TerraFund for AFR100

BirdLife INTERNATIONAL

NATURE RWANDA
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IMPACT REPORT

Enhancing Community Capacity for Climate Resilience and Restoration in the Lake Kivu I Rusizi River Basin, Rwanda

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In summary

Four years ago, farmers on the hills above Rusizi told us the same thing over and over. Their soil was washing away. There were almost no trees left on their land. Most households ran short of food for part of the year.

Supported by TerraFund for AFR100, this successful project was implemented by Nature Rwanda in partnership with BirdLife International between 2022 and 2026. The project worked with 800 households in Bweyeye and Butare sectors of Rusizi District, supporting farmers to plant and grow around 300,000 agroforestry, fruit and fodder trees across over 500 hectares. Alongside tree planting, the project supported 4 community tree nurseries, creating paid work for local people; provided livestock to Households, with an agreement to pass on the two first female offspring of the animals to other households; and offered training and farm visits. The project also recruited and trained 30 young Community Tree Stewards (CTSs), who volunteered to help mobilise communities, organise tree distribution and used digital tools to monitor trees planted on farms.

. This report clearly sets out what has changed, while also being transparent about which findings are robust and which still require further strengthening.

800	**300,000**	**72%**
Households actively involved	trees planted, over 500 hectares under restoration	of the trees are thriving

What changed for people	Among the households assessed, life improved across nearly every area measured by the survey. Fewer households were going hungry, and more households could raise money quickly when an emergency came up. More decisions at home were also being made jointly by women and men. On land, the change was particularly striking. The number of farm plots affected by soil erosion fell from 54% to just 2.5%. These positive results were as a result of interventions such as planting trees along contours, mulching to conserve moisture for young trees and growing grass strips. These are exactly the practices the project promoted and supported.
What changed for nature	Farmers reported having more trees on their farms than they did in 2022. Separate field monitoring of 180 mapped plots found that 72% of the trees checked were still alive. Birds also returned, in particular, across the project villages, the number of bird species recorded in 2026 more than doubled the 2022 record. By the end of the project, almost half of all bird sightings were of birds using trees planted bythe project.
What did not go according to plan	Tree survival varied across species. Of all species, Avocado (*Persia americana*), fruit trees planted on farms performed poorly, with only 28% of the monitored trees surviving.On private farms, the main reported reason for tree deaths was lack of proper care after planting.

What we still need to learn	The household findings are based on a 10% sample—approximately 80 of the 800 households—while the tree-survival findings come from a separate sample of monitored plots. Both provide useful evidence, but neither represents all households or every tree planted. Community livelihoods were also improving due to factors beyond the project. Changes in people's lives can therefore be reported, but they cannot be attributed to the project alone. Moreover, four years is too short for young trees to have generated significant household income. As a result, the findings provide early evidence of progress rather than definitive evidence of project-wide impact or income generation.

1. Why this project matters

The steep hillsides around Nyungwe National Park are important agricultural landscapes, particularly during the rainy season. However, heavy rainfall can trigger landslides and soil erosion, washing soil from the hillsides into the Ruhwa River and increasing sedimentation. The Ruhwa River eventually flows into the Rusizi River, carrying this sediment downstream.

When the project team first met with households in 2022, the picture was consistent and concerning. A typical family farmed 0.8 hectares split across two plots and had just seven trees across the whole farm. More than half of all plots had no measures to protect the soil. Food insecurity was widespread: four in five households went without enough food at some point during the year. And financial resilience was extremely limited, only four of the 79 households interviewed could raise 50,000 RWF within a week to deal with an unexpected expense. .

Three quarters had entered the national park or reserve in the previous 12 months, mostly to collect firewood or bean stakes. Not because they wanted to, but because they had few other options.

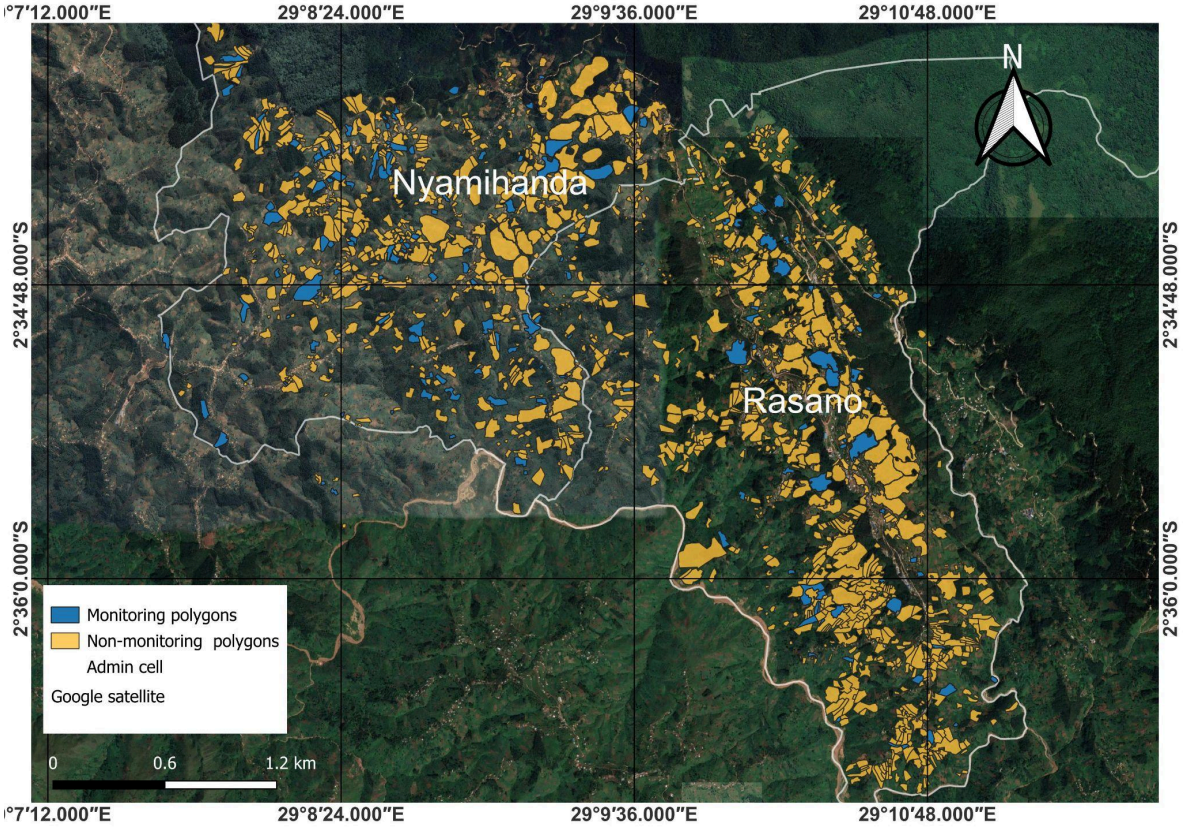
The project team and the community agreed on the problem and solutions from the start as farmers were clear about what was holding them back. When asked what stood most in the way of farming, 68 (86%) out of the 79 households interviewed pointed to poor soil or erosion. When asked what change they most wanted to see, 54 (68%) provided a similar response: less erosion on their land.

The steep cultivated hills of Rasano cell, showing the terrain where keeping soil in place is critical for productive farms and a healthy landscape.

2. What the project did

The approach was straightforward: put trees back on farmland, hold the soil, and give households a near-term reason to keep the trees alive.

Map of Planting Polygons



Map of planting polygons.

Trees

Seedlings from eight tree species including fruit trees were supplied, and farmers were supported to plant them, mostly in lines of trees and hedges along the contours of their land (alley cropping). The project distributed 300,000 seedlings across 800 households, with each household supplied with seedlings equivalent to what their existing land could support.

Work and income

Community members generated income through the management of tree nurseries, including raising and tending seedlings. .Livestock, mainly pigs, were provided as an incentive to selected households that demonstrated a strong commitment to maintaining the trees on farms, with an agreement that they would pass on the first female offspring of the animals to their neighbours, helping to extend the benefits to other community members.. Young people were also supported to access small revolving loans through Village Savings and Loan groups, enabling them to invest in income-generating activities.

Restoration support teams

Thirty Community Tree Stewards (Youth from the community) were trained on agroforestry, and tree monitoring tools. They organised tree planting in their villages, continuously encouraged farmers to maintain the trees, and effectively collected information from the polygons, including the tree monitoring data used in this report. Training sessions and farm visits were maintained throughout the project.

How we know what changed

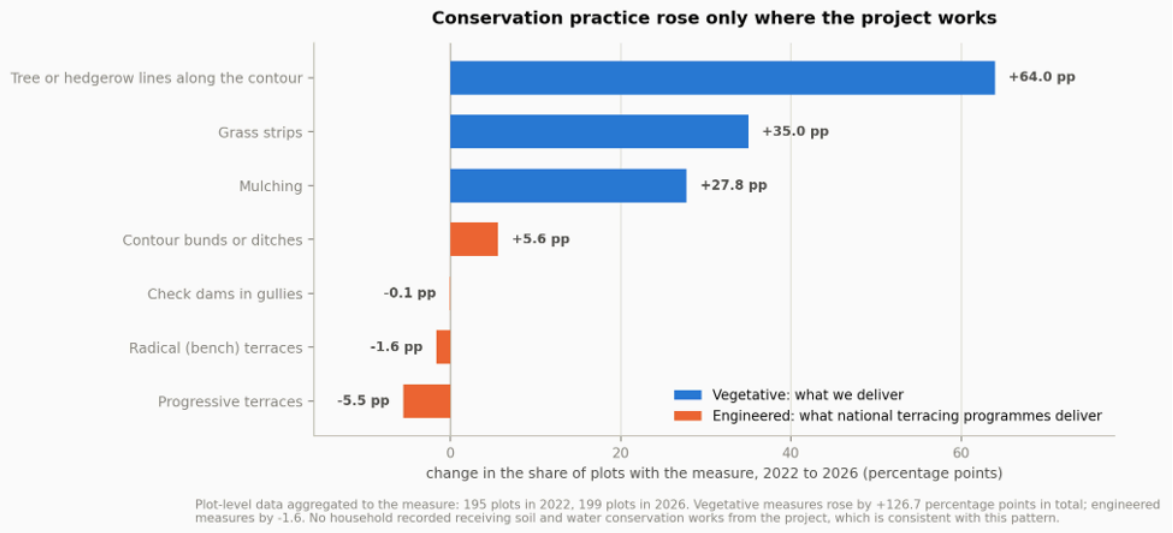
Households	The project reached 800 households. To understand what had changed for households , we assessed a 10% sample of about 80 households, visiting them in 2022 and again in 2026. Eighty households consented to the survey in 2022, and 79 were surveyed in 2026. The same 79 households could be matched across both rounds. The findings describe what is happening among these households.
Trees	Community Tree Stewards visited a random sample of 180 mapped plots containing 30,165 trees (roughly 10% of all the trees planted by the project) during May, June and July 2026 to observe tree growth. These observations provide the strongest evidence on tree survival.
Wildlife (indicator taxon)	Birds were surveyed at fixed points across 11 villages in September 2022 before any planting began, and again in August 2026 as the project closed. During the September 2022 surveys, only 27 species were recorded compared to 58 bird species recorded in August 2026.

3. What changed for people

Erosion was the problem farmers named first. It is also where the change is most telling, not because the numbers are the biggest, but because of where the change happened.

In 2022, 54% of farm plots had nothing protecting them from run-off. By 2026, that had fallen to 2.5%. For the typical family, the share of plots with at least one soil protection measure went from about a third to nearly all of them. The other measures which the project encouraged included planting trees along the boundaries, application of farmyard manure to enhance trees growth, pruning and weeding to prevent competition with weeds.

What makes this more than a good number is where the change happened. Nearly all of it was in living measures: lines of trees and hedges along the contour, strips of grass and mulch. The terracing built through Rwanda's national land husbandry programmes using organised labour did not increase at all. It actually slipped back slightly. One engineered measure; **contour bunds and ditches**, increased by six percentage points, compared with a 64-percentage point increase in contour tree and hedge lines.



Source: Socio-economic survey report 2026.

Living measures rose by 127 percentage points between them, while terracing fell. The growth concentrated in what the project supplied, and largely absent from the national alternative, is a strong hint but not proof: the project's own analysis rates this finding as moderate rather than strong, because it could not show that households given more support changed more.

Households are better off, but we cannot claim all the credit

Among the households assessed, almost everything improved. Hunger fell sharply. The typical family went from answering "yes" to six of the eight standard food insecurity questions to answering "yes" to just one. The number of households that got through the whole year without a hungry month rose from 19% to 61%.

Spending per person rose from about 200,500 RWF to 299,000 RWF a year in real terms. The share of households with savings they could access in an emergency increased from 13% to 54%, while the share that could raise 50,000 RWF within a week rose from 5% to 57%, suggesting an improvement in household economic well-being.

These are real changes in the lives of the households assessed, and they matter. But the project cannot claim that it caused them. Over the same four years, among the same households, other things that the project had nothing to do with also improved just as much.

15→84%	**51→80%**	**57→75%**
households lighting their homes from the electricity grid	households with an improved source of clean drinking water	households covered by community health insurance

Rusizi District became better connected and better served during the same period that the project was running. A tree growing and livestock project cannot take all credit for improvements such as access to electricity, roads or other services. Government development programmes were also active in the area. So, when household incomes and food security improve at the same time, there is no honest way to separate the project's contribution from everything else that was changing around these households.

Coping with a bad year and deciding at home

Fewer households were hit by a shock at all, down from 86% to 62%. Among those who were affected, far more could draw on their own savings rather than simply do nothing. But when a shock did happen, households were no less likely to sell a productive asset, take a child out of school or delay medical care. That measure did not change. A family can be considerably better off and still have no better answer to a bad month. This is worth keeping in mind before reading the food security figures as proof that households have become more resilient.

Decisions at home changed too. Of the five decisions the survey asked about, the typical family went from making two jointly to making all five jointly. The share of households where crop sale decisions were not shared fell from 46% to 4%. Cooperative membership rose from 5% to 23%, while households reporting disputes of any kind fell from 48% to 11%.

The direction of change is clear. Whether the project caused it is less clear, especially in a country running national campaigns on shared decision making.

A community member working in the nursery in Runyovu village of Rasano cell, Bweyeye sector.

4. What changed on the land

There are two quite different pieces of evidence about the trees, and they answer different questions. It is worth keeping them apart.

What farmers reported

During the household visits, farmers were asked how many trees were growing on their land. Among the households assessed, the typical number rose from **7 trees** in 2022 to **108 in 2026**. Farmers also reported that most of the seedlings they had received were still standing, and the increase they reported was broadly consistent with the number of project seedlings they said had survived.

These are farmer reported figures. They are useful for understanding what farmers see on their own farms, and they suggest that the increase in trees came largely from the project rather than from other sources. But they are not a tree survival assessment, and this report does not treat them as one.

What field monitoring found

To get a more direct picture of tree survival, Tree Community Stewards (CTSs) went out and counted the trees themselves. They visited a random sample of 180 mapped plots containing 30,165 trees, around 10% of all the trees planted by the project, during May, June and July 2026. These observations provide the basis for the survival findings in the next section. The two sets of numbers are kept separate and are not combined.

Restored slopes four years ago, with trees established on the farms.

5. How many trees survived

Planting a tree and establishing a tree are not the same achievement. Counting is the only way to know which one has happened.

Trees monitored	Still alive
Exotic species (Grevillea robusta survived best)	**78%**
Native species (Maesopsis survived best)	**61%**
Avocado (*Persia americana*)	**28%**
All monitored trees	**72%**

This is not a verdict on exotic against native: the fast-growing species need less looking after, the natives need more, and where a tree was planted and whether anyone came back to it are part of these numbers too. ***Source: tree monitoring report***.

Overall, 72% of the trees the Stewards checked were still alive. For agroforestry on steep ground, four years after planting, that is a respectable result. It describes the trees that

were actually counted. This report does not use the figure to estimate survival across the full planting, because a one in ten sample is not a headcount, and turning it into a project wide figure would be a guess presented as a result.

Behind the overall figure is a wide range, and that range is the more useful finding. Most of the monitored exotic trees survived, while the native species did less well. Avocado performed poorly. Taken together, the results point to something simple: the tree species planted, the location where they are planted and post planting care all matter, and they matter together.

How the surviving trees are growing

Survival is only half of the comparison. The same monitoring round also recorded a height class and a stem diameter class for each tree, and on these measures the native species hold up better than the survival figures alone would suggest. Of the 8,633 trees with growth observations, 8.0% of the native trees were still under a metre tall against 4.8% of the exotics, the largest single difference between the two groups.

Trees with growth observations	Native	Exotic
Still under 1 m tall	**8.0%**	**4.8%**
3 m- 5m tall	**65.5%**	**70.0%**
Over 5 m tall	**22.5%**	**26.2%**
Stem over 10 cm across	**44.2%**	**46.7%**

Source: Nature Rwanda_tree monitoring report, 2026.

That lead at the top belongs to one species rather than to exotics as a group. Grevillea robusta made up 86% of the monitored non-native trees, and with Grevillea set aside the difference in height between native and non-native disappears. Stem diameter shows no meaningful difference either. At species level the strongest growth in native trees came from one species, *Maesopsis eminii*, which also survived best among the natives, with 44.2% of its trees at three metres or taller, and followed by *Markhamia lutea*, comes next at 37.4%.

Read alongside the survival counts, the two sets of numbers say different things about the same trees. The exotic advantage in this project is an advantage in surviving, not in growing: where native trees came through the first years, they grew as well as the exotics and were less likely to be left stunted. That points to the same place as the Stewards' own explanation for the deaths, the care a tree receives after planting rather than anything inherent to native or exotic species. It also matters for what gets planted next. The strongest and the weakest growth performances both came from native species, so the planting decision turns on which species, planted where, rather than on the native or exotic label.

The main reported reason for tree deaths was poor maintenance and lack of care after planting.

The main reported cause was poor maintenance and lack of care after planting. Other factors played a part, and the monitoring does not rule them out, but poor follow up was the reason recorded most often by the Stewards.

This is a more useful finding than a low survival rate on its own because it points to what needs to change after planting. Households saw the losses too, although they were not asked what caused them. Among the 79 households that reported on this, 33 (42%) said some seedlings had died. Households reported a need to replace the trees they had lost.

A Community Tree Steward counting trees in one of the monitored plots.

Farmers preferred avocado for its nutritional value, but it had the lowest establishment rate of all the species planted. This finding has informed changes to the project's approach.

51 (66%) of the 79 households assessed had been supplied with Avocado seedlings, making it one of the most widely distributed species in the survey. Farmers wanted it because it produces fruits, can be sold, and it takes less than half a decade to start providing value. However, avocado seedlings had the lowest survival rate of all the tree species planted. The monitored exotic species had an overall survival rate of 78%, while the native species came in at 61%. Avocados, counted separately, had a survival rate of just 28%.

The causes of poor survival rate by avocado seedlings is not yet known due to numerous factors such as the effects of the planting method, the planting site, the slope and the care each tree received which may have contributed. However, the project team identified

the usual approach of raising seedlings in a nursery and then moving them to the field as a potential contributing factor.

How we responded

Rather than supplying another round of nursery-raised seedlings, the project began testing a different approach: planting avocado seed directly on the farm and grafting the young plants where they grow.

This is an emerging practice, not a solution. There is not yet enough evidence to show that it survives better than nursery raised seedlings, and this report does not claim that it does. The project will need to keep monitoring survival, grafting success, the work required from farmers, and what farmers themselves think of the approach before concluding that this is a better way to grow avocados.

A Fruiting avocado tree planted through the project on a farm in Kenya Village, Butare Sector.

6. What came back to the trees

Birds are a useful early environmental signal because bird communities can respond fairly quickly to changes in what is happening around them. Counting them at the same fixed points before, during and after the project provides a clear indication of how the habitat has transformed

Bird counts at fixed points	2022	2026
Species recorded	**27**	**58**

Bird counts at fixed points	2022	2026
Individual birds counted	**125**	**512**
Evenness of the community	**0.97**	**0.83**

Species richness more than doubled, while the number of birds recorded rose more than fourfold. The diversity measures tell a subtler story. Overall diversity increased only slightly, while evenness fell. This means more species are now present, but a few common species have become more dominant. That is what we would expect when open ground is first colonised. It is not yet what a mature habitat looks like. ***(Nature Rwanda Bird survey report 2026).***

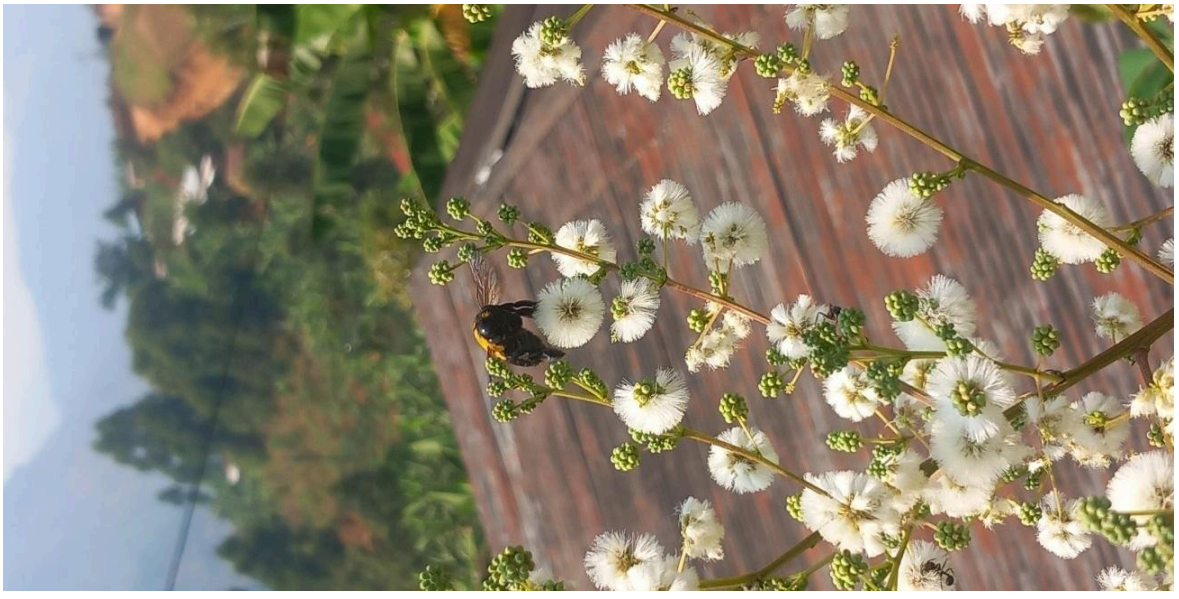
Across the 11 villages, insect eaters, seed eaters, nectar feeders and fruit eaters were all using the new trees. Grevillea robusta accounted for about half of all bird sightings in project trees, mostly birds resting or picking insects from the leaves. Calliandra, by contrast, was used mainly by nectar feeders visiting its flowers. The two species were supporting birds in different ways, and both also provided feed for livestock.

A bird nest of the Common Waxbill in a *Spathodea campanulata* tree planted as part of the project.

An active nest of the Common Waxbill in a Spathodea campanulata tree planted by the project at Runyovu. At the end of the project, 101 of 211 bird sightings were of birds using trees planted through the project, representing 35 different species. A bird raising young in a four-year-old tree is more than just passing through.

What the counts cannot tell us

How much counting was done	The survey used two to four fixed stations per village, compared counts at the same stations over time, and tested whether the increase was statistically significant. So, this is not simply a comparison of raw totals. However, the survey does not record how many visits were made to each station, how long observers spent there, or whether the same people carried out the counts. Without that information, some of the increase could still be due to more time or effort spent looking.
Nothing changed for the rarest birds	No threatened species were recorded in either survey. Two Albertine Rift endemic species (Blue-headed Sunbird and Dwarf Honeyguide) were recorded as single birds, one in the first survey and a different one in the second. With one species appearing and another disappearing, there is no basis for claiming a change in the presence of endemic species. …
Pollinators were never counted	Beetles, carpenter bees and honeybees were seen visiting the flowers of avocado, Markhamia and Calliandra. The project supplied avocado to 51 of the households assessed and Calliandra to 53. So the route is plausible and there is photographic evidence of it. Whether pollinator numbers increased, or whether crop pollination actually improved, is unknown. That gap matters because better pollination of crops around the trees is one of the benefits farmers would feel most directly. However, the project cannot assess whether this changed because pollinators were not recorded during the baseline survey.



A carpenter bee working the flowers of a Calliandra on a project farm at Nyamirambo..

7. LESSONS LEARNT

Five lessons are worth carrying into the next phase. Each is framed as something to do, not simply something to note.

1 Tree planting is only the beginning:

72%of the monitored trees survived, and the most common reason for losses was that nobody returned to weed, water or protect them. Future restoration targets should therefore be based on trees surviving, not trees planted. Budgets should also include follow up visits and replacement planting around 12 months after planting from the outset, rather than treating them as something to do if funds remain. Post planting care and maintenance including effective pruning is important.

2 Species and local conditions matter, together:

Survival ranged from 78% for exotic species as a group to just 28% for avocado. Before scaling up any species, check that the establishment method suits the species and local conditions. If it does not, change the method rather than simply lowering the target.

3 Let field results change what you do:

When avocado survival came back at 28%, the project did not simply record the result, but instead started testing other approaches like germinating avocados directly on farm and grafting later. Monitoring is worth investing in when the people collecting the information can act on it, and when findings that call for a change in approach are reported as clearly as those that do not.

4 Investing in capacity building to strengthen community monitoring , generates useful feedback:

The Community Tree Stewards were not just a delivery mechanism. They were the reason the project has field observed survival data at all, and the reason it identified the maintenance problem. Building this capacity into the project design gives the team a way to hear bad news early enough to act on it.

5 Restoration goes beyond the project cycle:

Every link in the chain holds up to the point where a tree is big enough to be useful. After that, the evidence runs out because the trees planted in 2022 were only four years old when the survey closed. If the goal is to know whether restoration improves livelihoods, the monitoring needs to continue beyond the grant period.

6 Approaches with strong potential for replication:

Using trees to protect the soil instead of building earthworks appears to have worked well here. It is a simple, relatively low-cost approach that farmers can maintain themselves to get other co-benefits from trees. The trees and other living measures provide soil protection, while farmers manage them on their own land. Recording each bird sighting

against the tree species where it was seen also turned a bird list into evidence about how the planted trees were being used, at very little extra cost.

8. A story from the field

Sometimes the most telling result is not the one the project set out to measure.

When households were first interviewed in 2022, erosion was not only costing them soil. It was also causing problems with their neighbours. Water running off one farm can end up on the farm below, and 24% of households interviewed had been in a dispute with a neighbour about exactly this. More than half of all plots had nothing to slow the water down.

Farmers planted the seedlings they were given in lines of trees and hedges along the contours of their land, and kept them going with support from the Stewards and farm visits. This was not an engineering solution, no terraces were made and no structures were built. The approach was simple: trees planted in the right line.

Contour tree and hedge lines increased from 12% of plots to 76%. The share of plots with visible erosion fell by half. And disputes with neighbours over run-off fell from 24% of households to none.

> *"My land in Uwinzovu is now protected from erosion, which was a serious problem in the past. We hope that in the coming years we will have better harvests and spend less money on stakes."*
>
> **A FARMER FROM NYAMIRAMBO VILLAGE**

Reducing conflict between neighbours was never one of the project's objectives. The simplest explanation is that less water was running from one farm onto another, possibly because more trees and other soil protection measures were in place. But the evidence does not prove this. When the project tested whether farms with more trees uphill had reduced erosion in downhill farms, it found no clear relationship. The disappearance of the disputes is therefore a useful finding, but not proof of why they stopped.

It is still worth reporting. Restoring land can do more than one thing at a time, and some of the most valuable effects are the ones nobody thought to include in the original plan. This is one that would be worth measuring deliberately next time.

9. What should happen next

The project has produced useful evidence. Some questions will only be answered by carrying on.

What we still need to understand

None of these limitations takes away from what the project achieved. They simply mark the limits of what four years of evidence can show, and each point to something worth doing differently in the next phase.

The household findings come from a sample	About 80 of the 800 households were assessed, a 10% sample. The findings tell us a lot about those households, but nothing definitive about the rest. Where results are likely to differ between villages, future samples should be large enough to show those differences.
So do the survival findings	The 72% comes from 180 monitored plots containing about a tenth of all the trees planted. That is a sound basis for understanding survival, but it is still a sample. Recording where the monitored plots are located in relation to beneficiary farms would make the findings more useful.
Farmer-reported tree numbers are not survival data	What farmers say about the trees on their land is valuable in its own right, but it answers a different question. The two sources should continue to be reported separately rather than combined.
The avocado approach is still being tested	Direct planting and on farm grafting is a sensible response to a poor result. Whether it works better is not yet known. It should be tracked against nursery raised trees for survival, grafting success, labour, cost and farmer acceptance.
There was no comparison village	Almost every household assessed took part in something the project did, while Rusizi was also improving for reasons outside the project. Including two or three villages that receive project support only from year three would give the next phase a stronger basis for identifying the project's contribution, rather than simply describing the changes that occurred.
Four years is not long enough	Young trees have not yet begun to pay their way in stakes, fodder, fruit or firewood. Returning to the same households in 2029 or 2030 would help answer the question this evaluation could not: whether the trees have gone on to deliver lasting benefits for households.

Trees where there had been almost none, farmers protecting their own soil, birds using the young trees and a survival count is honest enough to show where the work fell short.

Annexes

1. Socio-economic survey results: Summary tables

How we assessed our own contribution

Test	The question it asks	How it can be fooled
Dose-response	Did households that received more from us change more?	We targeted the worst-off, who had the most room to improve anyway (regression to the mean).
Specificity	Does that same relationship also appear on outcomes we cannot affect, grid electricity, health insurance, children in school, water source, household size, disability, government programmes, marital status?	Hard to fool. This is the test that does most of the work for us.
Baseline conditioning	Does the relationship survive a regression that controls for where the household started on the same outcome?	Removes mean reversion but not other differences between households.
Arithmetic additionality	Do the inputs we delivered, and that survived, account for the observed change unit for unit?	Only works for physical stocks such as trees and animals, but where it works it is the strongest test we have.

Table 1. Our four contribution tests. We only rate an indicator as strong evidence if it passes a test that our own targeting cannot explain.

Linking the two rounds

	Households	Note
Baseline interviews, 2022	81	
Of which consent refused	1	No data collected; excluded from all denominators
Baseline households eligible for follow-up	80	
Endline interviews, 2026	79	
Matched across both rounds, our panel	79	Retention 98.8%
Baseline only, lost to follow-up	1	Attrition 1.2%
Endline only, new households	0	We added no replacement households

Table 2. How we built the panel. Retention at this level is unusual, and it is the single greatest methodological strength of this evaluation.

The headline scorecard

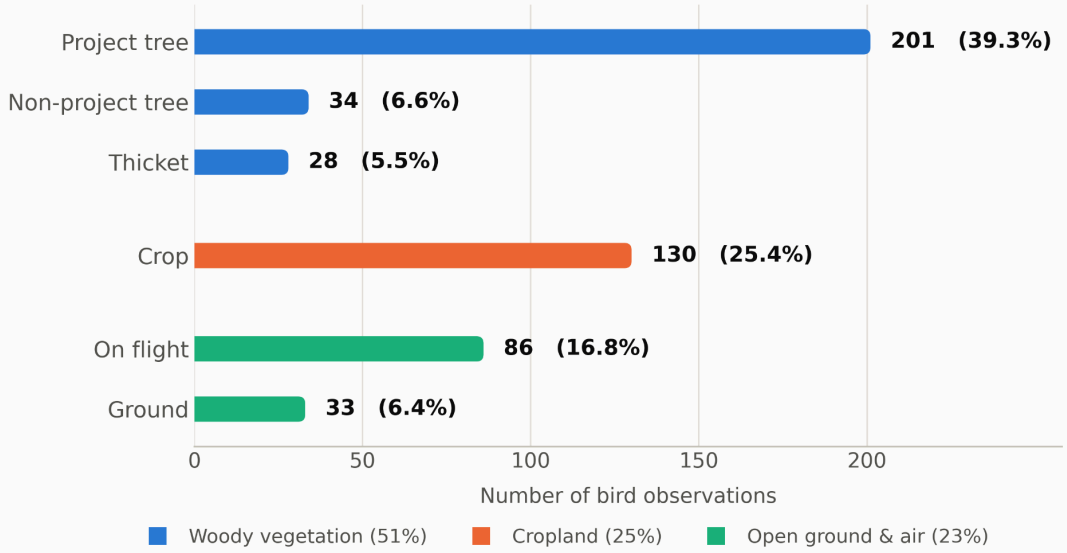
Domain	Indicator	n	2022	2026	Change	% change	p (FDR)	Effect	Size	Evidence
Restoration	Household never entered the national park or reserve to collect products in the past 12 months	79	24%	76%	+51.9 pp	n/a	p < 0.0001	+1.09	Large	**Weak**
Restoration	Share of the household's plots with any soil and water conservation measure	79	35%	94%	+59 pp	n/a	p < 0.0001	+0.87	Large	**Moderate**
Restoration	Trees growing on the household's land	79	7	108	93	352.6%	p < 0.0001	+0.92	Large	**Strong**
Agriculture & livelihoods	Livestock holdings in Tropical Livestock Units	79	0.00	0.43	0.30	225.6%	p < 0.0001	+0.85	Large	**Weak**
Agriculture & livelihoods	Value of livestock owned	79	0	350,000	120,000	115.2%	p < 0.0001	+0.60	Large	**Weak**
Economic status	Consumption expenditure per person per year	79	200,498	299,000	44,453	5.8%	p = 0.0008	+0.44	Moderate	**Weak**
Economic status	Household wealth index (PCA of assets, housing, water, sanitation and energy)	79	-0.18	1.39	1.74	n/a	p < 0.0001	+1.29	Large	**Weak**
Food security	Food Insecurity Experience Scale raw score (8 items)	79	6	1	-4	-67.8%	p < 0.0001	-0.90	Large	**Weak**
Food security	Household Dietary Diversity Score	79	4	6	1	55.4%	p < 0.0001	+0.73	Large	**Weak**
Food security	Months of adequate household food provisioning	79	11	12	1	34.4%	p < 0.0001	+0.91	Large	**Weak**
Resilience	Household could raise 50,000 RWF within one week	78	5%	58%	+52.6 pp	n/a	p < 0.0001	+1.27	Large	**Weak**
Resilience	Use of erosive coping strategies	79	0.00	0.00	0.00	33.3%	p = 0.5271	+0.20	No change	**Weak**
Social & institutional	Number of groups or associations the household belongs to	79	1	2	0	50.4%	p < 0.0001	+0.80	Large	**Weak**
Gender & decisions	Number of household decisions taken jointly by women and men (of 5)	76	2	5	2	92.9%	p < 0.0001	+0.94	Large	**Weak**
Wellbeing	Life-satisfaction ladder, present	79	4	6	2	63.3%	p < 0.0001	+0.98	Large	**Weak**

Table 3. The medians for 2022 and 2026 because most of these distributions are strongly skewed; means, standard deviations, confidence intervals. A blank percentage change means the indicator is an index centred on zero, for which a percentage change is not meaningful.

2. Birds survey

Half of all interactions happened in woody vegetation

Class totals: woody vegetation 263 · cropland 130 · open ground & air 119 observations



n = 512 bird observations. Woody vegetation = project trees, non-project trees and thicket.

Checklist of recorded species

Common Name	Scientific Name	Baseline Abundance	Endline Abundance	IUCN RedList
African Harrier-Hawk	*Polyboroides typus*	2	1	LC
African Paradise Flycatcher	*Terpsiphone viridis*	0	9	LC
African Pied Wagtail	*Motacilla aguimp*	2	6	LC
African Pygmy Kingfisher	*Ispidina picta*	0	1	LC
African Stonechat	*Saxicola torquatus*	4	1	LC
African Thrush	*Turdus pelios*	0	3	LC
Angola Swallow	*Hirundo angolensis*	4	0	LC
Arrow-marked Babbler	*Turdoides jardineii*	0	8	LC
Baglafecht Weaver	*Ploceus baglafecht*	8	21	LC
Banded Martin	*Neophedina cincta*	0	8	LC
Black and White Casqued Hornebill	*Bycanistes subcylindricus*	0	2	LC
Black Saw-wing	*Psalidoprocne pristoptera*	8	37	LC
Black-crowned Waxbill	*Estrilda nonnula*	0	35	LC
Blue-headed Coucal	*Centropus monachus*	4	1	LC
Blue-headed Sunbird	Cyanomitra alinae	0	1	Albertine Rift Endemic
Blue-spotted Wood-Dove	*Turtur afer*	0	3	LC
Brimstone Canary	*Crithagra sulphurata*	0	5	LC
Bronze Mannikin	*Spermestes cucullata*	0	43	LC
Bronze Sunbird	*Nectarinia kilimensis*	6	37	LC
Brown-crowned Tchagra	*Tchagra australis*	0	3	LC

Brown-throated Wattle-eye	*Platysteira cyanea*	0	2	LC
Cape Wagtail	*Motacilla capensis*	0	2	LC
Chinspot Batis	*Batis molitor*	0	2	LC
Chubb's Cisticola	*Cisticola chubbi*	6	45	LC
Cinnamon-breasted Bunting	*Emberiza tahapisi*	0	4	LC
Cinnamon-chested Bee-eater	*Merops oreobates*	0	1	LC
Common Bulbul	*Pycnonotus barbatus*	7	23	LC
Common Waxbill	*Estrilda astrild*	0	8	LC
Dwarf Honeyguide	Indicator pumilio	1	0	Albertine Rift Endemic
Eurasian Kestrel	*Falco tinnunculus*	0	1	LC
Golden-breasted Bunting	*Emberiza flaviventris*	2	0	LC
Green-backed Camaroptera	*Camaroptera brachyura*	4	4	LC
Green-headed Sunbird	*Cyanomitra verticalis*	1	2	LC
Grey-capped Warbler	*Eminia lepida*	0	2	LC
Holub's Golden Weaver	*Ploceus xanthops*	0	1	LC
Lesser Honeyguide	*Indicator minor*	0	2	LC
Lizard Buzzard	*Kaupifalco monogrammicus*	0	2	LC
Long-crested Eagle	*Lophaetus occipitalis*	0	2	LC
Mackinnon's Shrike	*Lanius mackinnoni*	7	20	LC
Miombo Rock Thrush	*Monticola angolensis*	0	4	LC
Northern Fiscal	*Lanius humeralis*	0	3	LC
Northern Gray-headed Sparrow	*Passer griseus*	0	4	LC
Pied Crow	*Corvus albus*	5	4	LC
Pin-tailed Whydah	*Vidua macroura*	0	2	LC
Red-chested Sunbird	*Cinnyris erythrocercus*	9	4	LC
Red-eyed Dove	*Streptopelia semitorquata*	0	3	LC
Scaly Francolin	*Pternistis squamatus*	4	0	LC
Scarlet-chested Sunbird	*Chalcomitra senegalensis*	5	22	LC
Slender-billed Weaver	*Ploceus pelzelni*	0	3	LC
Speckled Mousebird	*Colius striatus*	4	15	LC
Streaky Seedeater	*Crithagra striolata*	8	14	LC
Tropical Boubou	*Laniarius major*	4	6	LC
Variable Sunbird	*Cinnyris venustus*	4	8	LC
Western Citril	*Crithagra frontalis*	2	1	LC
White-browed Coucal	*Centropus superciliosus*	0	1	LC
White-browed Robin-Chat	*Cossypha heuglini*	0	1	LC
White-eyed Slaty-Flycatcher	*Melaenornis fischeri*	5	2	LC
White-headed Saw-wing	*Psalidoprocne albiceps*	0	9	LC
White-necked Raven	*Corvus albicollis*	5	4	LC
White-tailed Blue Flycatcher	*Elminia albicauda*	0	2	LC
Yellow-bellied Waxbill	*Coccopygia quartinia*	0	42	LC
Yellow-billed Kite	*Milvus aegyptius*	0	1	LC
Yellow-fronted Canary	*Crithagra mozambica*	4	9	LC

Table 2. Check list of recorded bird species