-mediterranean-storms/>

3. Industry and development: Any new development—housing, visitor accommodation, or enterprise—must demonstrate water neutrality: it must not increase net extraction from the island’s aquifers. This means on-site rainwater capture, stormwater reinfiltration, and where necessary, offsets through catchment restoration. The BlueBioSphere logic says: if you take a litre of water from the common pool, you must put a litre back into the land’s ability to sweat.

The sea as ultimate source and final check

Bruny as healthy BlueBioSphere reveals that the sea is not the island’s enemy in times of drought—it is the source of its salvation, but only if the land invites it. Millán Millán described how moist sea air that passes over a deforested coast is like a train that doesn’t stop; it rushes on and passes by without releasing its cargo. The forest is the station platform. Without it, the rain goes elsewhere.

Restoring the biotic pump on Bruny would not only refill the aquifers and ease the drinking water crisis. It would also reduce the silt and nutrient runoff that now pours into the Channel after every big storm, damaging seagrass and smothering shellfish. It would cool the streams that shelter juvenile galaxiids and feed the estuarine food web. It would mean more regular rain, less bushfire risk, and a landscape that truly mirrors the island’s green past and promise.

Call to action

- **For landholders and gardeners:** Start slowing and sinking water today. Build a swale, plant a native tree, protect a patch of bush. Join a local Landcare group and share your observations.
- **For households and accommodations:** Do a water audit. Lower consumption, install tanks, transform your parking areas, and talk to your neighbours and visitors about the island’s water story: past, present and future.
- **For all:** Demand that the Kingborough Council and Tasmanian government adopt catchment-scale water planning grounded in Millán Millán’s small water cycle science. Reject new bores and development until a water balance proves there is surplus. Fund a Bruny Biotic Pump restoration project as an alternative to expensive, energy-hungry technical fixes.

The ocean-based BlueBioSphere is also about restoring the island’s water circle from the deepest aquifer to the highest cloud. Water is the thread. The island is the loom. We are the weavers.