

## Building Horticulture Capacity in Montserrat (2)

*A Report on the horticultural upskilling carried out in Montserrat during July & August 2024 to support the UKOTCF delivery of **Darwin Plus Projects 155 & 192***

*(The second visit by Leigh Morris, following the first in May 2023)*



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## Summary

This report covers my second visit to Montserrat, which took place on July 18<sup>th</sup> to August 5<sup>th</sup> 2024, to help build horticultural skills on the island and support the UKOTCF delivery of two Darwin projects DPLUS 155 (ending in 2024) and DPLUS192. This trip I focused on pest and disease control, plant pruning and reinforcing the plant propagation approaches in the Montserrat National Trust (MNT) nursery. My key audience was the MNT team and the Adopters (members of the community developing and managing their land within the Adopt-a-home-for-wildlife aspect of DPLUS155).

My first week was spent visiting Adopter sites and farms, to develop the topics for the training workshops in week two. I visited 11 of the Adopter sites, including small private gardens, school grounds and more expansive natural landscape areas. I can see that much has been achieved during the project, and I believe that with several of the Adopters this will sustain, providing an opportunity to develop the nursery plant growing and wildlife enhancing aspects even more. I made a series of farm visits accompanied by Chris Sealys (MNT) and Elvis Gerald (Montserrat Govt. Farm Extension Officer), having useful conversations with Montserratian and ex-pat farmers. They ranged from part-time farmers growing field crops, to one farmer who was full-time producing lettuce more intensively.

In my second week I delivered three horticulture training workshops on Plant Pruning, Pest and disease control, and a refresher for MNT team on plant propagation. The horticultural workshops were well received, with high levels of enthusiasm and interaction on both workshops, with, I believe, genuine learning achieved, and there is a clear need and desire for more training from the participants, including from some interested gardeners and landscapers. Following the training, a presentation event was held at MNT, with all those who had attended horticulture training in 2023 and 2024 being invited to receive a certificate of attendance.

The standards we had jointly set for propagation during my visit in 2023 had regressed due to capacity and other priorities, but it was good to see the Pribby we propagated last year looking healthy. The refresher training I delivered to the MNT team has reinforced the key horticultural points. Paramount now is to set and sustain nursery systems and ways of working, and to that aim I still see a great long-term benefit to MNT by writing and adopting of a Living Collections Policy and Plant Production List.

Looking at agriculture wasn't an aim of my visit, but food production in Montserrat has major impact on the environment of the island. There is clearly a poor understanding in Montserrat of how to safely and effectively use pesticides to control pests and diseases and benefit food production, while at the same time minimising the risks to wildlife and people. I regard this as a crux issue for the island and needs to be tackled in several ways. My overall belief is that much more local food could be produced in a more regenerative and nature-positive way, and a clear strategy is required to achieve this.

Wider engagement on my visit included meeting people from the Joint Nature Conservation Committee (JNCC), and David Clements, an entomologist, who accompanied me on several visits. I participated in an excellent session with Monty's Ambassadors (the MNT youth group), and on my weekends I dived with Scuba Montserrat and assisted with their coral reef conservation work, alongside two marine biologists from Australia. I spent several late evenings observing green turtle nesting, visited the Mountain Chicken enclosure and a wonderful private garden owned by two MNT supporters. It was great to witness the developments in the MNT nursery, with new buildings for the team, and to visit the new MNT Pipers Nature Trail and, soon to be re-opened interpretation centre in an old sugar mill at Richmond Hill.

Overall, my two visits to Montserrat have helped build horticultural capacity and have facilitated more joint working and collaboration across the island. The key upskilling has been with the MNT team, who I hope and believe will continue to showcase and champion the good horticultural practices we covered in my training. My own personal knowledge and understanding of Montserrat's environmental issues has expanded greatly, which I believe enhances my usefulness in wider UKOT discussions within the UKOTCF Council.

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## 1. Introduction

In May 2023 I visited Montserrat, to help build horticultural skills on the island, focusing on developing the Montserrat National Trust (MNT) plant nursery and plant propagation skills within the MNT team, the Montserrat Government Department of Agriculture & Environment, and local farmers. The full report on my first visit is available on the UKOTCF website linked here: [www.ukotcf.org.uk/wp-content/uploads/2023/07/Montserrat\\_UKOTCF\\_Report\\_May2023.pdf](http://www.ukotcf.org.uk/wp-content/uploads/2023/07/Montserrat_UKOTCF_Report_May2023.pdf) and the trip was featured in the July 2023 (Issue 58) of UKOTCF Forum News linked here: [www.ukotcf.org.uk/wp-content/uploads/2023/07/ForumNews58\\_July2023f.pdf](http://www.ukotcf.org.uk/wp-content/uploads/2023/07/ForumNews58_July2023f.pdf)

Feedback on my first visit was good and there was keenness from the MNT and UKOTCF that I returned to deliver more horticultural upskilling. I carried out a second visit to Montserrat from 18<sup>th</sup> July to 5<sup>th</sup> August 2024 to support the delivery of two Darwin Plus Projects, DPLUS 155 (that is ending in 2024) and DPLUS192. The full costs of my trip were met by UKOTCF through the Darwin Plus Project funding. My employer, Manx Wildlife Trust, granted my additional time away to carry out the visit.

My broad aim was to continue my work from 2023 and continue to build horticultural skills in the island to benefit conservation, environment and local food production. Specific objectives being:

- Continue to build up horticultural skills at the MNT botanic garden.
- Work with Adopters (members of the community developing and managing their land for wildlife within the Adopt-a-home-for-wildlife aspect of DPLUS155) to support them.
- Look at legacy of Adopters in so far as using all information learned to feed into the creation of a toolkit where Adopters of the toolkit will build on earlier work.
- Develop and deliver a certificated horticulture training course.
- Involve gardeners/landscapers, farmers and the Montserrat Government (Department of the Environment) in the training whenever possible.
- Liaise with MNT to prepare for the visit of the Manx Wildlife Trust Education Officer (Beth Penhallurick) to support DPLUS192 and the School twinning programme in November 2024.
- Sign up to iNaturalist and input biological records while in Montserrat [www.inaturalist.com](http://www.inaturalist.com)

This report covers my trip in July/August 2024. My journey there was identical to 2023 - an EasyJet flight from the Isle of Man to Gatwick, overnight in Gatwick, then a morning British Airways flight to Antigua, followed by a flight in an Islander 8-seat aircraft of Montserrat Air to the Island. At the airport a rental car had been left for me and my accommodation was again at Gingerbread Hill. My first full day on Friday 19<sup>th</sup> August was a planning day, where myself and MNT Conservation Officer, Chris Sealys (my host), with input with Sarita Francis, MNT Director, agreed my schedule (Annex A). This was broadly that my first week would be visits and informal discussions and support for the Adopters, farmers and MNT staff, and then my second week would be focused on the formal training.



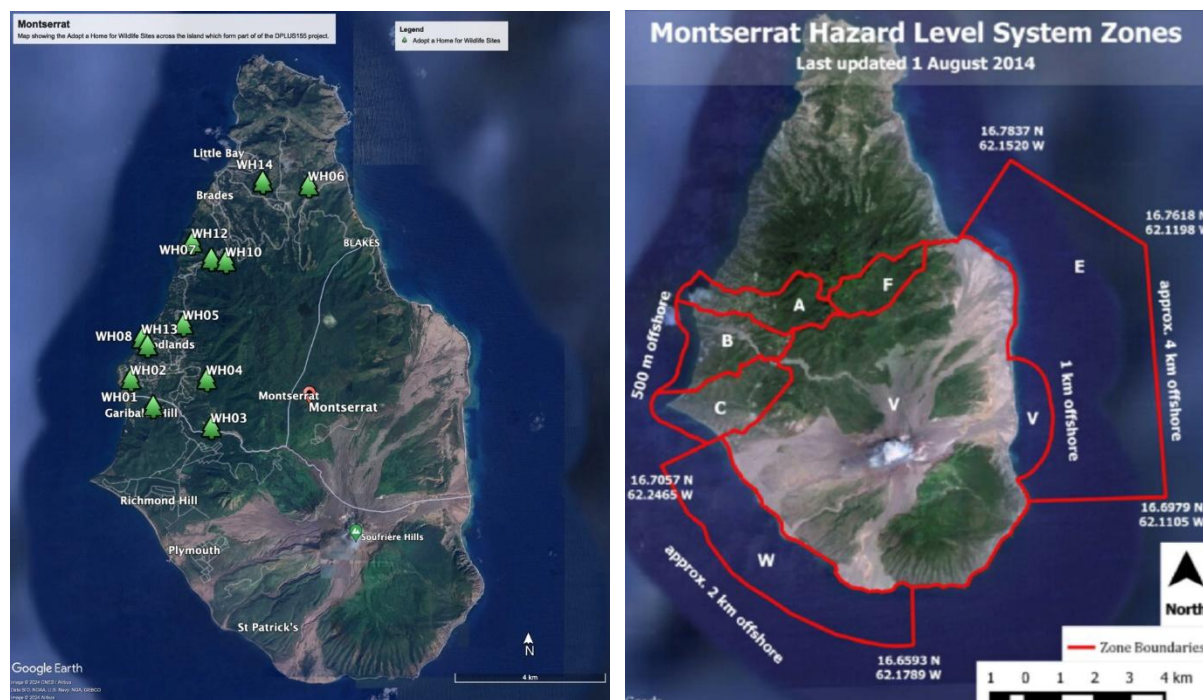
**Figure 1 - Left:** My first view of Montserrat this trip, sat in the co-pilot seat on the Montserrat Air Islander.  
**Right:** Hire car and accommodation at Gingerbread Hill – just the bottom floor!



## 2. Adopt a Home for Wildlife Site Visits

The Adopt a Home for Wildlife project is part of Darwin Plus 155 managed by UKOTCF, see the UKOTCF website for project details [www.ukotcf.org.uk/key-projects/adoptahomeforwildlife/](http://www.ukotcf.org.uk/key-projects/adoptahomeforwildlife/) The project is officially ending in 2024 and one of the aims of my trip was to engage with the individual Adopters, to provide knowledge and training, and imbed the legacy of the project.

There were 17 Adopter Sites designated in the project (13 in Phase 1 and four more in Phase 2). Figure 2 below show the locations of the sites in relation to the exclusion and hazard zones for the Soufriere Hills Volcano.



**Figure 2 - Left:** Locations of the Adopt a Home for Wildlife sites (Catherine Wensink, UKOTCF). **Right:** The Exclusion and Hazard zones for the Soufriere Hills Volcano.

During this trip I visited eleven of the Adopter sites, accompanied by Chris Sealys, Table 1 (below):

Table 1: Adopt a Home for Wildlife – Sites visited during this visit to Montserrat			
Number	Site Name	Adopter	Site Type
WH01	Garibaldi Hill	Tim Orton	Tropical dry forest adjacent to a hilltop garden.
WH02	Belham River Mouth	Dwayne Hixon	River delta, with flat grass and wetlands areas. Important freshwater bird site.
WH05	MNT Eco-Play Site	MNT	Area of natural vegetation that is designated to become a site for young people engagement.
WH06	Lookout Primary School	Lookout School	Informal native hedge around school playing field.
WH07	Lawyers Mountain 1	Cherise Aymer	Private garden
WH08	Hibiscus Drive, Olveston	Mark & Kathryn Couch	Large private garden
WH10	Lawyers Mountain 2	Veta Nicholas	Private garden, close to WH07
WH12	Cassava Ghaut	Carole Osborne	Papaya and banana orchard, grass lawn and seats in place of previous secondary forest.
WH13	Hibiscus Drive	Norman Cassells	A fairly large area being developed as a garden/water garden, with ornamentals and fruit.
WH14	Tropical Mansions	Merle Galloway	Gardens area around guesthouse accommodation.
WH15	Cassava Ghaut 2	Deidre Allien	Formal garden around a bungalow. Big lawn areas.



## Adopter Sites Visited (in date order):

**2.1 Tim Orton, Garibaldi Hill (WH01):** This was the first Adopter site and part of the genesis of the whole Darwin Plus project with UKOTCF. Tim has a large garden bordering tropical dry forest, which he is trying to regenerate. Non-native Acacias have been cleared, and Neem seedlings frequently removed. Some planting and some natural regeneration have taken place. The site has challenges with the soil, as the top 18" (45cm) is volcanic ash (pH 8.7), with then just 2-4" (5-10cm) of soil underneath before the bed rock. The volcanic ash killed most of the understory plants in the forest, and the bare soil/ash heats up massively, so any planting is challenging. Tim believes he has benefited greatly from knowledge from MNT staff, Scriber, etc. and he intends to carry on after the project ends. Could be one of the exemplar sites. NB: David Clements organised to go back to carry out moth surveying.



**Figure 3 - Top left:** Formal lawn/garden with tropical dry forest behind. **Top right:** Inside the tropical dry forest. **Middle left:** All this top 'soil' is fine volcanic ash. **Middle right:** Young tree seedlings that are naturally regenerating. **Bottom left:** View from garden looking out to sea. **Bottom right:** Tim, author and entomologist Dave Clements surveying the garden.



**2.2 Norman Cassells, Hibiscus Drive (WH13):** Norman has been doing his garden for 30+ years. In the last 5-10 years his ideas have developed greatly, and his vision now is to create a large water garden with ponds, waterfalls, aquaponics with tilapia (fish), and overhanging palm trees (apparently the ones trained to grow horizontal are worth much more money), which becomes a garden people pay to visit and enjoy. Norman recently delivered a talk on his garden at the MNT evening on the Adopter programme, which covered how he intends to monetise his garden with paying visitors, plant rental for events, selling crops including cut flowers.

Baseline survey carried out 3 years ago of inverts and flora and repeated every year. In the annual survey Chris looks at species and abundance of invertebrates on different surfaces, including on flowers, which are photographed and sent to Catherine at UKOTCF.

Norman faces challenges in this space. This site is impacted by volcanic ash with a layer of c.2 feet (60cm) covering the site. This causes fruit trees to die in dry spells. Agouti and Iguanas are significant pests and, for example, ate all the sugar cane. Pandemic has held up the development of the water gardens. Norman plans to plant a pribby hedge, with plants supplied by MNT, but MNT have a limit, so this may not be possible. There is an opportunity to make this a future MNT nursery plant production target. Norman has a variegated bougainvillea that Chris keen to propagate, and this could also be added to a nursery production list. Fatpoke is used by Norman for fire prevention.

This is an excellent space and at the time of the visit, was deemed to be a potential venue for the workshop the following week, with Norman assisting with the training.



**Figure 4 - Top left:** Norman explaining his garden to the author. **Top right:** A depth of c.60cm of volcanic ash covers the entire site. **Bottom:** Garden views



**2.3 Catherine and Mark Couch, Hibiscus Drive, Olveston (WH08):** Short visit, as the owners currently off the island, but permission to visit was obtained. Some small plots have been added/planted around the house, along with a new lawn, more flowering plants and planters by the pool.



**Figure 5:** Front a rear view of the garden at Olveston. Large lawn area.

**2.4 Carol Osbourne, Cassava Ghaut (WH12):** Carol (who was not there on the visit), with assistance from MNT, has cut down trees in mature secondary forest and replaced them with papaya and banana orchard, grass lawn and seats to create a more useable area for recreation and food production.



**Figure 6 - Top left:** Cleared area in the foreground, with remaining trees behind. **Top right:** Papaya growing above the stump of a felled tree. **Bottom left:** Planted bananas and papaya. **Bottom right:** The closest encounter I had with an iguana on the edge of the cleared garden area.



**2.5 Veta Nicholas, Lawyers Mountain 2 (WH10):** Veta organised the construction of her house built in 2021 on a sloping hillside on Lawyers Mountain. Veta is concerned about erosion damaging her house “I need to build supporting walls”. The access road is officially below the property, the road adjacent to the house that we arrived by is on private property.

Veta by her own admission has not done much in garden, apart from adding a few edible plants. There was evidence of goat damage on a young palm, and I advised Veta to put a small fence around it while it establishes. This is another example of secondary vegetation being cleared to create a food garden. MNT through the adopter project has provided Veta with some advice and some growing medium. She has been promised plants, but not have been provided yet. Veta also believed she would be receiving free labour through the project to help with her garden (i.e. she stated that most adopters can afford to employ a gardener, but she is one of a few who can't afford to do that).

Veta is very positive about the Adopter project, which she feels is “really brilliant for Montserrat”. Veta enjoys attending the presentations at MNT and working with others in the Adopters group. Veta had interesting image of a stripy flat worm she had taken, which I encouraged her to put on iNaturalist. Veta used to use iNaturalist but admitted that she needs to set it up again. I had an enjoyable conversation with Veta, who is housing officer for Montserrat government. She informed me that there are no homeless people in Montserrat, but there are issues of domestic conflict and overcrowding. The challenge for young people is the money to pay a mortgage. Veta subsequently attended the workshops and presentation event at MNT and is very keen and engaged.



**Figure 7 - Top:** Highlighting the slope the house is constructed on and the cleared garden area in the area below the house. **Bottom left:** Two barrel planters with the growing medium supplied by MNT. **Bottom right:** Chatting next to some of her pot plants she is keen to plant out.



**2.6 Cherise Aymer, Lawyers Mountain 1 (WH07):** I had previously visited this site in 2023. Owned by Delmaude’s sister (the mother of Alisha who now works at MNT. **This is** another example of a person wanting more help from MNT, with ornamental garden and food plants, than MNT had the capacity to deliver. Highlights the local demand and need for the Adopter programme.



**Figure 8:** Two views of the lawn around the front/base of the property.

**2.7 Look Out Primary School (WH06):** I had previously visited this site in 2023. Sea grapes have been planted inside and around the fence surrounding the sports pitch. Chris/Delmaude thought the gardener cut them all down, but most (c.20) are still alive, although quite small. They look now to have established and should hopefully start to grow away. Fat Poke is being grown at MNT ready for planting here. In chatting with Chris, there appeared to be the opportunity to better connect individual Adopter project plant requirements, with the MNT nursery production plan.



**Figure 9 - Left:** Lookout School playing field. **Right:** example of the small Sea Grapes.

**2.8 Merle Galloway, Tropical Mansion (WH14):** This is the most recent addition to the Adopters programme (in c. Dec 2023). **This is the biggest** hotel/guest house in Montserrat (16 rooms and 16+ acres) and Merle is the owner and she has a strong background in health and wellbeing and has studied in several places. Property built 25 years ago after the volcano. Site has been surveyed by Delmaude and Merle is awaiting the results from MNT. There is some formal garden, an old small nursery in need of some renovation, and a more expansive green space around the site. Merle’s ambition is to develop an ornamental and food (fruit and vegetables) garden primarily, with a new nursery and a community garden. Merle is keen to get plants and labour from MNT. Chris said there will still need to be support from MNT after the DPLUS155 project officially ends and he invited Merle to visit MNT and see the plants available. Merle has recently applied for a Darwin Local Grant.





**Figure 10 - Top left:** Reception area and car park at Tropical Mansions. **Top right:** Chris Sealys, MNT and Merle in the more formal garden area. **Bottom left:** Merle, author and Dave Clements chatting about the site. **Bottom right:** The existing small plant nursery.

**2.9 Deidre Allien, Cassava Ghaut 2 (WH15):** Deidre wasn't there when we made a brief visit to her garden site. This is a small private garden and another new site. Chris carried out the site survey in March 2024. Deidre is Montserratian and is an environmental offer for Government. Deidre is keen for gardening advice from MNT on ornamental plants and fruit trees i.e. another Adopter who is keen for more help from MNT in developing their garden.



**Figure 11:** Front (left) and back garden views of Cassava Ghaut 2.



**2.10 Dwayne Hixon, Belham River Mouth (WH02):** Dwayne was one of the first Adopters and Sarita has been key contact (Chris had not met Dwayne before). The c.29-acre site is the lowland flat plain at the mouth of the Belham River, leading to the beach. All the low land is post-volcano and made of volcanic ash/debris. The site contains a wetland that is the Island’s most (only?) important freshwater wetland site for birds. The existing pond has changed a lot in a recent storm (certainly looks a smaller wetland than the one I saw in 2023) and the site regularly changes. The RSPB paid Dwayne to build a bird viewing platform, but it wasn’t fully completed and was then severely damaged in a recent storm/flood event (see over page).



**Figure 12 - Top left:** The framework of the beach bar under construction. **Top right:** Chris and Dwayne on the beach bar construction site. **Mid left:** Little Egrets in flight over the lowland area that changes in topography regularly with storms and water flow across the site. **Mid right:** Chris on the existing river channel approaching the sea in the background. **Bottom left:** The remaining small pond on the site (much reduced in size following a recent storm). **Bottom right:** The remains of the bird viewing platform built by Dwayne and funded by the RSPB.



Dwayne has dug a ditch around the site to manage rainwater flow and is considering creating a river channel to take water straight to the sea. I believe Dwayne needs hydrology advice and more planning, and I suggested a compromise between flood protection and flood allowance for birds. Needs more planning. This is a good/interesting site for wildlife and species observed (and recorded on iNaturalist) included Centris Bee, Beach Cabbage, Small Plover, Tiger Moth and the invasive bullrush.

Dwayne has a plan of the site, and he is looking to develop it for events and started building a beach bar c.5 years ago. In terms of future planting development, Dwayne is keen to plant Flamboyant Trees (Fabaceae) in orange, gold and yellow, which apparently coppice easily, and he has also tried to air layer Flamboyant Trees, which have a historical significance and value for the site, and other plants (using silver foil not plastic). NB: some people remove flamboyant trees mistakenly thinking they are the non-native invasive Cassarina. He aims to create a boulevard of palms in the approach road to the beach bar. Dwayne clearly has some plant propagation knowledge and tries to grow plants by seed, layering, etc. 'Silver Leaf' Ficus has been planted as a hedge along the roadside, but this is non-native and carries a disease. Dwayne believes that many people want palms and there is an opportunity for MNT to grow and supply the right palm species.

Dwayne has received some plants from MNT and would like more. I encouraged that the MNT could see that and then agree/grow the plants accordingly. There is a need to agree the commitment before project officially ends in September. Great opportunity for MNT to produce plants for this site, but it needs lead time and a nursery that delivers in what is jointly agreed is required. This is another example of an Adopter site keen to get plants from MNT and there was perhaps an opportunity to have put Dwayne's plant requirements into a consolidated Plant Production List for the MNT nursery.

### 3. Farm Visits

I made a series of farm visits on the 22<sup>nd</sup> and 26<sup>th</sup> July accompanied by Chris Sealys and Elvis Gerald (one of the part-time Adopter officers and an Agricultural Extension Officer for the Montserrat Government, Department of Agriculture. In addition, I visited the Farmers' Association and had conversations with Chris, Elvis and others about Montserrat agriculture.

#### 3.1 Upper Blakes (22 July):

We visited land that is privately owned and leased to multiple farmers (including one farm leased to a Jamaican farmer). The land is at a higher altitude in the northern hills and is 'wet season farmed' – in the dry season there is little available water and therefore no cropping. Interesting to see how close the agriculture is to the area designated dry forest (to be conserved), including encroachment into the buffer zone between conserved forest and farmland. It was concerning to see discarded pesticide containers, both in the fields and in one of the small reservoirs/ponds used for irrigation water.



**Figure 13 - Left:** Pole is used to mark the edge of the buffer zone for the conservation forest. **Right:** A view across the valley showing some of the small-scale field farming taking place in and around the forest area.





**Figure 14** - **Left:** *Myself and Elvis Gerald discussing the cropping.* **Right:** *Field cropping, with the drip irrigation.*

### 3.2 Pesticide Use:

It was apparent in the farms I visited, that there were several discarded pesticide bottles (Fig. 15), which were predominantly herbicides (paraquat and glyphosate). According to Chris and Elvis, pesticides and their safe and effective use has been a growing issue for Montserrat in recent years and has been discussed by Government for some time. Local very small scale ‘back garden farming’ tends to be more organic, but the increase in ex-pat farmers from other Caribbean Islands, has seen an increase in pesticide use, without any regulations or guidelines to adhere to or follow.

Chris/Elvis believe there is a lack of knowledge about pesticides within the farming community, but the farmers are keen and willing to learn. There is concern about post spraying harvest intervals, for example the insecticide diazinon (which is now banned in many countries due to its ability to damage the human nervous system) has a 21-day interval before sprayed crops can be harvested. Elvis has witnessed harvesting immediately after spraying and his fear is that there is no obvious and immediate health impacts, as they are hidden and don’t manifest for several years. It was quickly apparent that focusing some of my training next week on improving the use of pesticides was a priority, and this supported the conversations I’d had on my last visit to Montserrat in May 2023.

Farmers can purchase pesticides from a few places in Montserrat. The Farmers’ Association is the main supplier, and their choice of what they import dictates what farmers are using. The pesticides are predominantly imported from Dominican Republic (DR) with some from South America via DR. Most farmers to buy their pesticides from the Farmers Association, so potentially a detailed product list on what is available would-be useful addition for the island. Apparently, c.10 years ago there was an extension shop supplying pesticides, seeds, etc. and that shop closing has left a gap. The Montserrat Premier used to be agricultural extension officer and now he has a side line selling pesticides, fertilisers, etc. called M & J Flowers Shop & Garden Supplies.

I visited both these suppliers, photographed the pesticides for sale, and borrowed samples from the Farmers’ Association for me to use in the planned workshop next week. I was disappointed to see that at M & J Flowers Shop & Garden Supplies there was pesticide of one type being sold in Smirnoff vodka bottles, after being decanted into them. This is a significant risk to human health, with the potential for people to drink the pesticide thinking it is something else.

In terms of obtaining the application equipment. The Montserrat Government loan (rent?) knapsack sprayers to farmers, with different knapsacks loaned out for herbicides and insecticides/fungicides to prevent damage to the crops. The Farmers Association sell knapsack sprayers to farmers (a standard Cooper Pegler CP3 selling for \$775.60 EC).





**Figure 15 - Top:** Discarded empty pesticide containers in a hill farm, including a discarded diazinon container in a field. **Mid left:** Chris Sealys in the Farmers Association store with the pesticides available for sale. **Mid right:** 'Vydate L' and 'Rotaprid', two of the more toxic and dangerous pesticides for sale at the Farmers Association. **Bottom:** Pesticides for sale at M & J Flowers Shop & Garden Supplies. In the bottom left corner is a box containing pesticide decanted into vodka bottles. One of these vodka bottles in the pesticide cabinet at the Montserrat National Trust.



### 3.3 Betsy's Farm (22 July):

Unfortunately, Betsy wasn't able to be there when we visited her farm, but we were provided an excellent tour by her husband David. According to Elvis, Betsy is the only farmer in Montserrat who is providing year-round continual supply of lettuce, all of which is the variety 'Eden'. In Elvis' opinion Betsy is the best farmer in Montserrat and has been lettuce farmer for years. Betsy farms in an organic way, with no use of artificial fertilizers, just adding organic matter between crops, which are all grown in raised table beds. The only significant pest is wasps on young plants.

In a relatively new scheme to help local food production the Montserrat Government have selected Betsy and six other farms for additional development support. The seven are all deemed to be 'good farmers' and have a supply of water for irrigation (I suggested that these seven farmers would be great to attend the workshops next week). The Government is supporting Betsy for 3 years, providing free tractor use, irrigation, seeds, pesticides, etc. Another of the supported farms is owned by Billy, who is now the President of the Farmers' Association, and a farm I visited in May 2023 and again briefly this year. Billy is receiving support in the form of free seeds, fertiliser, water subsidy, irrigation hose, tractor use, and tiller use.

In addition to the established lettuce farm, a new piece of field vegetable cropping has been developed, enabled through Government support. The Production list for the vegetables has been set by looking at the regular import list for vegetables. Crops in production include cabbages, carrots and sweet potatoes. The major pest problem this year has been Diamond Back Moth on the cabbages, which is monitored carefully and adding the pesticide Phoenix to the irrigation water.



**Figure 16:** *Top left:* Raised table beds growing Lettuce 'Eden'. *Top right:* Betsy's lettuces for retail sale in the Aravin Supermarket. *Bottom:* The new field under vegetable production, which is being supported by the Montserrat Government.



### 3.4 Big Hilltop ‘Water Works Estate’ (23 July):

We visit an estate, with a large and impressive private house, situated on a hilltop, with the surrounding estate occupied by several tenant farmers and containing the remains of an old sugar mill, a representative of the island’s agricultural history (Figure 17 below).

The rented farms were very small scale, with the farming carried out by part time farmers (e.g. c.2 acres, farmed by a policeman), who are not from Montserrat, but instead from other Caribbean islands, including Haiti, Dominican Republic and one lady from Guana in the British Virgin Islands. A range of crops is being produced and the farmers pay a rental of Rent is c.300EC per acre per annum (Figure 18 over the page). Elvis informed me that here is a culture almost akin to squatters’ rights, where if a tenant farmer pays no rent for 10 years they can file for ownership (I had the impression that this does happen/has happened).

There are notable challenges for the farmers. The topsoil in all these farms is basically volcanic ash. Iguana, rats and agouti are significant crop pests and wire fences have been erected to keep them out. Some farmers lay out plastic gill nets to deter the iguanas. Weed control is another challenge for farmers and one plot I saw was completely overgrown. There was evidence of herbicide use, and the Montserrat Government Public Works Department have a tractor mounted brush cutter that can be hired for 90EC for 4 hours with a driver. The part-time nature of the farming also results in crops being unharvested and going to waste. I witnessed one crop of okra left unharvested and now rotting.



**Figure 17** - The estate house on the hilltop and the old sugar plantation buildings, including sugar mill.





**Figure 18 - Top:** The landscape of small-scale tenant farms, growing a range of crops, ranging from bananas and plantains to marrows. **Bottom left:** Plastic netting laid on the ground around crops as a deterrent to iguanas. **Bottom right:** An un-harvested crop of Okra.

### 3.5 Farm near Plymouth - Old Adventist School (26/7):

Denise, a Haitian lady runs this farm in the old Adventist School (Figure 19 over the page) that was closed when the volcano erupted and was given to her as a farm by the church for free. Denise produces a range of small-scale vegetable crops and has over 500 chickens for egg production, which she has farmed for 2-3 years and are housed in some of the old classrooms. 239 chickens in one room produce 6 dozen eggs per day (Denise said if she comes in late in the day some of the eggs will have been crushed), with 300 young birds in next (class) room that will be the next batch of layers. In addition to the eggs, the chickens yield a good crop of manure for the crops.

The farm looks great in the wider Montserrat context and perhaps Denise is one of the seven farms selected by the Government for prioritised development.





**Figure 19 - Top left:** Crop production on what was very likely the school playing field. **Top right:** Small netting covered greenhouse adjacent to one of the old school buildings. **Mid left:** Denise with some of her hens inside one of the old school classrooms. **Mid right:** The old school buildings. **Bottom left:** Denise washing eggs before boxing and sale. **Bottom right:** Irrigation tanks provided by the Montserrat Government, in what was once the main school building (now minus roof).



## 4. Horticulture Training Workshops

Following my visits during week one and my discussions with the MNT team and others, it was agreed that (supported by Chris) I would deliver three specific horticulture training workshops at MNT in my second full week on Montserrat:

- Plant Pruning.
- Pest and disease control and use of pesticides.
- Propagation by cuttings.

Training in Plant Pruning had been requested specifically by MNT and UKOTCF for the Adopt a Home for Wildlife Project. They believed that providing the Adopters with a broader understanding on how, why and when to prune would be useful now and also as a longer-term legacy for the project. Pest and disease control was selected as a result of several discussions and my own observations during the visits in 2023 and the first week of this visit in 2024. There are clear issues with pest and disease control and particularly pesticide use in Montserrat, and there is also enthusiasm to learn more amongst the farmers (who are key users). The third workshop was to target the MNT team, to refresh and more firmly imbed the propagation skills I had delivered through my training in 2023. Inevitably, much of the short-term progress made in the MNT nursery in 2023 had regressed, and Chris Sealys was keen that the MNT staff team were refreshed and re-enforced. The aim was to do this.

The three workshops were attended by MNT staff, Adopt-a-home-for-wildlife gardeners, farmers and private landscape gardeners. The more formal pruning and pest & disease workshops were opened by Sarita Francis (MNT Director) and Delmaude Ryan (Fig. 20).

### 4.1 Introduction to Plant Pruning (Monday 29<sup>th</sup> July):

A half day workshop (workshop scheme in Annex B and a summary of the feedback from the attendees in Annex D), with the option for attendees to stay on for longer to have more pruning practice supervised by Chris Sealys and myself. In advance of the workshop myself and Chris purchased additional hand saws and secateurs, to go with the range of tools MNT already owned. The workshop (Figs. 20 & 21 below and over page) was an opportunity for the participants to:

- Learn the principles on how to prune plants.
- See a range of pruning tools and techniques being demonstrated in the MNT Garden (and 'have a go' at the different techniques if you would like to).
- Understand the reasons for pruning plants and why good pruning is beneficial for your garden.



**Figure 20 – Left:** The workshop being formally opened by Ms Francis and Ms Ryan – behind the lectern. **Right:** Delivering the opening interactive talk.





**Figure 21** - Attendees participating in demonstrations and practical work and the whole group

#### **4.2 Pest & Disease Control, and Safe Use of Pesticides (Wednesday 31st July):**

There had been notable interest from a mix of stakeholders in the island including farmers, and so to enable as many as possible to attend, the workshop was delivered twice at MNT, in the morning (10am to 1pm) and then repeated in the afternoon (3pm to 6pm). Lunch and refreshments were provided for all participants between the two sessions (detailed workshop teaching scheme is in Annex C).

The workshop aimed to provide the attendees an opportunity to:

- Discuss current pest and disease problems in Montserrat farms and gardens.
- Gain an understanding of different approaches to controlling plant pests and diseases.
- Learn how to use pesticides better, to improve their effectiveness, save money, reduce impact on the environment, and reduce health risks to the farmers and community.

Each session included interactive lectures, demonstrations including the internal workings of a CP3 knapsack sprayer (the sprayer of choice used in Montserrat and supplied by the Government and Farmers Association to growers), and two breakout sessions, where the course split into two groups to discuss and make notes on two topics (Figure 22 over the page):

- What they believe are the main Montserrat pests & diseases on crops and garden plants.
- The health and safety and application rates information on the labels from example pesticides available in the Farmers Association (with both low and high health risk examples included).

The notes from both groups in the morning and afternoon sessions were presented to the class by spokespersons from every group, and their sheets were photographed and are in Annexes F and G. All attendees completed a feedback sheet and the summary of these is in Annex E.





**Figure 22 - Top:** Delivering interactive lecture and demonstration session, including Integrated Pest management and the use of a CP3 knapsack sprayer. **Mid and bottom:** Each of the morning and afternoon sessions included two breakout groups, during which the attendees discussed, made notes, and fed back to the whole class. Interrogating and making notes on a range of pesticide labels. Delmaude presenting her groups key identified pests and diseases.



### 4.3 Propagation by Cuttings – Refresher Training (Thursday August 1st):

This was a specific practical training day for the MNT team; to refresh and re-enforce the propagation skills taught in the workshops I delivered in May 2023. I focused on re-demonstrating good practice for the collection, preparation, insertion and aftercare of cuttings for plant propagation (Figure 23).

At the commencement of the session, I led the group around the MNT garden looking at various plants and selecting and allocating different plants to individuals for collection. We discussed all the plants as a whole group and how we would propagate them, before splitting up into smaller groups of two or three to collect cutting material. We returned to the propagation house where I re-demonstrated the mixing of the rooting medium, and how to fill and water a cell tray prior to cuttings to be inserted.

The group then prepared and inserted cuttings of a range of plant species, and the trays were placed onto the mist propagation bench (after it had been cleared and power washed). The polythene cover was then re-instated over the bench to ensure higher humidity.



**Figure 23:** Showing the process of collecting the cuttings, mixing the rooting media, filling trays, preparing and inserting cuttings, and the full trays on the mist bench being watered.



#### 4.4 Presentation of Training Certificates

A presentation event was held at MNT on 2<sup>nd</sup> August (Figure 24 below), with all those who had attended horticulture training in 2023 and 2024 being invited to receive a certificate of attendance.

In advance of the presentation of the certificates I delivered a short talk and PowerPoint presentation, on the work I had carried out on this trip. I was particularly pleased that some of the farmers and landscapers attended, along with the MNT staff team.



**Figure 24:** All the recipients of Certificates at the awards, Delmaude introducing my summary talk, and an example of the certificates issued.



## 5. Wider Engagement

### 5.1 Joint Nature Conservation Committee (JNCC):

On my first day I met two people from JNCC and subsequently joined them for dinner, Reece Thornley and Eleonora Manca. It was an interesting discussion. They had been in Montserrat for a week running workshops on how to assess the success of conservation designated areas.

Most interesting was to discuss with the potential for JNCC to perhaps get more involved with conservation in the Crown Dependencies (Channel Islands and Isle of Man) and my suggestion that perhaps the Crown Dependencies could be test locations for island programmes that could then be rolled out into the UK Overseas Territories. We agreed to continue the discussion virtually.

### 5.2 David Clements – Entomologist:

David was on Montserrat carrying out invertebrate surveys for UKOTCF, he accompanied me on the majority of my visits to the Adopter sites and was excellent/interesting company. An experienced entomologist and his 'day job' is running ecological consultancy in Cardiff. David first visited Montserrat two years ago and has produced a butterflies and moths field guide for Montserrat with Matthew Barnes and Ajhermae White.

David (below) is in the process of writing a more comprehensive Montserrat invertebrate field guide, informed by a large, preserved Montserrat invertebrates collection from 1997 held by Montana State University, and his own field observations. This includes the setting up of a moth trap every night in different locations and he informed me that he had “already found one new moth species new to the Island”. This wasn't a surprise to David as there are c.8000 recorded invertebrates recorded for Montserrat, which David believes is only half the likely total (e.g. very few of the <1mm Hymenoptera have been recorded). He believes there are likely to be several endemic species.



**Figure 25:** Dave Clements collecting with a sweep net at two of the Montserrat farms.



### 5.3 Monty's Ambassadors (24<sup>th</sup> July):

Sandrae Thomas is the Youth Coordinator for MNT, and he runs Monty's Ambassadors, a group that actively aims to engage the youth of Montserrat in nature and environment and conservation topics in active and empowering ways. Sandrae has recruited c.40 young people between ages of 13 and 22 and he is aiming to set up a more formal structure, including a President and Secretary.

I joined an event for Monty's Ambassadors at MNT, attended by c.20 young people (mainly girls), which had come from around the world, Jamaica, Cuba, Guyana, Dominica, USA, UK, and Montserrat. The day consisted of a series of talks and then a walk into the hills to look at nature. Sarita Francis welcomed all to the day, which was hosted by Sandrae, who also conducted elections for the Monty's Ambassadors committee. Chris Sealys presented on the [Caribbean Youth Environment Network \(CYEN\)](#), which was set up in Plymouth, Montserrat in 1993, however, there is currently no chapter of CYEN on Montserrat, and Chris is keen to see this and a Youth Parliament develop.

Delmaude Ryan presented on [iNaturalist](#) and all (including me) uploaded the APP so we could then upload records on our subsequent walk. We were joined on-line by Beth Penhallurick, the Education Officer from Manx Wildlife Trust (MWT), who delivered a talk on the Isle of Man (IOM) and the school twinning project Beth is setting up between the Montserrat Secondary School and [Ballakermeen High School](#) in the IOM. Unfortunately, the internet connection broke up on a few occasions.

After the talks, we went on a group walk up the track to the pond. I enjoyed speaking with the young people about their perceptions of the natural world and why they had joined Monty's Ambassadors. Two of the young ladies were from New York along with the mum of one of them (who was originally from Montserrat). I asked about US elections and was surprised that they were all advocating Donald Trump, with comments "he speaks the language of the people", "people from outside USA don't understand the situation at home", and "I had more money in my wallet when Donald Trump was President". I sense if well-travelled Americans on a nature walk in Montserrat are in favour of Donald Trump, he's likely to be re-elected.



**Figure 26:** A map of the Isle of Man on the screen as Beth presents. The Group on the walk, photographing a *Passiflora* for uploading onto iNaturalist and Sandrae interviewing Chris for Instagram.



#### 5.4 Radio Interview (30<sup>th</sup> July):

There is always interest in what visitors to Montserrat are involved with, and I joined Chris Sealys and Delmaude on the weekly MNT Heritage Radio Show to discuss my visit and what we were aiming to achieve while I was here. The full script for the show was put together by Delmaude is in Annex H.



**Figure 27:** L-R Delmaude, myself and Chris Sealys at the Montserrat Radio station.

#### 5.5 Scuba Montserrat:

On my weekends I joined Andrew from [Scuba Montserrat](#) to scuba dive and, as I was in 2023, I was able to experience first-hand some of their [marine conservation work](#), being delivered through four [Darwin Plus Local](#) projects. My perception is that Scuba Montserrat is more of a conservation NGO than a dive tour operator, and my trip overlapped with two marine biologists being on the island to work with them. Ben Cresswell and Gemma Galbraith are originally from the UK, but now based at James Cook University Queensland.

I joined Andrew, Ben and Gemma for a few dives, to position current measurement devices at four sites (Fig. 28). These are cabled tied by the base and positively buoyant, so they stand upright. As the current moves the device pivots, and the degree of swing is measured and recorded over several weeks by an internal magnetometer. This is part of a Darwin Local project aiming to reduce ghost fishing gear. The locals use large metal/wire cages to trap fish, but every year several are lost in the currents around the island. The project aim is to develop an extremely accurate current/tidal flow chart, which will help local fishermen to avoid the places where their gear is most at risk of being lost.

I also had the chance to dive at Scuba Montserrat's coral nurseries growing *Acropora* spp. and at Woodlands Bay to once again explore the artificial reef structures. It was excellent to re-visit the coral translocation site from last year and see many of the live corals moved from the holding benches and now attached onto the surrounding reef in Rendezvous Bay (by marine epoxy and/or wire).

In our conversations, Ben and Gemma briefed me about the [IUCN Global Ecosystem Typology](#) (GET) system to classify habitats globally. There are 110 GET categories and it is being adopted for the assessment of 30 by 30 (i.e. 30% of land and sea managed for nature by 2030).





**Figure 28: Top to bottom:** Planning the location of the sensors and the boat drop out. One of the metal fishing cages on the reef. Attaching the current sensors to concrete blocks and the concrete artificial reef structures. Attaching a temperature logger onto a structure at the coral nursery, and (bottom) the translocated corals from 2023, including several now fixed in place on the existing reef.



## 5.6 Turtle Nesting:

I was on Montserrat during the early part of the turtle nesting season and on several evenings I did the short drive to Woodlands Beach, with my red-light torch and spent several hours carefully watching Green Turtles nesting, laying eggs and dragging themselves in and out of the sea. I've observed turtles nesting in other locations, and it is always an awesome privilege to watch.



**Figure 29:** Tracks leading up the beach. A green turtle egg laying at the top of the beach.

## 5.7 Mountain Chicken Project:

Chris took me to see the enclosure where Mountain Chickens (*Leptodactylus fallax* – the Giant Ditch Frog) are being cared for by MNT in partnership with the Durrell Wildlife Conservation Trust. We didn't see any of the frogs (well camouflaged and hide in the day), but it was interesting to visit the project enclosure. KC runs Mountain Chicken project for MNT, reporting into Delmaude/Mrs Francis. Durrell now support the project directly (i.e. beyond original Darwin Project funding).



**Figure 30:** The enclosure for the Mountain Chickens, to keep predators out, as well as the frogs contained.



### 5.8 Jim and Norman's Garden (4<sup>th</sup> August):

Jim and Norman are two USA nationals, and volunteers for MNT, who have owned a house in Montserrat for many years and have now retired here. I was recommended to visit their garden, which is regarded as one of the best private gardens on the island. I made a visit at the end of my stay on island. I enjoyed my visit and encouraged them to register their garden as a one of the Adopt-a-home fort wildlife sites (which they didn't think they were able to do as it is already an established garden). Their garden is bordered on one side by a cliff, which they told me erodes a bit more every year.



*Figure 31: Jim and Norman proudly in their garden, and the cliff top edge!*

## 6. MNT Developments:

### 6.1 Nursery Building Extension:

Chris had designed new buildings for the MNT nursery, including a covered area for working, locker rooms, toilets and showers for the staff. These were built by an external contractor and were completed and opened on Friday 2<sup>nd</sup> August while I was there. Ms Francis and the contractor both said a prayer, and Chris spoke. The project was signed off and Ms Francis wrote the final payment cheque.



*Figure 32: The new covered area and showers/toilets/locker rooms in the MNT nursery.*



## 6.2 MNT Pipers Nature Trail and Richmond Hill:

A piece of land has been donated to MNT and Chris has formed a footpath, added some interpretation and information panels and created a nature trail. Towards top of trail MNT are planning to build a field classroom, with a campsite alongside for schools groups. The building has been approved and construction contractor commissioned, and the work on the sites continues.

The old sugar mill at Richmond Hill was gifted to the MNT in 1975 and until the volcano erupted was a visitor centre. Access has now been granted for MNT to enter the previously excluded zone and the museum is being renovated as a small interpretation centre with before and after the volcano images.



**Figure 33:** **Top:** A view of the created trail (left) and the area that is designated for the construction of an education building and camp site. **Middle:** Examples of the interpretation panels on the trail. **Bottom:** The old sugar mill at Richmond Hill, gifted to MNT in 1975 and now being renovated post-volcano.



## 7. Reflections:

### 7.1 MNT Nursery:

The standards we had jointly set for propagation by cuttings during my visit in 2023 had in the main regressed. The few trays of cuttings on the bench at MNT when I arrived for my second visit included many that were dead and rotting at the base due to lack of oxygen (Fig. 34). The identical situation I encountered when I arrived in 2023. I was pleased, however, to see the Pribby we propagated last year looking healthy (Fig. 34). The propagation was successful and grown into good quality plants.

My refresher training day with the MNT team refreshed and reinforced the key points that I recommended MNT adopt as standard practice in May 2023:

- Use of plastic bags, mist sprayers, a cool box and ice packs to transport and store the cuttings once harvested, to ensure cuttings stay turgid and the chances of rooting greatly enhanced.
- Choice of rooting media: MNT had reverted to the use of 100% fine grade river sand as the rooting medium for cuttings, which is extremely fine/heavy and unsterilized, resulting in extremely low air-filled porosity (AFP) and as a result many cuttings simply rot (fungal diseases) before they have chance to root. I believe that any cuttings that root are despite of the river sand, not because of it. I encouraged Chris strongly that 50:50 Peat & Perlite\* must be the standard rooting media going forward for MNT. These materials are expensive in Montserrat, but there was already a supply in the MNT nursery store, and for the relatively low amount of cuttings grown annually by MNT, I believe it is false economy to not use the best rooting medium available. NB: river sand still could be useful as an addition to certain propagation mixes and could certainly be used in conjunction with the composted green waste from the garden, to create a potting media.
- Post-propagation aftercare of the cuttings: The use of polythene to cover the trays of cuttings post-propagation should be adopted again to increase humidity around the trays of cuttings.
- Hygiene: I reinforced the importance of good hygiene at all stages of the propagation cycle and stressed again that cuttings are particularly susceptible to fungal and bacterial diseases, which are much more likely to attack them in conditions of poor hygiene. Aspects include the use of clean and sharpened secateurs, cleaning the propagation trays between batches, cleaning the propagation mist benches regularly, and regular removal of any dead or diseased plant material.

*\* It would be far preferable not to use peat in the MNT nursery, as ultimately peat should be conserved and left in the ground as a carbon sink and an important part of peat bog habitats around the world. My recommendation is that medium/long term MNT look to source/import fine grade coir to use with Perlite in a 50:50 mix for propagation and I reached out to horticultural wholesalers in Florida to see if they would ship to MNT direct.*



**Figure 34 - Left:** Dead cuttings inserted into fine river sand. **Right:** A batch of Pribby propagated in 2023.



I believe the regression since my last visit was, however, understandable and likely inevitable, as the intensive focus and nursery development while I was at MNT in May 2023 was significant and delivered rapidly. There was a lot to take in! It was also clear on chatting to the MNT team that the key priorities since my last visit had been the expansion of the nursery facilities (section 8.1), and developments in the wider MNT garden, including new shade house, irrigation and interpretation. Propagation has therefore not been the key priority for Chris and the team over the last 14 months.

By the end of the refresher workshop the standards from 2023 had been re-instated. I believe that after repeating and reinforcing the key points in the training again this year, the likelihood of the systems being maintained is now far greater.

I recommended again to Ms Francis and Chris that a Living Collections Policy and Plant Production List would be extremely useful steps, to help MNT define the garden, the horticultural priorities, and set clear plant production targets for the nursery. The nursery should specify what plants it aims to grow annually for the botanic garden, for sale to ex-pats, and for conservation projects and planting around the Island. This would then enable accurate planning for space, workloads, and ordering of resources. This could be a simple spreadsheet, with plants, target quantities, use, propagation method, date, and any specific special requirements. This could be set up relatively quickly to guide what the MNT nursery team produce.

In respect to improving the general tidiness and hygiene on the nursery. Chris feels that asking any one individual staff member to keep nursery tidy every day isn't feasible, as it needs a culture of all to achieve this. I suggested to Chris the whole team has a clean-up session every Friday where floor is washed and swept, and all is left tidy before the weekend. If this is done by all the team led by Chris, and the culture of operating tidily increases, then a nominated individual could then do daily tidying tasks. We collectively did a tidy of the propagation house together on my final day to set the standard and Chris aims to sustain this weekly with his team.

## **7.2 Adopt-a-home for Wildlife Project:**

It was interesting and useful to visit so many of the Adopt-a-home for Wildlife sites and speak to several of the Adopters who own the land. I can see that much has been delivered and achieved during the project and also much learning gained by MNT, UKOTCF and the Adopters. The enthusiasm of the Adopters I spoke to was overall excellent and they all clearly valued being in the project and the support they had received from MNT and UKOTCF.

I believe that many of the Adopters will continue after the project ends (they all said they were keen to) and ideally MNT would still be able to support and coordinate the Adopters in the long term. The WhatsApp group set up by UKOTCF for the Adopters is a good platform for communication with and between the Adopters (although not all MNT staff use it) and it should be enabled to continue post-project ending. The MNT Toolkit being offered in the new project will be an excellent addition.

One thing that stood out for me is that several of the Adopters had small pieces of land (private gardens) and saw the project as an opportunity to enhance their gardens for themselves (with ornamental and food plants), and the enhancement for wildlife was a secondary benefit. Perhaps the benefits to wildlife could take on more importance within the project legacy.

The only slightly negative comments came from a couple of the Adopters stating that they hadn't received the support/resources that they thought MNT would provide to them, particularly plants. I sense this is simply an indication of the demand for support from MNT far exceeding what they had capacity to deliver under the existing project. If the project was to be expanded, or repeated, then I believe there is the opportunity to identify the plant requirements earlier on and then feed these into a nursery production plan. This would provide the nursery with a stronger focus in terms of producing exactly what is agreed with the Adopters.



### 7.3 Horticulture Training Workshops:

I believe the two formal workshops I delivered on Pruning and Pests & Disease control were well received, useful and overall, a success. The feedback from attendees on both workshops was excellent (Annexes D & E), the practical elements were particularly well received, and it was a great pleasure to run the sessions. Key indicators for me were the enthusiasm and interaction on both workshops, with lots of questions asked and much discussion on the topics – particularly in the pest & disease break out groups. The exercise on reading the labels was particularly useful. I believe people in the workshops will now all take more time to read the labels before they apply pesticides in future. The attendees were all keen to acquire new learning and valued the opportunity the workshops offered. One example was the verbal feedback to me from the young Montserratian (works on Betsy's lettuce farm) at the end of the pesticide workshop about how useful and enjoyable he'd found the training.

The geographic origins of the attendees on the workshops was interesting. For example, the second workshop, in addition to Montserratians, had participants who had moved to Montserrat from Guyana, St Vincent, Jamaica, and Haiti.

Reflecting on what I could have done better. Handouts and a list of on-line resources to refer to would have been valued many attendees. As would more practice time, and more training days.

### 7.4 Use of Pesticides:

There is a poor understanding in Montserrat of how to safely and effectively use pesticides to control pests and diseases and benefit food production, while at the same time minimising the risks to wildlife and people. I regard this as a crux issue for the island, based on what I saw in farms, and my various conversations that demonstrated the lack of understanding on product use and risk. There appears to be a clear difference between local Montserratian and ex-pat farmers (e.g. Haitians), who have been encouraged to farm in Montserrat. Expat farmers are generally using far more pesticides on their rented farms, whereas local farmers use less pesticides and farm in a more regenerative way. Extension workers trying to monitor pesticide use but this is challenging.

There is a clear need to increase understanding of pest and disease control, the use of pesticides as part of IPM, and the potential to have stronger linkage between conservation and food production. I see that the required changes will not be immediate, but small steps could be taken relatively quickly to move things forward. I strongly recommend:

- Delivering basic pesticide training to all farmers and landscapers. Could be comparable to the training I delivered on this trip, with an additional practical day for people to practice how to mix and apply pesticides safely and effectively with a CP3 knapsack sprayer.
- Delivering basic IPM training to farmers, to help develop a culture within farming of reduced pesticide use, reduced expenditure, increased food and reduced risk to people and nature.
- Carrying out accurate, simple, application rate calculations for all pesticides available in Montserrat, based on a standard walking speed and the use of a CP3 sprayer. There are only a narrow range of pesticides available in Montserrat, and this could be carried out and then distributed widely, including by the Farmers Association. This information could greatly reduce over or under application of pesticides, save farmers money and reduce risks.
- Set up a pesticide container disposal system for Montserrat, as they are building up in the countryside around several farms. This could be low cost and simple to operate, with perhaps a collection bin at the Farmers Association, which growers put all empty containers into. Periodically this could then be collectively disposed of by burying or burning.
- Adopt legislation and the Government should look to align with the Caribbean Health and Food Safety Agency (CAHFSA) [Model Pesticides Bill in 2020](#).



## **7.5 Children and Youth Engagement:**

I was highly impressed with the Monty's Ambassadors session I attended. Getting young people in the 16-25 age group to engage with nature and conservation is challenging the world over, and the size of the group in Montserrat and the engagement and enthusiasm I witnessed is a tremendous credit to MNT and Sandrae who organises the group. Very well done! Sandrae is obviously respected and admired by those who attended. My only suggested improvement on the day, would be to provide food and refreshments for all the attendees (as a few said they were expecting some). The challenge will be to sustain this level of interest and engagement. My understanding is that Sandrae's contract ends at the end of March 2025, and so setting up Monty Ambassadors with a committee and a self-sustaining calendar of events by end March is key.

MNT have for some time had the ambition to develop an Eco-Play facility (wildlife garden) at the north end of the MNT Botanic Garden. The land is obtained, but there have been challenges securing planning permission for the small education centre they had envisioned in the space NB: the land acquired has a covenant on it preventing any building. MNT now looking to build the classroom at the school, and the young people will walk short distance to the garden. I believe the vision and ambition is excellent, and perhaps overseas corporate funding could enable this to happen.

I have arranged with UKOTCF for the Education Officer from Manx Wildlife Trust (Beth Penhallurick) to visit Montserrat in November 2024, to support MNTs work with young people. Beth is setting up a school twinning project between the Montserrat Secondary School and the largest high school in the Isle of Man (Ballakermeen), and one aim for her trip will be to facilitate an on-line link up between the two schools. In addition, Beth will engage widely around education of all age groups, including Monty's Ambassadors. I am keen that Beth's time in Montserrat has maximum benefit for MNT, and I encouraged Delmaude to liaise with Beth and Sandrae in advance of her visit, so the priorities are agreed. I also encouraged Sandrae to connect with Beth quickly, and to be her key contact in Montserrat when she visits.

## **7.6 Local Food Production:**

Looking at local agriculture wasn't an aim of my visit, but food production in Montserrat (as already demonstrated in the section on pesticide use) has major impact on the environment of the island. There are mixed views from those I spoke to in terms of local food production increasing or decreasing. However, most of the agricultural produce sold and consumed in Montserrat is still imported from Dominica and USA. The USA boat from Miami to Montserrat comes every two weeks and 1-2 refrigerated containers of fresh produce are checked by Government before being distributed to the shops. The price of locally produced food remains much higher than food imported from Dominica, and this was a similar situation I worked in for 2-years on St Helena and it's a challenge to change.

There are very few Montserratian farmers, for example Billy is Dominican, Elvis is from St Kitts and he employs Haitians for two hours per week for 16EC/hour. NB: in Dominica farmers can hire labourers for 30EC/day but in Montserrat it would be 150EC/day, which is another reason imports are cheaper.

My perception from my two visits to Montserrat is that much more local food could be produced, but a clear strategy and delivery plan is required to achieve this. Without fully understanding the details, I applaud the Montserrat Government selecting a small number of local farmers for more focused development and support, rather than feeling they must support every farmer equally. There is great potential for a clear agriculture strategy, clear government incentives and targeted support, making more (suitable) land available for farming (perhaps in the area of the island still closed off due to the volcano), obtaining cheaper farm labour (perhaps bringing in more Haitians and housing them), delivering a management plan for the major pests (agouti & iguanas), upskilling farmers in key areas including IPM, and a move towards more regenerative farming, including no-dig and less pesticides. This would link extremely well to the new MNT/UKOTCF toolkit, delivering a tremendous benefit for both the wildlife and people of Montserrat.



## Annex A

### Montserrat Visit July/August 2024 - Capacity building in Horticulture

**UK Team:** Leigh Morris (CEO, Manx Wildlife Trust)

**MNT Team:** Sarita Francis (SF; Director of MNT); Delmaude Ryan (DR; Senior Manager); Chris Sealys (CS; Senior Conservation Officer); Jo-Diaz Tye (Garden Assistant), Eurlanzo Jeffers (EJ; Conservation Officer)

**Others include** Department of Environment, Department of Agriculture Elvis Gerald (E.G Project officer), Farmers Association, AHW Adopters etc.

The list below summarises a schedule of activities for the Adopt a Home for Wildlife Project (DPLUS155) Biodiversity and Human Well-being Toolkit Project (DPLUS192) taking place in July – Aug 2024.

Day	Date	Time	Event	Description	Attendees
<b>Thursday</b>	<b>18/7/2024</b>		<b>Travel Day</b>	Leigh Morris Arrive on Montserrat	
<b>Friday</b>	<b>19/7/2024</b>	9am	<b>Meeting</b>	Team Meeting with MNT Staff to discuss plans and Review agenda for the week's activities.	SF, DR, CS, LM
		10am		Working at the trust botanical garden	LM, CS, EJ and Garden team
<b>Saturday</b>	<b>20/7/2024</b>			Off Day	
<b>Sunday</b>	<b>21/7/2024</b>			Off Day	
<b>Monday</b>	<b>22/7/2024</b>	9am	<b>Field trip</b>	Visiting farmland with Elvis Gerald (preparation of training activities)	CS, LM, DR
		1pm	<b>Consultations</b>	Visting the adopter site Tim Orton (WH01)	CS, LM, DR
		2pm	<b>Consultations</b>	Visiting the adopter site Dwayne Hixon (WH02)	CS, LM, DR
		3pm	<b>Consultations</b>	Eco-play (MNT)	CS, LM, DR
<b>Tuesday</b>	<b>23/7/2024</b>	9am	<b>Consultations</b>	Carol Osborne - Cassava Ghaut	CS, LM, DR
		11am	<b>Consultations</b>	WH13Hib.Drive – Norman Cassell	CS, LM, DR
		1pm	<b>Consultations</b>	Visiting the adopter Mark Couch & Kathryn (WH08)	CS, LM, DR
		3pm	<b>Consultations</b>	WH14Tropical Mansion	CS, LM, DR
<b>Wednesday</b>	<b>24/7/2024</b>	9am -10am	<b>Meeting</b>	Discussion on Monty Ambassadors	LM, MNT Teams

Day	Date	Time	Event	Description	Attendees
		10:30am	<b>Hike</b>	Monty Ambassadors Hike to the Cote trail	MNT Team
<b>Thursday</b>	<b>25/7/2024</b>	10am	<b>Consultations</b>	Visiting the adopter Vita WHO7 – Lawyers Mountain	CS, LM, DR
		11am	<b>Consultations</b>	Visiting the adopter WHO7 Cherise Aymer	CS, LM, DR
		1pm	<b>Consultations</b>	WH15 Diedre Allen	CS, LM, DR
		3pm	<b>Consultations</b>	Visiting the adopter Lookout School (WH06)	CS, LM, DR
<b>Friday</b>	<b>26/7/2024</b>	9am	<b>Meeting</b>	Living collecting planting and Management plan	CS, LM
<b>Saturday</b>	<b>27/7/2024</b>			Off Day	
<b>Sunday</b>	<b>28/7/2024</b>			Off Day	
<b>Monday</b>	<b>29/7/2024</b>	9am	<b>Training at MNT</b>	Pruning training technique and maintenance	CS, LM, DR MNT, DOE, DOA, FA. AHW
<b>Tuesday</b>	<b>30/7/2024</b>	9am -3pm	<b>Open day</b>	Planning	CS, LM,
<b>Wednesday</b>	<b>31/7/2024</b>	9am -3pm	<b>Training at MNT</b>	Pest, disease and weed control including safe use of pesticides	CS, LM, DR MNT, DOE, DOA, FA. AHW
<b>Thursday</b>	<b>1/8/2024</b>	9am -3pm	<b>Training at MNT</b>	Advance Propagation	CS, LM, MNT, DOE, DOA, AHW
<b>Friday</b>	<b>2/8/2024</b>	11am	<b>Meeting</b>	Wrap-up meeting and open discussion the outcomes of the activities that have taken place and future activities.	CS, LM, MNT,
		1pm	<b>Presentation of Certificate</b>	Certificate ceremony	SF, CS, LM, DR DOE, DOA, FA. AHW
<b>Saturday</b>	<b>3/8/2024</b>			Off Day	
<b>Sunday</b>	<b>4/8/2024</b>			Off Day	
<b>Monday</b>	<b>5/8/2024</b>		<b>Travel Day</b>	Leigh Morris leaves Montserrat	



## Annex B:

<b>Introduction to Plant Pruning – Workshop Plan</b>		
<p><b>Date:</b> Monday 29<sup>th</sup> July 2024.  <b>Venue:</b> Montserrat National Trust  <b>Times:</b> 10am-1pm Workshop, then lunch 1-2pm, followed by 2 hours additional practice/discussion time until 4pm.  <b>Workshop Leader:</b> Leigh Morris and Chris Sealys, Conservation Officer, Montserrat National Trust.  <b>Objectives:</b> The workshop will be an opportunity for the participants to:</p> <ol style="list-style-type: none"> <li>1) Learn the principles on how to prune plants.</li> <li>2) See a range of pruning tools and techniques being demonstrated in the MNT Garden (and 'have a go' at the different techniques if you would like to).</li> <li>3) Understand the reasons for pruning plants and why good pruning is beneficial for your garden.</li> </ol>		
<b>Time/Location</b>	<b>Activity</b>	<b>Resources</b>
9.30am Meeting Room	<b>Meeting, Registration and Welcome</b>	
10am-11am (1 hour) Meeting Room	<p><b>Lecture/Discussion/Presentation/Class interaction:</b>            Introduction to pruning plants</p> <ul style="list-style-type: none"> <li>• Principles on how to prune plants.</li> <li>• Reasons for pruning plants.</li> <li>• Why good pruning is beneficial for your garden.</li> </ul>	<ul style="list-style-type: none"> <li>• PowerPoint and Laptop</li> <li>• Whiteboard/flipchart/Pens</li> <li>• Examples of pruning tools and some material to demonstrate with.</li> </ul>
11am – 12.50pm MNT Garden	<p><b>Pruning Demonstration (and opportunity to practice):</b>            Tutor demonstration &amp; discussion:</p> <ul style="list-style-type: none"> <li>• Use of secateurs – correct orientation, closeness to buds.</li> <li>• Use of Loppers – as secateurs but on thicker stems.</li> <li>• Use of pruning saw and Bow Saw for thick branches – demonstrating the 3-point cut.</li> </ul> <p><b>Plants to be pruned include:</b></p> <ul style="list-style-type: none"> <li>• Hedges</li> <li>• Pink Cassia</li> <li>• Roses</li> <li>• Pride of Barbados</li> <li>• Cotton</li> <li>• Custard Apple</li> <li>• Soursop</li> <li>• Carambola</li> </ul>	<ul style="list-style-type: none"> <li>• Secateurs</li> <li>• Loppers</li> <li>• Hand shears</li> <li>• Hand Saw</li> <li>• Bow Saw</li> </ul>
12.50pm Meeting Room	<p><b>Summary and Recap:</b></p> <ul style="list-style-type: none"> <li>• Review of the morning</li> </ul>	
<b>1-2pm</b>	<b>Lunch – Provided by MNT</b>	
2pm MNT Garden	<p><b>Pruning Demonstration &amp; Practice:</b>            Opportunity for repeat demonstration, student practice time and further questions and discussion.</p>	<ul style="list-style-type: none"> <li>• Secateurs</li> <li>• Loppers</li> <li>• Hand shears</li> <li>• Hand Saw</li> <li>• Bow Saw</li> </ul>
4pm	<b>End</b>	

## Annex C:

<b>Introduction to Pests &amp; Diseases and Effective use of Pesticides – Workshop Plan A</b>		
<p><b>Date:</b> Wednesday 31<sup>st</sup> July 2024.    <b>Venue:</b> Montserrat National Trust    <b>Workshop Leader:</b> Leigh Morris</p> <p><b>Times:</b> Workshop will run twice, in the morning and then repeated in the afternoon at MNT to allow as many people (including farmers) as possible to attend. Workshop A 10am to 1pm. Workshop B 3pm to 6pm</p> <p><b>Objectives:</b> The workshop will be an opportunity for the participants to:</p> <ol style="list-style-type: none"> <li>1) Gain an understanding of different approaches to controlling pests and diseases in crops.</li> <li>2) Discuss current problems on Montserrat farms.</li> <li>3) Learn how to use pesticides better, to improve effectiveness, save money, reduce impact on the environment, and reduce health risks to the farmers and community.</li> </ol>		
<b>Time/Location</b>	<b>Activity</b>	<b>Resources</b>
9.30am Meeting Room	<b>Meeting, Registration and Welcome</b>	
10am-10.30am (30 mins) Meeting Room	<p><b>Welcome and Introductions:</b></p> <ul style="list-style-type: none"> <li>• Participants say their names and why they are joining the course. What is their background in growing plants? Farming? Gardening?</li> <li>• Introduction from Workshop Leader – the aims of today’s workshop.</li> <li>• Introduction to Pests &amp; Diseases presentation.</li> </ul>	<ul style="list-style-type: none"> <li>• PowerPoint and Laptop</li> </ul>
10.30-11am (30 mins) Meeting Room	<p><b>Group Activity - Montserrat P&amp;D Problems:</b></p> <ul style="list-style-type: none"> <li>• Workshop splits into small groups to discuss and record (on flip chart paper):</li> <li>• The main pest and disease problems they have.</li> <li>• The control methods they use now to tackle them.</li> </ul> <p><b>20 mins for discussion and 10 mins for feedback.</b></p>	<ul style="list-style-type: none"> <li>• PowerPoint and Laptop</li> <li>• Flipchart paper/Pens</li> </ul>
11 to 11.30am (30 mins) Meeting Room	<p><b>Presentation – Pest &amp; Disease Control Methods:</b></p> <ul style="list-style-type: none"> <li>• Different approaches to controlling pests, diseases and weeds.</li> <li>• Mechanical / Cultural / Biological / Chemical.</li> <li>• Integrated Pest Management (IPM)</li> <li>• The importance of monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>• PowerPoint and Laptop</li> </ul>
<b>11.30-11.45am</b>	<b>Break time</b>	
11.45-12.15pm (30 mins) Meeting Room	<p><b>Presentation – Effective Use of Pesticides:</b></p> <ul style="list-style-type: none"> <li>• Efficacy of use – ensuring they work well.</li> <li>• Safety of the operator.</li> <li>• Care of the environment.</li> </ul>	<ul style="list-style-type: none"> <li>• PowerPoint and Laptop</li> </ul>
12.15-12.50pm (35 mins) Meeting Room	<p><b>Group Activity – Looking at Pesticides:</b></p> <p>Workshop splits into small groups to look at a range of pesticide containers (all brand new and sealed).</p> <ul style="list-style-type: none"> <li>• Level of risk to people and the environment</li> <li>• PPE to be worn</li> </ul> <p><b>20 mins for discussion and 15 mins for feedback.</b></p>	<ul style="list-style-type: none"> <li>• Selection of pesticides – all MUST be new and un-opened</li> <li>• Participants must wash their hands after the activity.</li> </ul>
12.50-1pm Meeting Room	<p><b>Summary and Recap:</b></p> <ul style="list-style-type: none"> <li>• Review of the morning</li> </ul>	
<b>1-2pm</b>	<b>Lunch – Provided by MNT</b>	



## Introduction to Pests & Diseases and Effective use of Pesticides – Workshop Plan B

**Date:** Wednesday 31<sup>st</sup> July 2024.    **Venue:** Montserrat National Trust    **Workshop Leader:** Leigh Morris

**Times:** Workshop will run twice, in the morning and then repeated in the afternoon at MNT to allow as many people (including farmers) as possible to attend. Workshop A 10am to 1pm. Workshop B 3pm to 6pm

**Objectives:** The workshop will be an opportunity for the participants to:

- 1) Gain an understanding of different approaches to controlling pests and diseases in crops.
- 2) Discuss current problems on Montserrat farms.
- 3) Learn how to use pesticides better, to improve effectiveness, save money, reduce impact on the environment, and reduce health risks to the farmers and community.

Time/Location	Activity	Resources
2.30am Meeting Room	<b>Meeting, Registration and Welcome</b>	
3pm-3.30pm (30 mins) Meeting Room	<p><b>Welcome and Introductions:</b></p> <ul style="list-style-type: none"> <li>• Participants say their names and why they are joining the course. What is their background in growing plants? Farming? Gardening?</li> <li>• Introduction from Workshop Leader – the aims of today’s workshop.</li> <li>• Introduction to Pests &amp; Diseases presentation.</li> </ul>	<ul style="list-style-type: none"> <li>• PowerPoint and Laptop</li> </ul>
3.30-4pm (30 mins) Meeting Room	<p><b>Group Activity - Montserrat P&amp;D Problems:</b></p> <ul style="list-style-type: none"> <li>• Workshop splits into small groups to discuss and record (on flip chart paper):</li> <li>• The main pest and disease problems they have.</li> <li>• The control methods they use now to tackle them.</li> </ul> <p><b>20 mins for discussion and 10 mins for feedback.</b></p>	<ul style="list-style-type: none"> <li>• PowerPoint and Laptop</li> <li>• Flipchart paper/Pens</li> </ul>
4 to 4.30pm (30 mins) Meeting Room	<p><b>Presentation – Pest &amp; Disease Control Methods:</b></p> <ul style="list-style-type: none"> <li>• Different approaches to controlling pests, diseases and weeds.</li> <li>• Mechanical / Cultural / Biological / Chemical.</li> <li>• Integrated Pest Management (IPM)</li> <li>• The importance of monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>• PowerPoint and Laptop</li> </ul>
4.30-4.45pm	<b>Break time</b>	
4.45-5.15pm (30 mins) Meeting Room	<p><b>Presentation – Effective Use of Pesticides:</b></p> <ul style="list-style-type: none"> <li>• Efficacy of use – ensuring they work well.</li> <li>• Safety of the operator.</li> <li>• Care of the environment.</li> </ul>	<ul style="list-style-type: none"> <li>• PowerPoint and Laptop</li> </ul>
5.15-5.50pm (35 mins) Meeting Room	<p><b>Group Activity – Looking at Pesticides:</b></p> <p>Workshop splits into small groups to look at a range of pesticide containers (all brand new and sealed).</p> <ul style="list-style-type: none"> <li>• Level of risk to people and the environment</li> <li>• PPE to be worn</li> </ul> <p><b>20 mins for discussion and 15 mins for feedback.</b></p>	<ul style="list-style-type: none"> <li>• Selection of pesticides – all MUST be new and un-opened</li> <li>• Participants must wash their hands after the activity.</li> </ul>
5.50-6pm Meeting Room	<p><b>Summary and Recap:</b></p> <ul style="list-style-type: none"> <li>• Review of the morning</li> </ul>	
<b>6pm</b>	<b>Refreshments – Provided by MNT</b>	

## Annex D: Horticulture Workshop – Attendee Feedback Summary

Workshop Title: Pruning

Date: 29<sup>th</sup> July 2024

16 attendees completed feedback. 4 questions left blank (1 x Q4/Q8 & 2 x Q9):		Number of respondents		
Questions asked to the workshop attendees		Yes	Partly	No
1	Was the workshop well organised?	16		
2	Was the workshop delivered well by the tutor(s)?	16		
4	Did you like the venue at Montserrat National Trust?	15		
5	Do you feel the workshop was worth attending?	16		
6	Did you learn things today that will help you in your farm/garden?	16		
7	Did you have sufficient opportunity to ask questions?	15	1	
8	Did you enjoy the food/refreshments?	14	1	
9	Would you recommend this workshop to your friends if it ran again?	14		
<p><b>10. What was your favorite part of the workshop?</b>                      "Learning about the position of buds when deciding on the best place to cut a branch when pruning roses."                      "Learn how to pruning plants and will love to learn more."                      "Practicing techniques". "Practice." "Practice and demonstrations." "Going outside and doing actual activity." "Practical experiences." "The outdoors where people get to put what they learnt into practice."                      "Going out into the garden and shown the practices spoken about during the presentation." "Hands on with pruning in the garden." "The sharpening of your pruners. The pruning of the roses. The three step pruning."                      "My favorite part is to know how cut the trees." "How to do cutting and pruning." "3 steps pruning large limbs." "The intro to pruning plants and the 3 point cutting."</p>				
<p><b>11. How could the workshop have been improved?</b>                      "Provide handout as a reference for future application of the knowledge."                      "More practicing techniques." "More time and more days." "Will be the grafted."                      "With more people from organisations." "Seek to get wider participation." "Advertised more openly."                      "Having more people in the workshop."                      "I don't really think it needs that much improvement because the tutor was clear about everything he taught." "I have no suggestions."                      "Difficult to improve. Livestream probably?" "Videos on pruning and tool maintenance."                      "Recommending more workshops to educate farmers/gardeners and back yard gardening."</p>				
<p><b>12. What future workshop would you be interested in attending?</b>                      "Plant care." "Bring more gardeners and farmers." "Yes." "Garden training."                      "It doesn't matter. It is about learning."                      "Am always interested in learning more about budding and grafting." "Grafting and air layering."                      "Pesticides." "Plant identification/naming." "Soil erosion and slippage on land."                      "Topics that's horticulture workshop to improve garden tips."</p>				
<p><b>14. Any other comments or suggestions?</b>                      "Very good workshop overall." "It was good and we must practice what was told to us."                      "Having you come more often." "Thanks for the pruning tips how to improve on cuttings and plant care."                      "Everything is good." "Everything was good." "Thank you – very useful." "Well done."                      "You guys did a great job. Appreciated." "Great workshop, we need more like this!! Thanks."                      "It is always nice to have Leigh around spreading his knowledge."                      "Get more participants. Run workshop for different groups."</p>				



## Annex E: Horticulture Workshop – Attendee Feedback Summary

Workshop Title: Pest & Disease Control and Use of Pesticides

Date: 31<sup>st</sup> July 2024

22 attendees completed feedback. 4 questions left blank (1 x Q5, 3 x Q8):		Number of respondents		
PLEASE TICK IN APPROPRIATE COLUMN		Yes	Partly	No
1	Was the workshop well organised?	22		
2	Was the workshop delivered well by the tutor(s)?	22		
4	Did you like the venue at Montserrat National Trust?	22		
5	Do you feel the workshop was worth attending?	21		
6	Did you learn things today that will help you in your farm/garden?	22		
7	Did you have sufficient opportunity to ask questions?	20	2	
8	Did you enjoy the food/refreshments?	19		
9	Would you recommend this workshop to your friends if it ran again?	22		
<p><b>10. What was your favorite part of the workshop?</b>            “My favorite part was how to set the pressure in the spray can” (CP3 Knapsack). “Learning more about the 5 gallon sprayer and how to mix the chemicals.” “Reading the labels.” “Learning how to use pesticides.”            “My favorite part of the workshop was the application of over a large area (Hectare etc.)”            “Discussion about the risks associated with pesticides”. “All.” “Impressing the importance of safety.”            “Learning more about the 5 gallon sprayer and how to mix the chemicals.” “All.” “Discussion.”            “The way people ask questions.” “Protection of your body.” “All.” “Making recommendations.”            “Learning about the different pesticides, their benefits and harmful effects and what precautions should be taken. Also, learned about different types of pest and disease.” “Reading the labels.”            “I learn how to protect myself during spraying.” “Integrated Pest Management and pesticides hazards.”            “Learning about the right way to use chemicals.” “Discussing the pests and diseases.”</p>				
<p><b>11. How could the workshop have been improved?</b>            “In my opinion the workshop was alright to me”. “No.” “Refer to the laws – next workshop.” “It was good.”            “Handouts.” “Everything was very good.” “With a minor presentation (visual).” “It was done well.”            “I think school children should have been included also social workers.” “A follow up workshop.” “No.”            “More info on organic pesticides.” “No improvement need.” “Widen participation / participants.” “No.”            “Should also focus on main pests &amp; diseases in MNI e.g. iguana, agouti, yard fowl.” “Pruning.” “N/A.” “No.”</p>				
<p><b>12. What future workshop would you be interested in attending?</b>            “Would like to know about how to spray in windy conditions”. “Horticulture and propagation.” “Pruning.”            “Calibration of Cooper Peglar then mixing chemicals for application.” “Practical training on application.”            “Course that everyone in the world would be on the same page on understanding that things can be done in a different way without chemicals.” “Grafting.” “Organic farming.” “Pruning.” “Yes.”            “How plants and culture could be merged into agriculture.” “A refreshers and practical.”            “Controlling yard fowl, agouti, iguana, rats. Pesticide legislation and policy. Discussion on cultural practices to eliminate and reduce pests.” “Use of local and traditional pest management.” “Pruning.”</p>				
<p><b>14. Any other comments or suggestions?</b>            “None.” “No.” “Yes it a very good foundation.” “It was wonderful.” “I learnt a great deal.” “No.”            “It would be nice if more people be there.” “I have learnt a lot.” “Very good workshop.”            “Let’s keep the environment safe not just for humans but everything that is a part of it.”            “It would be nice if more people be there.” “Good workshop and refreshing alert on pesticide hazards.”            “Draw attention of officials for a pesticide policy.” “Great presentation.”</p>				

# Annex F: Group Thoughts on Main Montserrat Pests & Diseases (recorded at the workshop on Wednesday 31<sup>st</sup> July 2024):

P+D Problem	Plants Affected	Controls Used Now
Fire ants		Extinguish soap
Worms	vegetables	
ground lizards	drp hole in plant root	lanate
wild Chickens <sup>3</sup>	diag seeds	lanate
Mealy bug	Malvaceae, pineapple	ivory soap / blue dawn Baking soda, + Pubbing alcohol
Iguana <sup>1</sup>	all plants	Hunting, lanate, traps
Molecricket	Vegetables roots, lawns	ground lizard, chicken
Snails	ornamental plants, All	wory soap, duryal
Scale insects	ornamental plants, All	Rat poison, Bumb cane
Plots	coconut, potatoes	traps, dogs
Agouti <sup>1</sup>	All plants, seeds	
leaf miner	Citrus	Cophid chemical
Caterpillar <sup>2</sup>	All plants	
pink mealy bug		
mango bug-		

P+D Problem	Plants Affected	Controls Used Now
Iguana	Vegetables, hibiscus, ground cover, noni leaves, some weeds	traps, gillnet, poison, slug bait, stick, stones, music, dog
Agouti	Vegetables (root crops) melons, fruits (vine crops) bean crop, coconut	traps, poison, stone sticks, dog urine, dogs
slugs/snails	Vegetables (green leafy)	salt, physical removal, eat consume
crickets (mole)	root of plants, vegetables	pesticide (granules)
Mealy bug	hibiscus, ornamentals	Jack spuriards, dawn soapy, water, ash (wood), pesticide
fire ants	lawn grass fruit trees	pesticide, organic control (ground lizards)
Rats	coconut, fruits, root crops, corn, vegetables (ornamental)	Rat poison, traps (stoves), coconut + salt mix, cement mixed w/ k food
Fungus (Gothymold)	Citrus, ixoras, guava	pesticide, dishwash liquid, neem water
Feral chickens	Fruits, vegetables	Traps, poison, (salt in rice)
Pearly eyed Thrasher	Fruits, vegetables	poison (corn), stone

Pest/Disease Problem	Plant Affected	Control Method
1. Iguana	lettuce	Kill + eat
2. Agouti	Below ground crops, Five finger	
3. Caterpillars	Vegetables, dessert table, ornamentals.	Dish soap, listerine, kabate, malatine, pegasus
4. White flies	Ornamentals	
5. Black bean bug	- peas, legumes, twiny	
6. Pink Mealy Bug	Hibiscus	Melone, Stone, poison
7. Yard fowl	Everything	Stone, prayers.
8. Thrush	Fruits.	
9. Mildew	Cucumber, tomato	Remove plant/ time of planting.
10. Sticky bug	Cucumber	??
11. Nematodes	tomato, veg.	chemical.
12. Mold Cricket	law, watermelon	Chemical.
13. Coconut mite	palm	Spray/kill
14. Citrus greening	citrus	Remove/kill plant.
15. Rat	Everything	Poison
16. Fire ants	Ornamentals. lawn	Bait, spread.

P+D Problem	Plants Affected	Controls Used Now
1. Iguana	All	1. Traps, Snags, G. net, fence
2. Agouti	Leafy Root crops	2. " " " " (Bait)
3. LIVESACK	PLANTAIN EVERYTHING green	3. Pound
4. White Flies	PAWPAW, OCK RO, Pepperc	4. Pesticide / neem oil / Dish Liquid
5. MEALY BUGS	HIBISCUS, OCK RO, Peas, Sugar Apple, Soap, Flowering Plants, Egg Plant	5. AS ABOVE
6. MEALY CATA PILLARS		
7. SAT Bug		
8. BLACK SICATOGA	BANANA	
9. LETHAL YELLOWING	CITRUS	
10. CITRUS GREENING	CITRUS	
11. Aphids	Tomato, Pepperc	
12. LEAF MINOR	Tomato, Lettuce (leaf crops)	
13. ASSASSIN BUGS	Pumpkin	
14. BLACK BEAN BUG	Legumes	
15. Locust	VEGS (leafy)	
16. FIRE ANTS	MAINTAINING CITRUS	SEVIN / SPINOSAD / ORTHO / AMPRO
17. WOOD LOUSE	SAP BEARING PLANTS	SEVIN / EATING RID
18. WOOD ANTS	WOODY STEMS	SEVIN / PRUNE
19. Red Ants (Fire)	BLOSSOMS	BAIT / SEVIN
20. Mango Seed weevil	NEST MANGOS	PRE BLOSSOM TREATMENT
21. Soap Sap Borer	SOAP SAP / QUETZAL Apple	
22. Thrips	VEGS	
23. RATS	EVERYTHING	Bait traps
24. Fowls	SEEDS, FRUITS & BAY	TRAPS Fencing
25. Pearly eyed	FRUITS, VEG	NOTING



# Annex F: Group Notes on Pesticide Labels (recorded at the workshop on Wednesday 31<sup>st</sup> July 2024):

Pesticide Name (product and a.i.)	Application Rate/Method	Risks to People and the Environment
Fusilade Fluazifop-P-butyl	125g per litre 7 day interval - Re-enter 2 hours after the product has dried	Stored in secured cupboard Wear face shield wear gloves use gloves when pouring/mixing Wash hands after mixing + applying hazardous to waterways and marine life.
Karate Zeon lambda-cyhalotrin	50g per litre	Wear full protective clothing including boots Wear respirator + face shield wear gloves Shower after use hazardous to waterways and marine life hazardous to bees/insects stored in a locked secured cupboard should wear gloves when measuring/mixing Harmful

dispose empty containers by crushing, cutting then burn or bury  
Do not reuse empty container  
Dispose of unwanted spray solution on waste ground.  
Rinse empty container 3 times  
Do not smoke, drink or eat while using.

Pesticide Name (product and a.i.)	Application Rate/Method	Risks to people and the environment
Touch down 10 - herbicide a.i - Glyphosate	100-250 l/ha tractor Knapsack sprayer 7 days	Slightly Hazardous eyes, water
Pegasus-insecticide Diafenthiuron	low 40-100 Litres/hectare Tomato, Cucumber etc low / ornamentals 0.15-400 l/h 60-80 ml/100 L water Pepper 0.12-0.300 50-60 7 days	Moderately Hazardous Skin, eyes ingestion, inhaled Water

Pesticide Name (product and a.i.)	Application Rate/Method	Risks to people and the environment
Touch down 10 Glyphosate (weed killer)	Low volume spray 2 litres per hectare	No smoking, drinking or eating while using Wear complete protective gear including boots when mixing + spraying Wear eye protection when mixing pressure rinse empty container 3 times affects skin, eyes poisonous if consumed phytotoxicity green crop foliage + stems affects waterways if ingested causes vomiting Irritate skin
Phyton - 27 Phyton (fungicide/bactericide)	75ml chemical to 4 gallons (1.25 ml to 3 ml) 1-3 tsp per gal	
Vydate L nematocide - carbamate oxamyl	0.22-0.61 gal/Acre 1 gal/Acre (pineapple)	Toxic to bees, Fish poisonous to human Triple rinse empty containers and return to supplier for proper disposal

Pesticide Name (Product + Chemical)	Application Rate/Method	Risks to People + Environment
Karate Zeon (Dimethylocyclophne 5%) harmful	Orn/cabbage Tomato - 0.4 litre per hectare Pumpkin - 0.3-0.4/ hectare	Fatal if swallowed Harmful if absorbed in skin Causes eye irritation + skin Area unsafe for 24hrs Contaminates water Toxic to fish + aquatic habitats Highly toxic to bees Run-off
Pegasus Diafenthiuron 50% moderately hazardous Harmful	Tomato Cucumber Melon Ornamental Cabbage Cauliflower Peppers 0.125-0.3%	No case of human poisoning Skin irritation Eye irritation Harmful to fish + waterways
K lerat 4 Active ingredients 0.005% - bitrex	20-80grams per 5 metres	Need antidote - (Vitamin K) if ingested

# Annex G: Montserrat Radio Interview Script (30/7/24)



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**\*\*Play show tune\*\***

## Introduction

Good afternoon, Radio Listeners and Thank you for tuning in to another edition of the Montserrat National Trust's Heritage Radio Show. I am your host Delmaude Ryan and it is good to be back with you on this show where we feature the voices of the diverse people and organisations that we work with in fulfilling our mission to preserve the past, protect the present and enrich the future. On today's show we will be discussing safe crop production in a run up to the introduction of pest and disease control training workshop. Joining me in the studio is, Chris Sealys, our Conservation Officer and Leigh Morris, Horticulturist; and Executive Director of Manx National Trust of the Isle of Man. Good afternoon gentlemen and welcome to the Heritage Show.

## Interview Questions

1. Could you please each greet our audience?
2. The Departments of Agriculture and the Department of the Environment are key partners on the Adopt A Home for Wildlife Project which aims to empower persons in our community with skills to nurture the environment while at the same time being able to improve their livelihoods. Throughout the project officers, our local DoE and the UK team made up of ecologist, horticulturists, botanist and entomologists were able to help us to identify invasive plants and insects, identify and record locations on the iNaturalist platform, learn the beneficial invertebrate pollinators use skills in propagation, knowing the best medium for plants to thrive, grafting, air layering, pruning and now developing skills in good pest and disease control management.
3. Mr Leigh Morris is no stranger to the Heritage show, having visited the island last year where he shared skills in budding and grafting techniques. Leigh tel us what is the aim of your visit this time around and what have you been doing over the past week.
4. Yesterday we had an exciting pruning workshop with Landscapers and staff from the Depart of the Environment and the Montserrat National Trust, how was that for you and what were some of the take away from the participants?
5. Chris, you have worked in conservation for some time, how important is the correct application of





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insecticides and pesticides.

6. Tomorrow Wednesday 31 July 2024, we will host an introduction to pest and disease control training, who is invited and what can participants expect?

### **Closing Remarks**

Your parting words..... (say thanks etc)

Thank you very much for tuning into today's edition of the Heritage Show. Thank you to the ZJB team for accommodating us. I am your host Delmaude Ryan, wishing you a wonderful rest of the week!