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sustainable environment, education & development



A Report for

PROJECT PALMS

Initial Stakeholder Consultation Report

July 2023

1 Introduction

This report combines and summarises the findings from the Project Palms Community Consultation Survey conducted in October 2021 and semi-structured key informant (KI) interviews with members of local forest management organisations conducted between July 2022 and January 2023. The survey and interviews aimed to investigate community knowledge and use levels of the six threatened target palm species.

Survey respondents totalled 25, with two of the respondents identifying as female. Respondents were from three different hamlets, Ambandrika (40%, $n = 10$), Ampanasatomboky (40%, $n = 10$) and Manafiafy (20%, $n = 5$). The majority of respondents were fishers (84%, $n = 21$), two were weavers (8%), one was a member of the local forest patrol (*Polisin'ala*) (4%), and one was a former mayor/fisher (4%). Survey questions focused on palm identification, usage, harvesting frequency and quantity, population change, price changes, and threats. The full set of questions is available in Annex 1.

Interview questions were repeated for each of the six target palm species, seeking to establish KI knowledge of palm population change, distribution, community uses, phenology, and pollinators. Four complete KI interviews (KI 1, 2, 3, and 4) and one incomplete interview were conducted (KI 5), where only two target species were discussed (*C. saintelucei* and *D. scottiana*). Two of the interviewees were from the *Communautés de Base* (CoBA; forest management association), two from *Polisin'ala* and one from the Forestry Police Association (FIMPIA).

This report starts with a summary of the survey questions that focused on characteristics of the broader palm population in Sainte Luce. Species-specific results from the survey and the KI interviews are then outlined. In this report, 'respondents' refers to the Community Consultation Survey respondents only. Key information from the survey and KI interviews is summarised by species in Annex 2 and 3 respectively.

2 Results

2.1 General Survey Findings

100% ($n = 25$) of respondents stated that their household uses palm trees, primarily to make lobster pots and construct houses (specifically roofs and walls). 96% of respondents ($n = 24$) indicated that they have noticed a recent change in the population of palms in Sainte Luce, with 64% ($n = 16$) explicitly stating they have observed a decrease. Deforestation for livelihood purposes was identified by most respondents (92%, $n = 23$) as the primary cause of the change in the local palm population, while one (4%) respondent suggested climate change was the primary cause. The change in palm availability has caused 20% ($n = 5$) of respondents to travel farther to harvest palms and likely caused the increase in the price of palm raw materials and products that 56% ($n = 14$) of respondents have observed. All respondents (100%, $n = 25$) identified deforestation as the greatest threat facing palms in Sainte Luce, while fire (36%, $n = 9$) and climate change (4%, $n = 1$) were also identified as threats.

Respondents were also asked which locations would be most suitable for the planting and re-growing of palms. The protected Sainte Luce Littoral Forest (SLLF) fragments of S8 (32%, $n = 8$) and S9 (44%, $n = 11$) were the most popular. 32% ($n = 8$) of respondents stated their preference for planting palms in accessible land, such as the Community Resource Zones of S6 (4%, $n = 1$) and S7 (8%, $n = 2$).

2.2 By Species

2.2.1 *Beccariophoenix madagascariensis*

B. madagascariensis (local name: *boakamainty*) was the second least known of the target palm species among survey respondents and KIs, with 52% ($n = 13$) of respondents able to identify the species, while KIs responded with less detail regarding this palm than any other species, except *D. brevicaulis*.

KI 1 and 3 stated that *B. madagascariensis* are mostly found in S8, with KI 3 also specifying that they are found close to Mahatalaky, the commune centre approximately 8km to the west of S7. A few were said to remain in S6, S7, and S9 (KI 1). A lack of community use of this species was noted by KI 1 and 4, with KI 1 suggesting this has led to a recent increase in their local population. The reduced knowledge of this species is evidenced by the uncertainty of KI 2 and 3 as to whether the *B. madagascariensis* population has changed over the past decade, while only 4% ($n = 1$) of respondents have noticed a change in this species' population over time. KI 2 identified this species as slow growing.

Surveys revealed a low level of community use for this palm species, with 28% ($n = 7$) stating they used *B. madagascariensis* for constructing house walls and floors. Subsequently, respondents most commonly harvested this species once per year (24%, $n = 6$), with one respondent (4%) harvesting once every two years. Respondents indicated that two to four parts of this palm are typically harvested simultaneously.

The low-level community usage of *B. madagascariensis* for housebuilding contradicts KI 1, who stated that this species was used for house construction but not currently. KI 3 explained that some fishers weaved stems of this species to make lobster pots, despite KI 1 suggesting they do not make good lobster pots and no survey respondents mentioning lobster pots as a use for this species. These discrepancies between KIs and respondents suggest that local communities have reduced knowledge regarding this species.

The lower levels of community usage of *B. madagascariensis* may help explain the lesser knowledge of this species compared to four other target palm species.

2.2.2 *Chrysalidocarpus prestonianus*

C. prestonianus (local name: *boaka be*) was correctly identified by a high number of respondents (80%, $n = 20$). KI 1 and 4 have observed a recent increase in the population of this species, although KI 4 stated that *C. prestonianus* are still fewer in number than a decade ago due to use in house construction. KI 4 attributes this recent increase to designation of S9 as a protected area in 2015. However, KI 3 somewhat contradicts this observation by stating that there are few *C. prestonianus* in S9. Only 4% ($n = 1$) of survey respondents have observed a change in the population of this species over time. Interestingly, KI 4 also mentioned that a foreign non-governmental organisation (name unknown) has raised awareness in Sainte Luce on the importance of conserving this species. This awareness-raising led to a reduction in the community harvesting from protected areas, showing that community education and awareness-raising are crucial to safeguard populations of these threatened palm species.

C. prestonianus ranked third for community use by respondents, with 56% ($n = 14$) using this species. This palm species was found to have varied uses. The trunks are used for constructing house walls and floors (KI 1, 2, 3, and 4), particularly in Ambandrika (KI 3). *C. prestonianus* stems were found to be used to produce lobster pots, with KI 2, 3, and 4 specifying juvenile stems are used. KI 4 stated that pots made from this species are weak and only began to be produced around 2007 when the population of *C. saintelupei* became too small to be used. Juvenile leaves were identified as being used for Christmas decorations by KI 2 and 4, and *C. prestonianus* hearts for food (KI 4); neither of these uses were mentioned by respondents. *C. prestonianus* was most commonly harvested once per year by respondents (32%, $n = 8$), with their rate of harvesting ranging from once per month to once every two years. Subsequently, the quantity harvested ranged from between 40 stems per year and two to five pieces of palm (no given time frame).

Only KI 3 provided phenological knowledge on this species; they stated that *C. prestonianus* has a naturally slow reproduction rate and that 20% of seedlings germinate.

2.2.3 *Chrysalidocarpus psammophilus*

C. psammophilus (local name: *hanjo*) ranked fourth out of the target species for community identification (60%, $n = 15$). KI 1, 2, and 4 have all observed an overall decrease in the population of this species over the past decade.

However, KI 3 stated that the *C. psammophilus* population in the SLLF is currently increasing. KI 1, 3, and 4 all identified S7 as containing many of this species, with KI 3 saying this species is also found near swamps in S9 (KI 3).

Surveys revealed that *C. psammophilus* also ranked fourth for community use, with 32% ($n = 8$) of respondents utilising this species. Community respondents' uses varied, from the construction of house walls and roofs (KI 1, 2, 3, and 4) to producing lobster pots (KI 2) and the trim around a pirogue opening (KI 1, 3, and 4). KI 2 and 4 identified house construction as the primary cause of this species' population decline, with KI 4 stating an increase in the human population of Sainte Luce led to an increase in construction. Respondents most commonly harvested *C. psammophilus* once per year (16%, $n = 4$), with usage quantity ranging between 40 stems per month and four stems per year.

Interview data paints a conflicted phenological picture, with KI 1 stating this species flowers in June and fruits in August, while KI 4 stated it flowers in August and September and fruits in October. KI 3 identified *Eulemur collaris* as a disperser of *C. psammophilus* seeds and stated that an individual of this species produces many seeds with them all germinating. A 100% germination rate seems unlikely, particularly when combined with the consensus among KIs that the population of this species is decreasing (KI 1, 2, and 4).

2.2.4 *Chrysalidocarpus saintelupei*

C. saintelupei (local name: *telopoloambilany*) was identified by nearly all community respondents (96%, $n = 24$), with 28% ($n = 7$) observing a reduction in the population of this species. A population reduction was also observed by all KIs (1, 2, 3, 4, and 5). Survey respondents detailed that this species is prevalent in S7 and S8, with KI 3, 4, and 5 specifying that *C. saintelupei* prefer swampy areas, such as those found in S7 (KI 3 and 4). However, KI 5 contradicted this by stating that S7 does not contain high numbers of this species. The designation of S8 and S9 as protected areas was said to have reduced the quantity of *C. saintelupei* harvested by the community (KI 3, 4, and 5). KI 2 also highlighted the distance between villages and S8 South as a factor contributing to the comparatively high population of *C. saintelupei* found there. This species was identified as slow growing (KI 2 and 4), which has prevented population rebound (KI 4). KI 4 also recommended that this species requires monthly monitoring after planting.

C. saintelupei was the second most used palm species by respondents (64%, $n = 16$), with KI 1 stating that community use is at an all-time high. Conversely, KI 2, 3, 4, and 5 have observed a reduction in community use due to the declining species population. The production of lobster pots (KI 1, 2, 3, 4, and 5), as the predominant use of this species, was highlighted as the cause of its population decrease (KI 3). The flexibility of *C. saintelupei* was highlighted by KI 3, who stated that pots produced from this species can last 2-3 weeks at sea. The cost of a *C. saintelupei* was quoted as between 1,000-2,000MGA (KI 1, 3, and 5), with KI 3 observing a doubling of the price over the past two years. One respondent (4%) also reported a doubling in the price of this species from 800 to 1,500MGA (no quantity given). Overall, 24% of respondents (24%, $n = 6$) observed an increase in the price of *C. saintelupei* materials and products.

Additionally, respondents identified community uses that KIs did not. One (4%) respondent used this species to construct house walls, and two respondents (8%) used *C. saintelupei* as a foodstuff. This species was most commonly harvested weekly (20%, $n = 5$), with the frequency ranging between three times per week and once per month. The quantity harvested by respondents ranged between 80 stems per week and 10 stems per month. KI 3 and 4 estimated between 30 and 40 stems are required to produce a lobster pot.

Limited phenological knowledge was gained from the KIs, with KI 1 stating that *C. saintelupei* flowers in August and September and fruits in November, while KI 5 has observed bees on flowers of this species.

2.2.5 *Dypsis brevicaulis*

Community knowledge regarding *D. brevicaulis* (local name: *tsirombonala*) was the lowest of the target palm species. Only 24% ($n = 6$) of survey respondents were able to identify this species, and KI 3 and 4 felt unable to comment due to their lack of knowledge about this species. KI 1 and 2 stated that this species can only be found in S8, with KI 2 observing no change in its population over time. KI 1 has observed this species producing ripe fruit in June. Surveys and KI interviews revealed no known community uses for *D. brevicaulis*. The lack of known community uses, combined with the potentially limited geographical distribution of *D. brevicaulis*, is a likely cause of the limited community and KI knowledge regarding this species.

2.2.6 *Dypsis scottiana*

D. scottiana (local name: *amboza*) was the most widely identified of the target palm species by community respondents (100%, $n = 25$). A decrease in the population of this species was observed by all KIs (1, 2, 3, 4, and 5), which correlates with the 32% ($n = 8$) of respondents who noted a reduction in the availability of *D. scottiana*. *D. scottiana* individuals were said to be found in all five core fragments of the SLLF, with S7 highlighted as the primary community collection zone (KI 2, 3, and 5) due to the fragment's status as a Community Resource Zone.

The *D. scottiana* population began to decrease when the community realised its potential for use (KI 2 and 3), with KI 2 suggesting this was around 30 years ago. KI 5 posits that an increase in the human population of Sainte Luce, after migration from Diego Suarez and Toliara, has led to a decrease in this species' population. KI 3 stated that this species prefers to grow in wetland areas.

D. scottiana was also the most used palm by community respondents (84%, $n = 21$). This species' is primarily used for making lobster pots and strengthening house walls. KI 1, 2, 4, and 5 identified adults as being used for house wall construction, with KI 5 stating they last for 10 years, compared with five to six years for juvenile or sub-adults. Juvenile and sub-adult individuals were instead used to produce lobster pots (KI 1, 2, 3, 4 and 5), owing to the flexibility and strength of their trunks (KI 1, 2, and 5). KI 2 stated that *D. scottiana* is now the primary source of lobster pots in Sainte Luce, with KI 5 suggesting this is due to the decreasing population of *C. saintelupei*. These lobster pots are made from 30 stems and can last two to three weeks at sea (KI 2). Subsequently, community respondents harvested *D. scottiana* frequently, most commonly once per week (28%, $n = 7$), with the range of harvesting between twice per week and once per month. Additionally, 24% ($n = 6$) respondents have noted a rise in the price of *D. scottiana*, with one (4%) stating that the price of a pack of *D. scottiana* has increased from 2,000 to 4,000-5,000MGA. KI 2 identified lobster pots made from this species as costing 1,500MGA.

KIs provided conflicting phenological knowledge, with *D. scottiana* said to flower in April (KI 2) or June (KI 4) and fruit in May (KI 1 and 2) or September (KI 4). *E. collaris* was identified as a seed disperser (KI 4 and 5), with an ancient Malagasy proverb supporting this observation (KI 5). Finally, KI 5 observed bees and beetles on the flowers of this species.

2.3 Alternatives

The majority of community respondents (64%, $n = 16$) felt that uses of the six target species have changed over time, with 52% stating a change in palm availability as the reason. An increase in community knowledge regarding the potential uses of species, such as *D. scottiana* (KI 2 and 3), was also cited as a contributing factor.

KIs provided important insight into alternatives to the target species for community use, particularly for producing lobster pots. All KIs (1, 2, 3, 4, and 5) identified *Ravenala madagascariensis* (traveller's palm) as a species used to produce lobster pots. According to KI 4, the use of this species began around five years ago due to a significant decline in the *C. saintelupei* population. In the SLLF, KI 5 has observed *R. madagascariensis* harvested from S8 South and S17; however, individuals from this species harvested in the mountains are said to be much stronger (KI 1 and 3). Lobster pots produced from traveller's palm are similar in price to those made from *C. saintelupei* and *D. scottiana* at around 1,500-2,000MGA (KI 1, 2, and 3), although the price was said to have more

than doubled over the past two years (KI 3). *R. madagascariensis* was also stated to be used as an alternative to *C. prestonianus* for constructing house walls (KI 3).

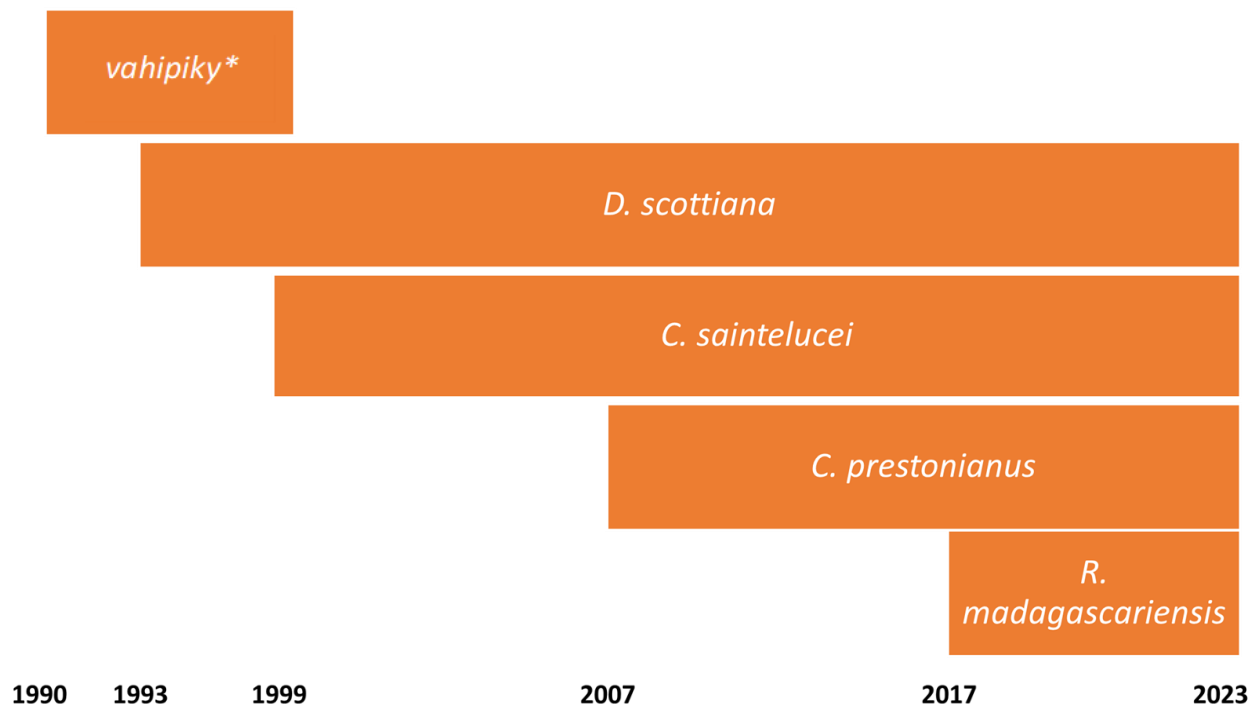


Figure 1: Chart showing the progression of species harvested in Sainte Luce for producing lobster pots, information taken from KI interviews. **Vahipiky* is still used by some community members, but is said to come from the mountains, not Sainte Luce.

Three more alternative species used for producing lobster pots were also identified. Firstly, *vahipiky* (KI 1, 3, 4, and 5), a strong vine that costs around 2,500-3,000MGA per pot (KI 5). The local population of *vahipiky* was said to have mostly run out by 1999, when the community began to use *C. saintelupei* instead, although a small population was said to exist in S9 (KI 3). KI 1 identified people from Tsagnoriha (northwest of Mahatalaky) as collecting both *vahipiky* and *R. madagascariensis* from mountain forests to sell to fishers in Sainte Luce. One survey respondent (4%) also stated they previously used *vahipiky*. Secondly, KI 1¹ identified *Dypsis nodifera* as a species currently used in lobster pots as it has similar properties to *D. scottiana*. Thirdly, KI 5 mentioned that *voliandroky* (bamboo found in S8 North) is used to produce lobster pots as it is stronger than *R. madagascariensis*. However, its use is limited as it is sharp. KI 1 also mentions that bamboo (name unknown) from S7 and S8 is used, with these lobster traps lasting five to six days at sea and costing 20,000MGA due to the complex and time-consuming weaving. It is important to note that a selling price of 20,000MGA would make these bamboo lobster pots around ten times more expensive than lobster pots made from other species mentioned for a weaker product.

3 Conclusion

Community Consultation Survey and key informant interviews have provided information regarding the population dynamics and the levels, and nature of, community uses of the six target threatened palm species. 96% ($n = 24$) of survey respondents and all five KIs have observed a recent change in the palm populations of Sainte Luce, with 64% ($n = 16$) stating they have decreased. KIs unanimously identified *C. saintelupei* and *D. scottiana* as having decreased populations, with a majority also observing a decrease in the *C. psammophilus* population. Interestingly, at least one KI stated that populations of *B. madagascariensis*, *C. prestonianus*, and *C. psammophilus* are increasing. High levels of community usage were identified by KIs and survey respondents as

¹ Stated in a personal communication to SEED from KI 1 (n.d.)

the primary driver of population change among palm species, with KIs suggesting a human population increase in Sainte Luce has accelerated the decline of palm populations. KIs highlighted the effectiveness of the 2015 designation of S8 and S9 as protected areas for reducing community harvesting of threatened palms from these forest fragments. The three most frequently used palms by the community (*C. prestonianus*, *C. saintelupei*, and *D. scottiana*) were all highlighted as being harvested less from these two fragments owing to their protected status.

Respondents and KIs painted a dynamic picture of community palm usage. Five out of the six target species were used by the community, with *D. brevicaulis* found to have no known community uses. The most common community uses for the target palm species were to produce lobster pots and to construct houses (particularly the walls and floors), with multiple species used for the same purposes. There appears to be a relationship between the frequency of harvesting and purpose of harvesting. The two species primarily used to produce lobster pots (*C. saintelupei* and *D. scottiana*) were harvested most frequently (once per week), with the three species primarily used for house construction (*B. madagascariensis*, *C. prestonianus*, and *C. psammophilus*) most frequently harvested once per year. *D. scottiana* and *C. saintelupei* were also identified by the highest proportion of respondents as having a decreasing population.

Species use has changed over time to respond to changes in palm availability, which in turn has affected the price. KIs have identified alternative species for lobster pots and house constructions, and provided a chronological picture of change in the species used to produce lobster pots.

The knowledge gained from the survey and KI interviews, particularly on population change, community usage, and alternative species, will inform the development of a Conservation Action Plan, safeguarding the populations of the target palm species. Further, the low overall levels of community knowledge regarding *D. brevicaulis* and *B. madagascariensis*, and the limited phenological knowledge of the KIs, highlight the importance of Project Palms in increasing knowledge resources of these palm species, particularly the Population Census Report and the Microhabitat Assessment Report.

4 Annexes

Annex 1 – List of Community Consultation Survey Questions

1. Do you or does anyone in your household use palm trees as a resource?
 - 1.1. If yes, broadly, what do you use them for?
2. Which of these species of Palms can you identify?
 - 2.1. If known, which species do you use and for what purpose?
3. How often do you harvest/use these palms?
4. What is the quantity of these palms you use?
5. Have you noticed a change in the number of these palm species throughout Sainte Luce over time?
 - 5.1. If yes, what has changed? What are the causes and magnitude of the change?
6. Have the local uses of these palm species changed over time in your opinion?
 - 6.1. If yes, how have they changed and which palm species have experienced these changes?
7. Have you noticed changes in the prices for the six palm species?
 - 7.1. Are you travelling further to obtain them?
8. Beyond what you have told us, do you have any additional information or knowledge on the six palm species?
9. What do you think are the major threats facing these palms in Sainte Luce?
10. If we were to try and re-grow palms - where do you think would be the best place for us to try and grow them?

Annex 2 – Key results from the Community Consultation Survey per species.

Scientific Name	<i>B. madagascariensis</i>	<i>C. prestonianus</i>	<i>C. psammophilus</i>	<i>C. saintelupei</i>	<i>D. brevicaulis</i>	<i>D. scottiana</i>
Vernacular Name	<i>Boakamainty</i>	<i>Boaka be</i>	<i>Hanjo</i>	<i>Telopoloambilany</i>	<i>Tsirombonala</i>	<i>Amboza</i>
Identify Correctly	52% (n = 13)	80% (n = 20)	60% (n = 15)	96% (n = 24)	24% (n = 6)	100% (n = 25)
Use this Species	28% (n = 7)	56% (n = 14)	32% (n = 8)	64% (n = 16)	0% (n = 0)	84% (n = 21)
Named Uses	- Construction (house walls and floors)	- Lobster Pots - Construction (house walls and floors)	- Lobster Pots - Construction (house walls) - Pirogue trim	- Lobster Pots - Construction (house walls) - Food	None	- Lobster Pots - Construction (house walls)
Harvesting Frequency (Mode)	1x Yearly (n = 6)	1x Yearly (n = 8)	1x Yearly (n = 4)	1x Weekly (n = 5)	N/A	1x Weekly (n = 7)
Harvesting Frequency (Range)	Yearly – 1x every 2 years	Monthly – 1x every 2 years	Yearly	3x Weekly – 1x Monthly	N/A	2x Weekly – 1x Monthly
Harvesting Quantity (Range)	2-4 halves/parts	40 stems per year - 2-5 pieces/parts (no time frame given)	4 stems per year – 40 stems per month	80 stems per week – 10 stems per month	N/A	20-60 stems per week
Observed a Change in Availability	4% (n = 1)	4% (n = 1)	0% (n = 0)	48% (n = 12)	0% (n = 0)	72% (n = 18)

Annex 3 – Key results from KI interviews per species. The bracketed number refers to the specific KI interview.

Scientific Name	<i>B. madagascariensis</i>	<i>C. prestonianus</i>	<i>C. psammophilus</i>	<i>C. saintelupei</i>	<i>D. brevicaulis</i>	<i>D. scottiana</i>
Vernacular Name	<i>Boakamainty</i>	<i>Boake be</i>	<i>Hanjo</i>	<i>Telopoloambilany</i>	<i>Tsirombonala</i>	<i>Amboza</i>
Population Change	- Increasing (1)	- Decrease overall, but now increasing (4) - Increasing (1)	- Decreasing (1,2, and 4) - Increasing (3)	- Decreasing (1, 2, 3, 4, and 5)	- No change (2)	- Decreasing (1, 2, and 5)
Observed Distribution	S6, S7, S8 and S9 Most found in S8 (1 and 3)	S6, S7, S8 and S9 (1, 2, 3, and 4)	S6, S7, S8, S9 and S17 (1, 2, 3, and 4)	S6, S7, S8 and S9 (2, 3, 4, and 5)	S8 (1 and 2)	S6, S7, S8, S9 and S17 (3, 4, and 5)
Uses	- Lobster Pots (3) - Construction (past use 1)	- Lobster Pots (1, 2, 3, and 4) - Construction (house walls and floors) (1, 2, 3, and 4) - Christmas decorations (2 and 4) - Food (4)	- Lobster Pots (2) - Construction (house walls) (1, 2, 3 and 4) - Pirogues (1, 3, 4)	- Lobster Pots (1, 2, 3, 4, and 5)	- None (2)	- Lobster Pots (1, 2, 3, 4, and 5) - Construction (house walls) (1, 2, 4, and 5)
Phenology		20% germination rate of dropped seeds (3)	Flower – July (1) August, September (4) Fruit – August (1), October (4)	Flower – August-September (1) Fruit – November (1)	Fruit – June (1)	Flower – April (2) June (4) Fruit – May (1 and 2) September (4)
Pollinators	- None known	- None known	- <i>E. collaris</i> (3)	- Bees (5)	- None known	- Bees (5) - Beetles (5) - <i>E. collaris</i> (4 and 5)
Other Information	- Important microhabitat for <i>Phelsuma antanosy</i> (4)	- Slow reproduction (3)	- Found in S9 near swamps (3)	- Prefers swampy conditions (3, 4, and 5) - Slow growing (2 and 4)	- None	- None