

Bringing back ecosystems through natural regeneration: three different examples from three continents

Q&A – questions and replies - 24th March 2026

Presenter	Question	Asker	Asker email	Answer
Todd Dudley	"Apart from flora and fauna, is there any work being done on the improvement of soils due to the restoration? The location seems like it could contribute towards soil property restoration, carbon in particular.",	Siphamandla Nyambo	nyambosiphamandla@yahoo.com	Answered live (on the recording) with respect to the topsoil transfer example.
Todd Dudley	Are there any circumstances where you have needed to supplement the natural regeneration with targeted planting (e.g. specific species that you want)?	Matt Wisdom	19132222@brookes.ac.uk	Answered live (on the recording). Only Eucalypts were seeded and those only in areas where there have been multiple rotations of pines,
Todd Dudley	"You emphasised the role of native soil seed banks in the regeneration, but when the Eucalypts regenerated, did they arise from the soil seed bank? ‘	Tein McDonald	teinm@ozemail.com.au	The reason why we are getting a lot of eucalypt regeneration post harvesting of pines at Skyline Tier is not because of long eucalypt seed viability. The reason is that there are often Eucalypts growing either amongst the pines or adjacent (all of the plantation is surrounded by native forest in good ecological condition) and so Eucalypt seed is dispersed from these trees When the pines are harvested and/or burnt the resulting disturbance and bare soil provides good conditions for Eucalypt regeneration.

				It is also worth noting that <i>Eucalyptus sieberi</i> and <i>E. obliqua</i>, which are two of the most common eucalypt species present, only take around 5 years from germination until they start producing seed. As mentioned - in areas where the Euc regen was likely to be poor, direct seeding of local provenance species was undertaken, mainly of <i>Eucalyptus sieberi</i>. Re the Roadside Regen Project. Again the the regen of eucalypts is due to their being some mature eucalypts retained within the Roadside Conservation Sites (even though it was mainly pine beforehand) providing a seed source which falls on bare soil. Also the Roadside Conservation Sites are adjacent to mature native forest, also contributing. The main benefit of the reuse of the stockpiled bush soil is the great diversity of understorey species that have germinated as a result. Just the soil disturbance was enough it seems.
Todd Dudley	Could you explain a little about who actually undertook the necessary interventions and what did they involve?	Tein McDonald	teinm@ozemail.com.au	Northeeast Bioregional Network (NEBN) is an NGO, having developed a good working relationship with the forest managers over some decades. At Skyline Tier the ecological burns came about after unplanned burns in the plantation post harvesting resulted in excellent regeneration outcomes. This prompted NEBN to encourage the timber company to undertake planned burns to facilitate native regeneration and also at the same time kill pine wildling regrowth.

				The other main interventions are NEBN on-ground crews controlling pine wildling regrowth which is critical to stop pine wildling regrowth competing with native forest regeneration (especially understorey) and some areas being directed seeded with local eucalypts where regeneration is less successful such as plantation areas that have been harvested over a number of rotations. Regarding the roadside regen project the high standards for that project came about as a result of a legal challenge (by NEBN) to the road “upgrades”. An outcome of the litigation was a mediated agreement which included developing a restoration plan for the roadworks including reusing stockpiled native bushland soil and woody debris to facilitate natural regeneration of the flora (over 100 species regenerated) and to provide habitat values ie logs and nest boxes.
André Giles	"That is a great presentation, but did quantify carbon assessment before and after?"	Abrha Brhan Gebre	abrha.brhan@mu.edu.et	We quantify the biomass in different contexts, always after regeneration start
André Giles	"André, how do your findings influence the business model of restoration for carbon and biodiversity credits?"	Piet Vroeg	piet.vroeg@outlook.com	Totally - because we have the first and the unique model for Amazon to represent liquid gains in biodiversity principally. In terms of carbon, we can assess by remote sensing data, but this is a unique approach that uses predictive models to field data. We are showing what the potential of biodiversity and carbon forests have if you apply good management"
André Giles	Have you considered the contribution of resident fauna		petropoulou.mi.g@gmail.com	Answered live (on the recording)

	on the rate of natural regeneration or do the indexes using biodiversity only account for native plant diversity?	Michaela Petropoulou		
André Giles	Do you think your results would change if you included data on the landscape context of the sites? Might this impact the species richness or diversity you see?	Eñaut Martínez de Birgara	enaut.martinezdebirgara@bc3research.org	Answered live (on the recording)
André Giles	Did you have any problems with invasive species?	Jackeline Salazar	Jackeline_salazar@hotmail.com	Answered live (on the recording)
André Giles	"R ² was 0.74, but I wonder how forest cover had a strong negative correlation with land use duration. What does that mean by land use duration?"	Abrha Brhan Gebre	abrha.brhan@mu.edu.et	Thank you for the question. Yes because in the Amazon region, land occupation is related to the amount of forest cover. For example, areas that have a long history of agriculture have more loss of forest amount by deforestation, resulting in a landscape with low forest cover . So we can hypothesize that beyond limit, species availability by loss of forest cover and land use duration are limited by the soil conditions
André Giles	Question to André,"Was there any particular reason for excluding soil organic carbon, under the soil properties. It would be affected by regrowth of tree and biomass and would influence carbon emissions.	Siphamandla Nyambo	nyambosiphamandla@yahoo.com	Yes, just because we performed a correlation to select variables and soil carbon was related to a soil variable, I can't remember,, and we use them because they summarize other soil properties

André Giles	Regeneration is measured through an inverted J-shape, but in your study, what is the structure of the forest?	Abrha Brhan Gebre	abrha.brhan@mu.edu.et	We use the log, for all forest metrics.
André Giles	In slide 7, don't you think the data is different to evaluate the natural process of restoration? May and June?	Abrha Brhan Gebre	abrha.brhan@mu.edu.et	Answered live (on the recording)
Sarah Sweet	"Do you have any knowledge on how herbivores have been responding to the restoration of the floodplains? In many floodplains in Europe it has become increasingly relevant to introduce larger herbivores, how relevant is that here?"	Kristian Munning	krmun6722@uit.no	I mentioned that we still have a healthy population of deer here. They are mule deer. We have no data on whether their populations have been influenced by these restoration projects. The other large herbivore we might consider is tule elk. I mentioned logistical barriers of keeping them confined to the preserve and out of the surrounding agricultural land. Later I realized that it is really a social and economic constraint.
Sarah Sweet	Is there any agricultural runoff of surrounding lands that might affect the restoration?	Barbara Restaino	bzr@restainodesign.com	None of the nearby agricultural runoff enters these restored lands.
Sarah Sweet	Thank you, Sarah. I'm curious about the ecological mechanisms behind seed and spore dispersal during flood events. To what extent is regeneration driven by external inputs versus existing seed banks? And have you explored interventions to enhance those processes where hydrological	Ryan Fontayne	ryanfontayne@gmail.com	I don't have data to separate the influence of seed banks vs external inputs. Both of the sites I presented were farmed intensively for some decades before restoration, so I would expect a reduction in the seed bank – at least in the upper layers of soil for short-lived seeds. There were some samples taken by a neighboring university of the seeds present in incoming floodwater, but I don't think the data were published.

	connectivity can't be fully restored?			Various staff and organizations that cooperate at the Cosumnes River Preserve have undertaken a variety of seeding and planting projects. Seeding grasses and forbs has had limited success over the time span of 20 years. Planting acorns was actually too successful – now we have areas where the trees are only about 5-10 ft apart. We only rarely planted other woody species, but this past winter we installed some.
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