

Wild Meets Rehab; Integration of a Black Spider Monkey (*Ateles chamek*) into a Reintroduced Group

Research Report



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Image credit: *Mono Araña De Cara Negra - Wild Expedition*, n.d.

Preface

This report presents the results of an ecological research project conducted during a 20-week internship at Kawsay Biological Station in Madre de Dios, Peru. This research was carried out as part of my academic programme in Applied Biology at HAS Green Academy.

The opportunity to document the first ever known case of integration of a new female individual into a rehabilitated group since the start of Kawsay's reintroduction program made this project especially meaningful. Conducting this independently taught me so much, both scientifically and personally.

I would like to express my gratitude to Raul Bello, Roxana Ballon and Stephanie Riofrio for their hospitality, support and guidance throughout the whole research project. I would also like to thank Dorith van Gestel, for her guidance and constructive feedback during the internship. Finally, I wish to thank all the volunteers for their assistance during field work. This report would not have been possible without the support and knowledge of all those involved.

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Contents

- Abstract.....5
- 1. Introduction6
- 2. Methodology8
 - 2.1 Study site description8
 - 2.2 Study group.....8
 - 2.3 Research implementation9
 - 2.4 Data analysis10
- 3. Results11
 - 3.1 Social interactions11
 - 3.2 Subgroup associations14
 - 3.3 Notable observations14
- 4. Discussion & Conclusion.....15
- 5. References17
- 6. Appendices.....20
 - Appendix I – Background information and photos of the study group20
 - Appendix II – Behavioural data sheet21
 - Appendix III– Ethogram21
 - Appendix IV – Fieldwork safety protocol22

Abstract

Being mostly frugivorous, spider monkeys (*Ateles* spp.) play an important role in seed dispersal in Neotropical rainforests, because they disperse seeds that are poorly dispersed by other primate species. However, they are commonly targeted by hunting for consumption and the pet trade, and face habitat loss due to deforestation. They are limited in their ability to recover from disturbances like this, because of their slow reproductive life history and reliance on closed canopy forests. Reintroduction programs therefore play a crucial role in conservation efforts of spider monkeys. However, for spider monkeys, long-term success depends on social integration between communities to maintain geneflow in their populations.

At Kawsay Biological Station in the Madre de Dios region of the Peruvian Amazon, A group of previously captive Black spider monkeys (*Ateles chamek*) were recently released into the wild. Approximately one month after the release, a wild female spider monkey, later named Wasi, began associating with the group, marking the first documented case of integration since the start of their reintroduction program. Over a nine week period, social interactions and subgroup associations were recorded to compare how social behaviour between rehabilitated individuals differed from social behaviours with Wasi.

Although the presence of Wasi was not associated with significant differences in the frequency of approaches, proximity or affiliative behaviours in general, the duration of proximity was significantly lower in the presence of Wasi, which indicates a lower social tolerance towards Wasi compared to towards the other individuals. The subgroup presence probability model and the social network analysis further supported this, generally showing weaker relationships and a decrease in association, except for a relatively stronger relationship with the only male in the released group. However, due to logistical constraints, the full integration might not have been captured, as it can take months for females to fully integrate. In addition, the immigration of Wasi and sightings of two other wild females show ongoing interaction between communities, suggesting a potential for future gene flow. Continued long-term monitoring would therefore be valuable to complement these findings.

Overall, this study suggests that while behavioural differences were small, there are patterns that suggest a lower social tolerance towards Wasi. However, as it can take months for females to fully integrate, continued long-term research is recommended to assess the full integration progress.

1. Introduction

The Amazon basin is not just the most diverse rainforest, containing about 10% of the world's vertebrate and plant species (Guayasamin et al., 2024), but it is also the region in the Neotropics that has contributed the most to its biodiversity (Antonelli et al., 2018). The Neotropics have been the most species-rich realm in the world for centuries, harboring approximately 30% of all species of vascular plants, arthropods and vertebrates (Guayasamin et al., 2024). To maintain these ecosystems, the rainforest plants and their spatial distribution are of great importance. In turn, the preservation of these Neotropical forests and the spatial distribution of rainforest plants are significantly influenced by the redistribution of seeds through animal dispersers such as primates (Link & Di Fiore, 2006).

One of these neotropical dispersers are spider monkeys, of the genus *Ateles*. They are among the largest species of New World monkeys (Aureli & Schaffner, 2010) and have a large geographic range, spanning from the northern part of Mexico through to northern Bolivia (Hinchliffe, 2022). Spider monkeys are considered to be mostly frugivorous, which in turn makes them important seed dispersers in their ecosystem (Link & Di Fiore, 2006). They disperse more than 130 fruit species, including large seeds of a number of plant species that are poorly dispersed by other large primates such as their ecological competitors and closest relatives, the woolly monkeys (Dew, 2008; Kademian, 2016). Because of this, without spider monkeys, multiple Amazonian plants would lose their only known dispersal vector (Dew, 2008).

The social structure of spider monkeys is uncommon among animals living in groups. They live in communities with a high degree of fission-fusion dynamics that characterizes itself by a large, stable community, where individuals associate in temporary subgroups that can vary in size, composition and duration (Aureli & Schaffner, 2010). Spider monkeys use this dynamic to adjust subgroup sizes according to their local resource availability as a way to reduce feeding competition. Subgroup sizes are therefore expected to be smaller during periods of food scarcity, and larger during periods of food abundance (Aureli & Schaffner, 2008; Pinacho-Guendulain & Ramos-Fernández, 2017). However, social behaviour is just a small portion of the daily activity budget of spider monkeys, on average less than 5 %, which is less than most primates (Lange & Robson, 2019; Wallace, 2001). In addition, previous literature shows that females are usually more non-social and spent more time solitary than males do (Fedigan & Baxter, 1984; Chapman, 1990). As social relationships between females are therefore considered of lower value than those of males, it makes sense that whereas males are philopatric, females usually disperse from their natal group upon reaching sexual maturity (Aureli & Schaffner, 2008).

Female dispersal is important, as it avoids inbreeding and promotes geneflow between populations (Clutton-Brock, 1989), which is important for the long-term viability of the species. However, when these immigrant females disperse and join a new community, food competition is likely to intensify due to the larger group size. Fissioning into smaller groups is ineffective in this case, because the increasing number of individuals in the community reduces the amount of resources available for other individuals. Aggression from adult females towards migrating subadult females may therefore be seen as a strategy to stop immigrating females from settling into new communities (Riveros et al., 2017; Asensio et al. 2008). When females succeed to integrate into a new community, full integration can take months and is usually achieved when they have their first offspring (Asensio et al. 2008; Aureli & Schaffner, 2010). However, spider monkeys have a slow reproductive life history, where females reach sexual maturity around 5 years of age, mainly birth single infants and have long interbirth intervals (ProWildlife, 2007;

Hagell et al., 2013). Because of this and their long life span, which is known to reach over 50 years in captivity (Apenheul, 2026), they are particularly vulnerable to threats like overhunting and habitat loss (Carrasco-Rueda & Bello, 2019).

Unfortunately, spider monkeys are commonly targeted by hunting for consumption and the pet trade (Nornonk et al. 2020; ProWildlife, 2007). In addition, spider monkeys are arboreal, and therefore rely on closed-canopy forests. However, these closed-canopy forests are threatened by habitat fragmentation and deforestation (Hagell et al., 2013). Their slow reproductive life history and their reliance on closed-canopy forests therefore limits their ability to recover from these disturbances. Because of these threats, the future seems to be uncertain for spider monkeys, since most spider monkey species are either “endangered” or “critically endangered” according to the IUCN red list (IUCN, 2026). Action against this defaunation is of great importance given that declines in spider monkey populations may directly impact forest dynamics, especially when other species are unable to compensate for the loss of their ecological services (Link & Di Fiore, 2006).

Reintroduction programs play a crucial role in conservation efforts by restoring locally extinct populations and are a way to recover individuals confiscated from illegal animal-trafficking operations (Carrasco-Rueda & Bello, 2019). Kawsay Biological Station in Madre de Dios – Peru, focusses on the reintroduction and post-release monitoring of the black spider monkey (*Ateles chamek*), a species that had gone extinct in the region due to habitat disturbance and hunting (Pottie et al. 2021). Since the start of the program in 2010, multiple groups have been released and created offspring overtime, leading to the formation of a stable group. In July 2025, a new group of four rehabilitated individuals were released into the wild, with the intention to create a metapopulation in the area (R. Bello, Pers. Comm.). As of right now, this newly released group and the resident group are the only two known spider monkey groups in this area.

Approximately one month after the latest release of the group in July 2025 a wild female spider monkey, that was later named Wasi, began to associate with the newly released group. Wasi is the most probable the offspring of monkeys from the resident group and migrated to find a new community, thus finding the newly released individuals. This is the first documented case since the start of the program in which a wild-born individual has initiated integration into a reintroduced group and therefore marks a significant milestone. As this integration is important for their long-term viability (Clutton-Brock, 1989), monitoring this process is particularly valuable.

This study aims to give insight into the process of female integration into a reintroduced group of *Ateles chamek* by comparing how social behaviour among reintroduced individuals differs from social behaviour with the integrating female spider monkey. Frequencies of affiliative and agonistic behaviours were recorded using focal sampling, a method where the behaviour of just one individual at a time is observed during intervals of pre-established duration (Bosholn & Anciães, 2018; Altmann, 1974). During these focal samples, subgroup size and composition were also recorded every 30 minutes to examine association patterns within the group (Hartwell, 2016). Data collection took place over a nine-week period where 3 individuals including Wasi were recorded for a total of 20 hours each.

2. Methodology

2.1 Study site description

Kawsay Biological Station is an organization based in Madre de Dios - Peru. The station aims to preserve the Amazon rainforest through conservation-related activities and reintroduction programs. Kawsay has a private property of 8 ha and works in a concession area of 177 ha that is designated for conservation. It is located in the buffer zone of the Tambopata National Reserve, bordering the lower part of the Madre de Dios river.

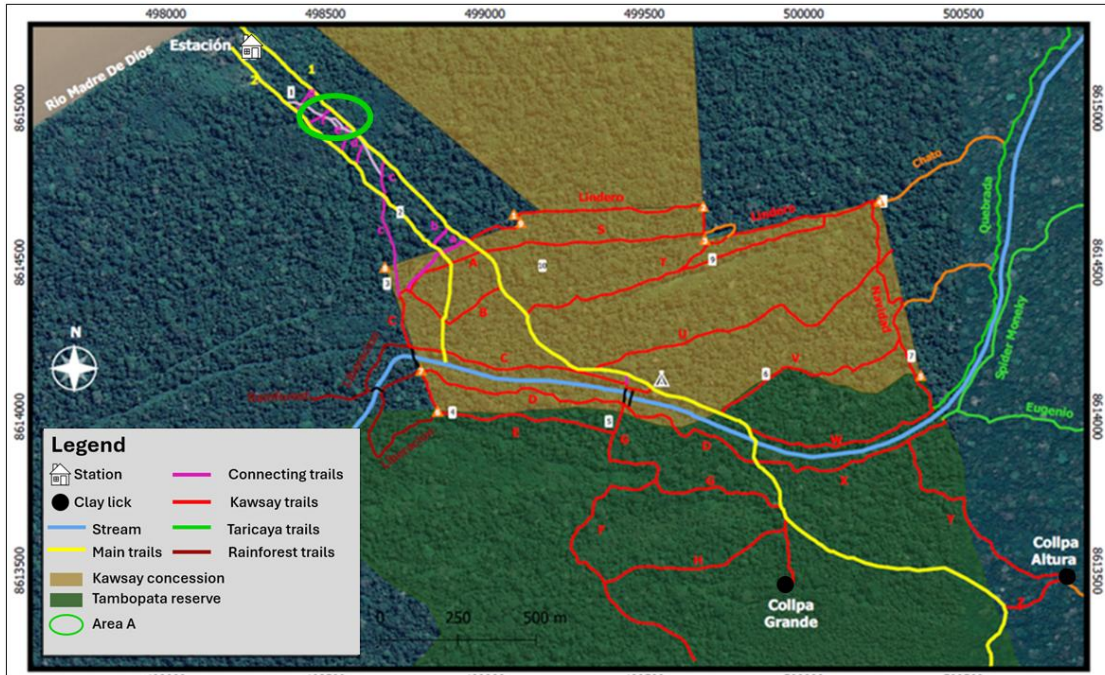


Figure 2.1: Map of Kawsay's concession and their trail system, and other surrounding concessions in the region. Source: Kawsay Biological Station.

2.2 Study group

The released group arrived on 20/06/2025 from Amazon Shelter, a rehabilitation and release centre in Tambopata, and originally consisted of four individuals: two juveniles (Yaku and Esmeralda) and two adults (Inti and Raul). They were kept in a pre-release cage within the private land to familiarize themselves with their surroundings (Area A, figure 2.1). The two juveniles, Esmeralda and Yaku, were released on 21/07/2025. Inti and Raul were released 9 days later, on 30/07/2025. Wasi was first seen among the released individuals on 26/08/2025.

However, the adult male was sent back to Amazon shelter before data collection began. Lluvia and Rumi, Two adult females, released in an another group in April 2022, inhabit an area close to the newly released group and did not originally belong to the released group of 2025. Upon release of the new group, Lluvia and Rumi and the newly released group slowly merged together. Because of this the study group grew to six individuals including Wasi (see table 2.1 & Appendix I).

Table 2.1. Group composition of the study group.

Individual	Gender	Age
Yaku	Male	3.5-4
Esmeralda	Female	3
Inti	Female	5
Wasi	Female	~3-4
Rumi	Female	8
Lluvia	Female	13

2.3 Research implementation

2.3.1 Pilot study

In research week 6, two pilot studies were conducted to determine the appropriate method for focal sampling and to allow the animals to habituate to the observers. During these pilots, the behavioural data sheet was also assessed and finalized for data collection.

2.3.2 Data collection

The data was collected using two hour long focal samples. During the focal sample, all social interactions involving the focal individual were recorded through continuous recording, also noting who initiated and received each event (Bosholn & Anciães, 2018; Altmann, 1974). Appendix II shows the data sheet used during observations. The social behaviours that were recorded included affiliative behaviours such as approaches, proximity, grooming, social play and embraces, and agonistic behaviours such as chases, lunges and threats. All behaviours were recorded as event frequencies, where the occurrence of a behaviour is noted. Proximity was the only exception, whereby not only the frequency but also the duration of each event was recorded. The behaviours grooming, lunges and threats were excluded from analysis as they did not occur during any observation. All social behaviours and their definitions (Appendix III) followed those by *Abondano and Link* (2012), except for 'social play', which followed the definition by *Amici* (2024). During every two hour focal sample, subgroup size and composition were also recorded by conducting an instantaneous scan sample every 30 minutes. Individuals were considered part of the subgroup whenever they were within 30 meters of another individual (Hartwell, 2016).

Inti was excluded from focal sampling due to her strong attachment to humans wherefore minimizing human interaction was prioritized. She was sent back to Amazon shelter on 11/12/2025 because she was not able to adapt to the wild. Rumi and Lluvia were also excluded from focal sampling since they had not fully integrated into the new group at the start of data collection. Interactions involving these three individuals were still recorded.

While conducting field work, safety measures were taken according to general safety rules at Kawsay (Appendix IV). Data collection began in research week 7 and continued for a duration of 9 weeks. Observations were conducted on average 3 times a week. Whenever the monkeys could not be found, an extra observation was added in that week. Each focal individual was observed for a total of 20 hours and the time of observation varied across four timeslots in a day to obtain a more representative picture of their behaviour.

2.4 Data analysis

The social interactions and subgroup scan samples recorded during focal samples were analysed using Generalized Linear Mixed Models (GLMM's) to account for non-independent data, considering the repeated observations of individuals. The type of GLMM's were chosen according to the type of response variable and by testing for overdispersion and zero-inflation. All statistical analyses were conducted using R studio statistical software (version 4.4.2) and statistical significance was set at $\alpha = 0.05$.

2.4.1 Frequency behaviours

The frequency of the behaviours were analysed using a GLMM with a Negative binomial error distribution. For each focal sample, the total frequency of affiliative behaviour was calculated to test for differences in affiliative behaviour when Wasi was present versus absent. The total frequency of each behaviour from all focal samples combined was also calculated to specifically test for differences in approach and proximity behaviour. The other behaviours were not separately analysed due to their low frequency of occurrence.

Wasi's involvement was included as a fixed effect to analyse whether interactions differed when she was involved compared to when she was not. Random effects included 'dyad identity' and 'focal individual' to account for repeated observations and to control for consistent differences between focal individuals or between dyads.

2.4.2 Duration of proximity

Proximity, which was also measured in duration, was analysed using a two-step modelling approach.

The first step of the model used a GLMM with a binomial error distribution to analyse differences in the probability of proximity occurring. The second step analysed the differences in the duration of proximity in focal samples where proximity did occur. For this step, a GLMM with a gamma error distribution and a log link function was used, as the data was positively skewed continuous data.

In the first step of this model, the same fixed effects and random effects were used as those in the frequency behaviour models. In the second step of this model, 'focal individual' was not included as a random effect because only focal samples in which proximity occurred were analysed, resulting in unbalanced repeated observations per individual.

2.4.3 Subgroup presence probability and social network

To analyse whether Wasi's presence is associated with changes in the subgroup, the presence or absence of each individual was turned into a binary response variable. The data was then analysed using a GLMM with a binomial error distribution. The same fixed effects and random effects were used as those in the frequency behaviour models.

In addition to the subgroup presence probability, a social network graphic was made of all social interactions to better visualize the social structure between the individuals of the group.

3. Results

3.1 Social interactions

Predicted frequencies of affiliative interactions in general were compared between dyads with Wasi present and absent. Affiliative interactions tended to occur less frequently in Wasi's presence, with the model predicting a decrease of 39% when Wasi was present (Figure 3.1). However, this effect was not statistically significant ($\chi^2 = 0.39$, $df = 1$, $P = 0.53$). Differences in affiliative behaviour was largely explained by differences in dyadic relationships rather than between individuals, as reflected by the larger random effect variance for dyads ($\sigma^2 = 1.33$) compared to that of focal individuals ($\sigma^2 \approx 0$).

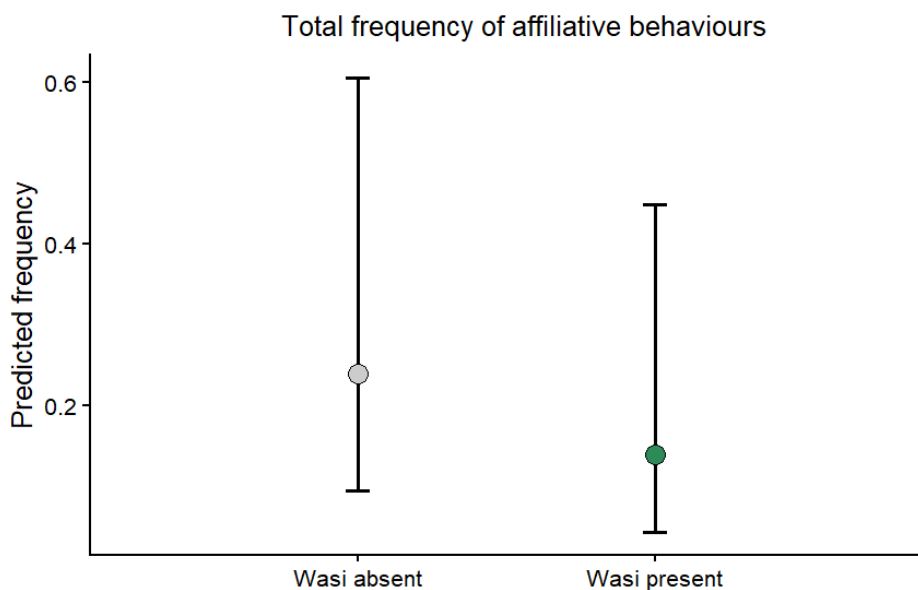


Figure 3.1. Predicted total frequency of affiliative behaviours when Wasi was present versus absent. Values present model-predicted means and the error bars indicate 95% confidence intervals. The points indicate the median.

Besides affiliative interactions in general, predicted frequencies of approach and proximity behaviours specifically were also compared between dyads with Wasi present and absent (Figure 3.2). For approach, the model predicted a small decrease of 18% in the presence of Wasi, which was not statistically significant ($\chi^2 = 0.07$, $df = 1$, $P = 0.79$). For proximity, the model showed a larger predicted decrease of 73% in the presence of Wasi. However, this was also not statistically significant ($\chi^2 = 1.96$, $df = 1$, $P = 0.15$), with wide confidence intervals that indicate uncertainty around the estimated effect. Most of the variation in both behaviours was also primarily explained by differences in dyadic relationships rather than between individuals.

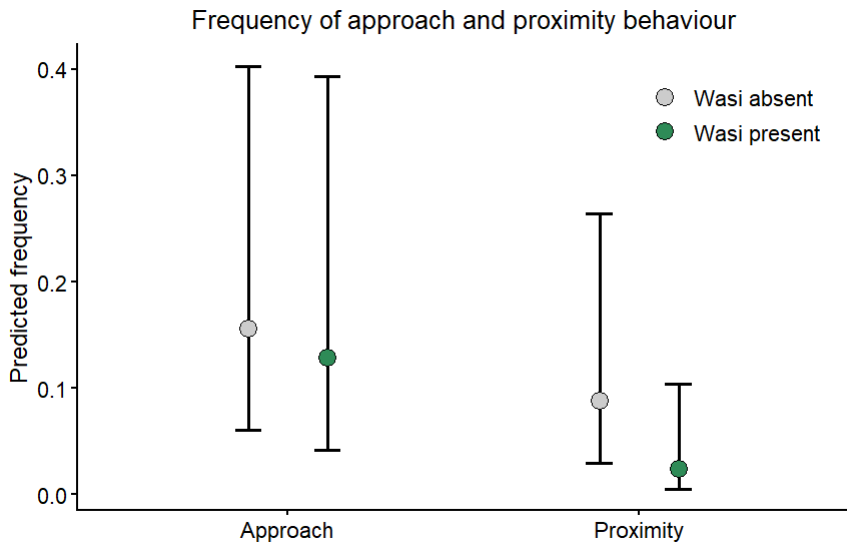


Figure 3.2. Predicted frequencies of approach and proximity behaviour when Wasi was present versus absent. Values present model-predicted means and the error bars indicate 95% confidence intervals. The points indicate the median.

Besides frequency of proximity, duration of proximity was also compared between dyads with Wasi present and absent (Figure 3.3). To perform this analysis, a two-step GLMM model was used. Although Wasi's presence did not influence the probability that proximity occurred, the model did show a significant difference in the duration of proximity ($\chi^2 = 7.30$, $df = 1$, $P = 0.007$). The model predicted a decrease in proximity duration of 77% when Wasi was involved.

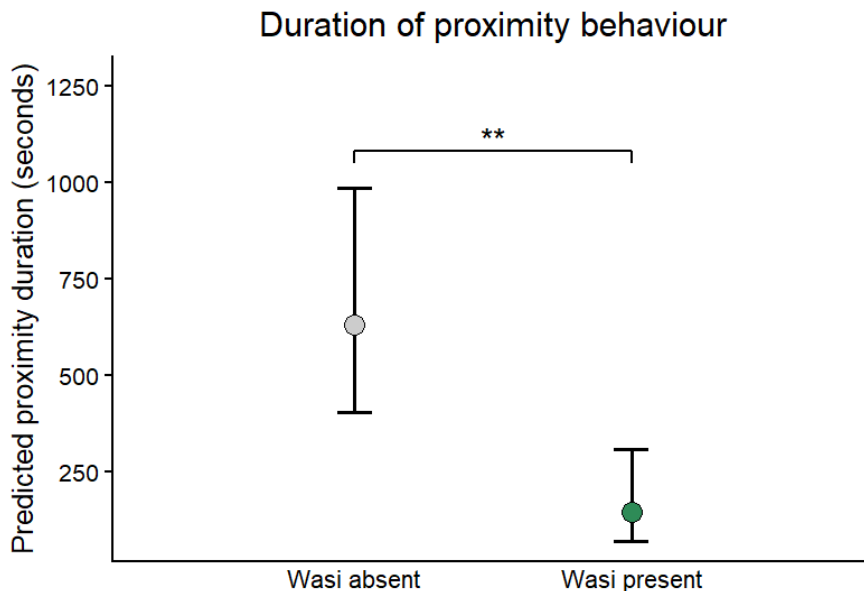


Figure 3.3. Predicted duration of proximity behaviour when Wasi was present versus absent. Values present model-predicted means and the error bars indicate 95% confidence intervals. The points indicate the median.

To visualize the social structure between the individuals of the group, a social network graphic was illustrated (Figure 3.4). Since only Wasi, Yaku and Esmeralda were observed as focal individuals, interactions among the non-focal individuals Inti, Rumi and Lluvia were not represented in the network. This may have contributed to the further position Rumi has in the network. Furthermore, positions in the network are no indication of hierarchy.

Overall, affiliative interactions occurred more frequently than agonistic interactions, which were rare and were only recorded towards Wasi. The network further shows that Wasi interacted most frequently with Yaku, and interactions between the pair seem relatively balanced, as indicated by the similar width of the edges between them, compared to the more asymmetrical interactions between Wasi and others group members.

Another pattern that was prominent in the network was the high frequency of affiliative interaction from Esmeralda toward Inti, resulting in the strongest affiliative connection in the network.

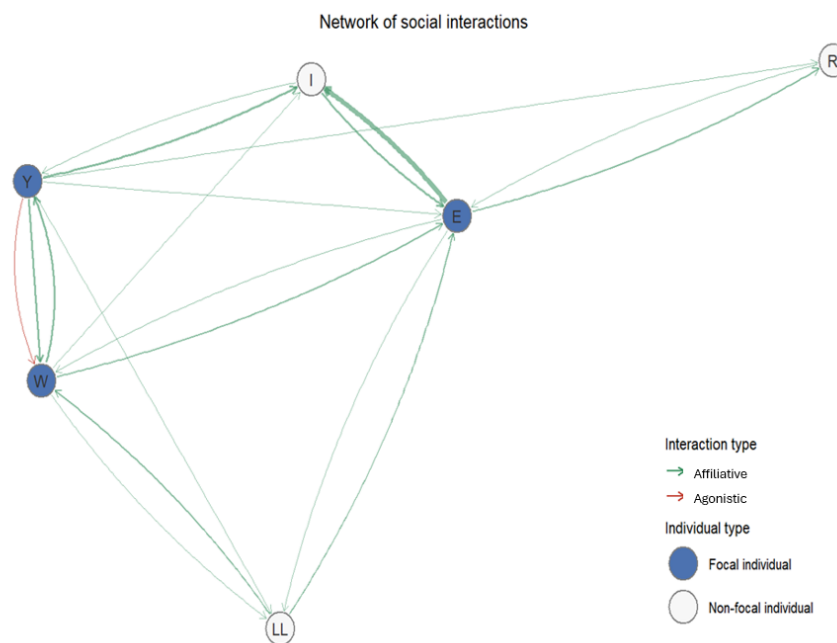


Figure 3.4. Social network of affiliative and agonistic interactions. Arrows indicate the direction of interactions and the width of the edges reflects the frequency of interactions between dyads.

During data collection, some behaviours did occur, but their frequency of occurrence was too low to conduct specific statistical analyses on them. Table 3.1 shows these behaviours and their frequencies.

Table 3.1. Frequency of social behaviours with a low occurrence .

Other behaviours	Frequency
Embraces	3
Chases	1
Playing	2

3.2 Subgroup associations

While the social network visualizes association patterns based on social interactions between individuals, it does not statistically analyse these patterns and does not address changes in subgroup composition. Individuals presence probability was analysed to examine whether individuals were more or less likely to be present in a subgroup depending on the presence of Wasi (figure 3.5).

While the analysis showed no significant overall effect of Wasi's presence on the probability that other individuals were present ($\chi^2 = 1.9$, $df = 1$, $P = 0.17$), visual inspection shows heterogeneity among individuals. Yaku in particular showed a substantially higher probability to be present in subgroups where Wasi was present, compared to other individuals who generally showed smaller differences.

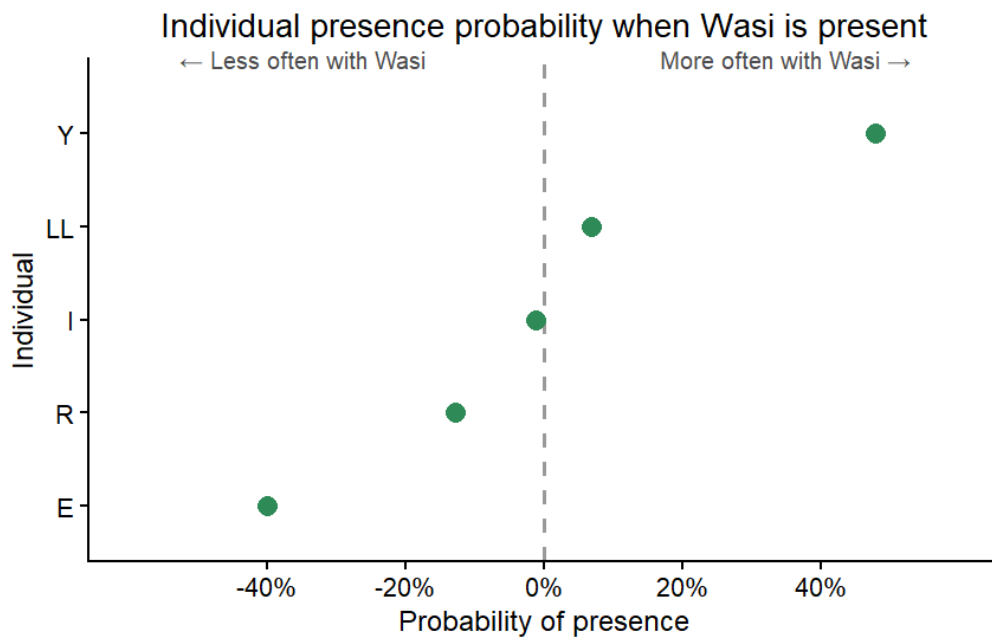


Figure 3.5. Individual differences in subgroup presence probability expressed in percentage points when Wasi is present. A value of +20% indicates that an individual was present in the subgroup 20 percentage points more often when Wasi was present than when she was absent.

3.3 Notable observations

During data collection, two additional wild females were spotted in the home range of the released group. One of them was spotted together with the group for the first time on 18/10/25, and was given the name 'Suyay'. She was seen with the group for four more days after which she was not seen again. The second individual was seen in their home range travelling with squirrel monkeys on just one occasion on 1/12/25. It is unknown if this female and the released group crossed paths.

4. Discussion & Conclusion

The aim of this study was to provide valuable insights into the process of female integration by analysing whether the presence of an integrating female was associated with changes in the social behaviour and subgroup associations of the released group.

Although the frequency of approaches, proximity and affiliative behaviour did show a consistent decrease in Wasi's presence, the differences were not significant. Interestingly, the models showed that variation in social interactions was mostly explained by dyad identity, rather than the identity of the focal individual, as reflected in the higher random effect variance. This could be explained by biological and behavioural differences between individuals of different age or sex, as these differences can result in social dissimilarities, avoidance, repulsion, reduced tolerance or desynchronization (Aguilar-Melo et al. 2020). In addition, previous research suggests that females are generally more solitary and non-social than males (Chapman, 1990; Fedigan & Baxter, 1984). Therefore, individuals of different age or sex might have been less compatible than individuals that are more similar, resulting in differences of affiliative behaviour between dyads.

While no significant differences were found in the frequency of proximity, the duration of proximity did show a significant decrease in Wasi's presence. Previous literature described proximity as a primary metric to measure social tolerance, which is the probability that individuals are in proximity to conspecifics around valuable resources with little to no aggression (Cronin & Sánchez, 2012; Kaufhold et al. 2025). Social tolerance is a good way to visualize social bonds between dyads as obvious agonistic behaviours were rare, probably due to the fission-fusion dynamic that is characteristic to spider monkeys, which serves as a way to reduce competition (Asensio et al. 2008). The strong decrease in the duration of proximity with Wasi therefore suggests that the individuals had an overall lower social tolerance towards Wasi compared to among each other.

The subgroup presence probability model and the social network show similar tendencies. Although no significant differences in presence probability were found, it is visually noticeable that certain individuals are predicted to be less likely present in a subgroup where Wasi is present. In addition, the social network shows the same trend where these individuals, most of the females, show weaker or unbalanced edges in a dyad with Wasi. The fact that these individuals are predicted to be less likely present in a subgroup with her further supports the statement that fissioning into different subgroups is the reason for the low frequency of agonistic behaviour.

Interestingly, the one time that aggression did occur it was initiated by Yaku, the only male, who in contrast to the other individuals seems to have a stronger bond with Wasi. This is reflected by the thicker and more balanced edges in the social network and by the fact that Yaku seems more likely to be present in a subgroup when Wasi is present. However, this agonistic interaction was observed in a feeding context and during the first focal sample. Therefore, their relationship might not have been as strong at the time. Moreover, the stronger social bond between Wasi and Yaku is also consistent with previous literature, where immigrating females are generally more tolerated by males than females (Asensio et al. 2008; Aureli & Schaffner, 2008). In addition, young adult males just coming out of juvenile age, such as Yaku, seem to have stronger associations with females than older males do (Ramos-Fernández et al. 2009).

Nevertheless, besides Yaku, the social relations and associations between Wasi and the other individuals seemed weaker, which could be a sign of unstable integration within the group. This introduces minor uncertainty from a functional perspective about the long-term viability of the

population, as previous studies highlight how stable integration and social relations link to better fitness outcomes. When females maintain close and stable relationships, they tend to have longer life spans, higher offspring survival and higher birth rates (Silk, 2007; Jasso-del Toro et al. In review). However, it can take months before females completely settle into new groups (Asensio et al. 2008), and the social integration of Wasi is likely to vary overtime as individual attributes such as age and group tenure, as well as social, demographic and ecological events will change, which may lead to the establishment of new connections (Jasso-del Toro et al. In review). In addition, the fact that Wasi joined the group and that two other wild-born females were sighted in the home range of the released group during data collection already provides optimism toward the future of this population. This means that the established group and the released group are interacting, increasing chances for a metapopulation and therefore gene flow.

A few limitations should be considered when interpreting these findings. First of all, the small number of individuals and the low frequency of social behaviour resulted in statistical challenges such as a high amount of zero values and the inability to analyse some specific behaviours. Also, as data collection started approximately one month after Wasi was first seen among the group, the early stages of integration may not have been fully captured. Finally, as the observation period was restricted to nine weeks due to logistical constraints, longer term changes in social relationships in the group could not be assessed. As previous studies suggested that it can take months before females completely settle into new groups, future research starting from the onset of integration with a longer period of data collection would be valuable to complement these findings.

In conclusion, this study shows that the presence of Wasi was not associated with significant changes in the frequency of social behaviour, but rather subtle decreases which were largely explained by dyadic differences. However, the significant decrease in the duration of proximity does suggest a lower social tolerance towards Wasi. This result aligns with those of the subgroup presence probability and the social network, where social relations with Wasi seem generally weaker besides the stronger relationship she seems to have with Yaku. However, since the full integration process can take months, long-term research would be valuable. In addition, the sightings of two other wild-born females besides Wasi increase chances for a metapopulation.

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6. Appendices

Appendix I – Background information and photos of the study group

Table A1. Background information and differences in physical appearances between individuals of the study group.

Individual	Origin	Distinguishable by
Yaku	Zoo	The only male and more aggressive movements while moving than the others. Longer hair on the top and sides of his head.
Wasi	Wild	Moves through trees very quickly and hangs her legs on either side of branch when resting. Upper part of face black and lower part of face pink.
Esmeralda	Pet	Looks similar to Wasi, but moves more quietly and slower through the trees. Pink face with a darker nose and eyes are set close together.
Inti	Zoo	Has a limp hand and is mostly on the ground or low in the trees. Skinnier than others and has big ears.
Lluvia	Pet	Has a tracking collar, and more downturned eyes.
Rumi	Pet	Has pointy hair on top of her head that is visible from the side, biggest of the group and a light pink face.



Figure A1. Photos of individuals in the study group.

Appendix IV – Fieldwork safety protocol

RULES

- Always go with at least one other person.
- Write on the board at what time you left, where you went, and when you will be back.

WHAT TO BRING

- Machete
- Emergency kit
- Bug repellent

WHAT TO WEAR

- Long sleeves
- Rubber boots