







## Article

# From International to Local: Promoting Local Volunteer Tourism to Guarantee the Persistence of Wildlife Conservation Projects in the Post-COVID-19 Era

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**Abstract:** Volunteer tourists, often foreigners, collect essential data in wildlife conservation projects worldwide. Due to the COVID-19 pandemic, international tourism activities reduced drastically, forcing many conservation projects to shut down. Using a nine-year (2013–2021) case study in Indonesia, we examine how local and foreign tourists construct the meaning of their volunteer experiences in the light of COVID-19. We aim to highlight the potential benefits of local volunteer tourism to face the travel limitations posed by COVID-19, and to show an example of how conservation projects can overcome the challenges of the current and potential future pandemics. We recruited 117 volunteers (49 Indonesians, 68 foreign; 73 females, 44 males; mean age:  $24.2 \pm SD 4.7$ ) that collected 50.8% of the total amount of data collected by the project over the same period. Of the 117 volunteers, 81 of them (38 Indonesians, 43 foreigners) filled in a feedback form at the end of their stay. Via logistic regressions, we found that Indonesian volunteers declared more positive feedback on the logistics at the research station ( $p = 0.047$ ). Via Bayesian structural equation models, we found that Indonesian volunteers reported significantly more frequently than foreign volunteers that they learned new skills (89% Credible Interval = 0.017–0.351) and that they gained personal wisdom, growth and maturity (89% Credible Interval = 0.891–1.003) from the volunteer experience. The volunteer program evolved from being 100% foreign volunteers in 2013 to 100% Indonesian volunteers by 2020 at the peak of the pandemic, which helped maintain the continuity of the research and conservation activities. We presented the positive implications of shifting towards local volunteer tourists in a long-term conservation project. We suggest that promoting local volunteer tourism through training new generations of nationals in conservation projects is key to guarantee the persistence of such initiatives in the post-COVID-19 Era.

**Keywords:** conservation tourism; motivation factors; demographics; *Nycticebus javanicus*; pandemic; Indonesia



**Citation:** Nekaris, K.A.I.; Balestri, M.; El Bizri, H.R.; Dewi, T.; Hedger, K.; Morcatty, T.Q.; Nijman, V.; Weldon, A.V.; Campera, M. From International to Local: Promoting Local Volunteer Tourism to Guarantee the Persistence of Wildlife Conservation Projects in the Post-COVID-19 Era. *COVID* **2022**, *2*, 1287–1302. <https://doi.org/10.3390/covid2090095>

Academic Editors: Simone Brogi and Martin Kröger

Received: 26 July 2022

Accepted: 12 September 2022

Published: 14 September 2022

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## 1. Introduction

The International Union for Conservation of Nature estimated that over 40,000 species are currently threatened with extinction [1]. Long-term field studies have been lauded as a principal way to aid in biodiversity conservation projects [2,3]. The presence of conservation projects in an area for several or more years allows us to learn more about the ecological aspects of the study site [4]. Such presence also yields additional benefits including reduced illegal hunting, increased local capacity and economy, and education, leading to positive behavior change towards nature [5–7]. In order to collect data over multiple years, however, a large team of researchers is needed.

In the last 20–30 years, long-term field sites relied on travelling volunteers to provide the capacity needed for data collection [8]. Wanting to learn about a new culture and contribute to the improvement of human livelihoods and wildlife conservation are some of the main reasons why volunteers join such projects [9,10]. Volunteers are usually not paid and often contribute to the running of the field site through fees. This “pay to perform” research model has been criticized as it can bring negative effects on local communities [11–14]. The negative effects are mainly linked to a systemic inequality leading to marginalization and conflicts (e.g., disruption of local economies and instigation of cultural changes) if there is not a system in place to monitor and minimize potential risks [11,14–16]. From a conservation perspective, volunteer tourism has the risk of skewing conservation efforts towards charismatic megafauna [17]. Despite all these risks, volunteer tourism still has the potential to address issues including poverty alleviation, wildlife conservation, the restoration of environments, as well as benefits for local individuals, environments and wildlife [10,13,16,18].

Volunteer tourism can contribute to the conservation of threatened species and habitats as volunteer tourists can help conservation projects and at the same time improve their skills, knowledge and experience [19]. Volunteer tourism is largely prominent in the tropics [18]. Many conservation projects providing volunteer experiences are run by western universities or companies and rely heavily on a foreign tourism model [18,20]. Some sites are completely dependent on volunteers’ fees and workforce [18,21]. Roques et al. [22] summarized the contributions that the volunteer tourists from two long-term sites in Africa had to several conservation outputs and impacts: species management (e.g., anti-poaching patrols and invasive species removal), site management (e.g., waste removal), livelihood improvement (e.g., increased revenues and job opportunities), policy making (e.g., consultancy and data sharing), education and awareness (e.g., teaching and social media campaigns), capacity building (e.g., training of local staff members) and research (e.g., data collection and publications). Hehir et al. [23] also suggested that volunteer tourists, especially international tourists, are keen to provide donations for conservation projects during or after their trips. These benefits, however, are only implemented when volunteer tourists are encouraged to engage in pro-environmental behaviors [24,25].

Overseas tourism has been shown to be related to an increase in COVID-19 cases worldwide [26–28]. Consequently, in an attempt to avoid a surge of infections, many countries shut their borders and adopted restrictive measures to reduce people’s mobility and national and international travels [29–31]. In addition, the pandemic generated ‘travel fear’ in many people around the globe [32], who became less prone to visit other countries. These factors have forced many conservation field sites relying on foreign volunteers to drastically reduce their activities or shut down completely [33,34]. Studies have shown that recovery by international tourism from the negative consequences of disease outbreaks may be slow [35]. Therefore, solutions for the volunteer tourism crisis are urgently needed to guarantee that wildlife conservation projects fulfill their role and are sustainable over time in the post-COVID-19 era [36]. Wildlife conservation has been facing severe issues with the advent of COVID-19 and the consequent drastic impacts on research and international tourism [37], although this can be seen as an opportunity to generate a desire for environmental healing in tourism [36–40].

Several studies have argued that volunteer tourism has been shaped by processes of neoliberalism and neo-colonial legacies that propagate unequal power relationships under the perspective of the ‘white savior complex’, i.e., white people from northern rich countries who help, in a self-serving manner, non-white people to tackle their challenges in southern poor countries [15,41–43]. Transitioning to a promotion of local volunteer tourism by increasing reliance on volunteer tourism by national people may be a possible alternative for the persistence and resilience of this sector in the current and post-pandemic contexts. Of course, empowering and training local citizens is a major aim of many conservation projects, yet the participation of nationals in conservation projects is still low [44–46]. Thus, understanding and comparing the aims, perceptions and commitments between foreigners

and national tourism volunteers is of paramount importance to improve attracting local volunteer tourists to conservation projects.

Broad and Jenkins [47] found a direct relationship between the success of a conservation project and a volunteer's willingness to commit to what they called a long-term commitment (defined as four months). Although the aims of the volunteering may be the same between people with different backgrounds, the actual process of acclimatizing to a culture or living away from home may impact the experience of overseas volunteers, including for urban volunteers spending their first time in a rural environment [18]. For these reasons, we could expect local volunteers to acclimatize more quickly and be ready to engage in data collection and community outreach, even during a shorter stay. Studies on volunteer tourism in the tropics usually focus on motivations, expectations and feedback from foreign tourists. They frequently examine foreigners visiting an 'exotic' locality to fulfil sustainable aims, including examining the satisfaction of these foreigners regarding their experiences [48,49]. On the other hand, literature on volunteer tourism conducted by nationals is often limited to citizen science rather than students or university-educated young adults with the same goals as international volunteer tourists [50].

Indonesia is particularly rich in volunteer tourism experiences and is a top destination for paying volunteer foreign tourists [51,52]. The lure of charismatic species ranging from orangutans *Pongo* spp. to tigers *Panthera tigris* to Komodo dragons *Varanus komodoensis* has attracted volunteer tourists to projects run by charities, NGOs and universities, and fully-dedicated volunteer tourism programs such as Operation Wallacea [53,54]. Some areas, like Komodo island, are completely reliant on tourism and a decline in tourism can bring negative effects on local people's livelihoods [55]. Orangutan tourism is one of the best developed in Indonesia but is fraught with challenges, especially for short-term or day visiting tourists, who may seek to touch or hold orangutans or see them as needing human protection [56]. Oktavia et al. [57] found that in their orangutan tourist project, a way around these complications was through empowering local staff and residents through training and recognition. Volunteer tourism in Indonesia has been advocated as an essential way to improve rural development overall, with many Indonesian volunteers themselves wanting to experience the exotic by travelling to the "outer" islands (i.e., not Java) to study wildlife [58].

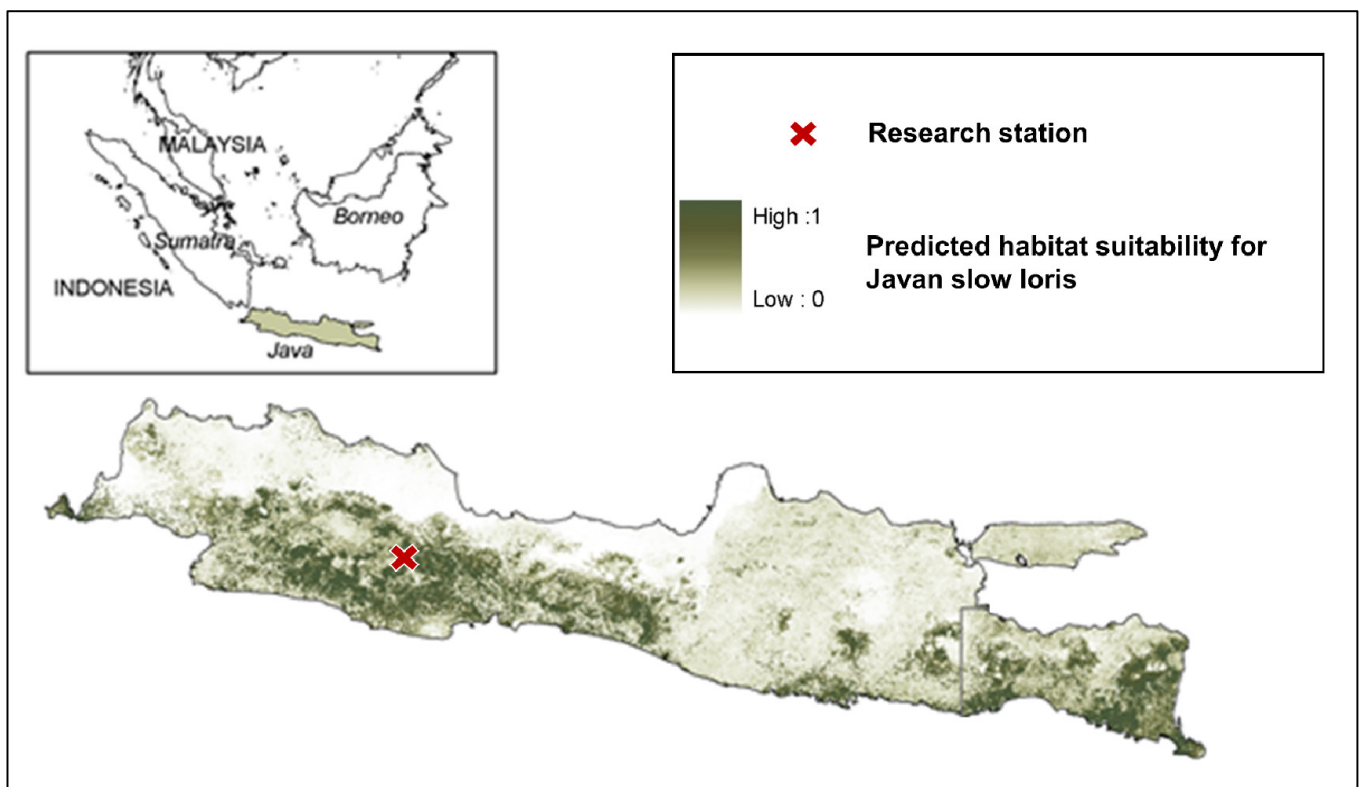
Here we use a conservation field site in Indonesia as a model to examine the changes to the demographics of visiting tourists over a nine-year period and their contribution to the project, including during the time of the COVID-19 pandemic. We aim to highlight the potential benefits of local volunteer tourism to face the travel limitations posed by COVID-19, and to show an example of how conservation projects can overcome the challenges of the current and potential future pandemics. We expected a difference in how the two groups of volunteers perceived the logistical environment of the field site, with Indonesians being less negative as they are accustomed to the realities of living in the country. Because visiting animals in their natural habitat was a main reason to come to the site, we expected that the groups would be equally positive. From a personal growth perspective, although, as stated above, there is limited literature on this topic for nationals, we still expected both groups to gain equally, although foreign visitors might feel more gain in terms of the opportunity of being in Indonesia for the first time [59]. In the light of the COVID-19 pandemic, because many Indonesian volunteers were restricted to stay near their hometowns, we expected potential dissatisfaction with working on Java rather than the more exotic and forested outer islands. We discuss whether the promotion of local volunteer tourism could support the persistence and resilience of conservation field sites in the post-COVID era.

## 2. Materials and Methods

### 2.1. Context

The Little Fireface Project (LFP) was established in 2011 to study the ecology of Javan slow lorises *Nycticebus javanicus*, Critically Endangered nocturnal primates that are endemic to the Indonesian island of Java [60]. Our field station and activities are based

in the areas surrounding Cipaganti, Garut District, Cisurupan, West Java ( $S7^{\circ}6'6''-7^{\circ}7'0''$  &  $E 107^{\circ}46'0''-107^{\circ}46'5''$ ) (Figure 1). Just over 1000 people reside in Cipaganti; they are ethnically Sundanese and predominantly Muslim. The economy comes largely from farming (planting, picking, selling and processing), although entrepreneurial activities in the form of small food shops, repair shops, mobile phone vendors, etc. also occur. Six schools are within walking distance from or within the village, and villagers estimate that the literacy rate is 90%, with most children going to school until age 16. The distance between the edge of the village and the boundary of the Gunung Puntang protected forest is approximately 1300 m. The field station is a large house that we divide into a permanent researcher section and a volunteer section. The volunteers have daily access to a large social room, two private bedrooms with bunkbeds, a kitchen, a bathroom, an equipment room, and outdoor space with furniture and games. From March 2020 onward, several COVID-19 health protocols were established in the field station, including the provision of face masks, hand gel and general information about the coronavirus, daily cleaning of equipment and shared spaces and facilitating access to healthcare services.



**Figure 1.** Location of the village of Cipaganti (Garut District, Java island, Indonesia), site of the volunteer program from the Little Fireface Project, in relation to the predicted geographical range of the Critically Endangered Javan slow loris *Nycticebus javanicus*, the focus species of the volunteer program (predicted geographical range is based on unpublished data from KAIN and VN).

## 2.2. Volunteer Program

Although the study began in 2011, we have only officially recruited volunteers since 2013. In order to facilitate volunteer recruitment, the project employed a Coordinator. Volunteers were recruited in several ways. Our main recruitment is through call outs in English and Bahasa Indonesia on social media, including Facebook, Twitter and Instagram, the latter of which yields the most volunteer applications. We have a volunteer application form and handbook on our website, with an email contact to apply.

We require a minimum of one-month volunteering experience, and request that volunteers have some experience related to community conservation. During the COVID-19

pandemic, only applicants from West Java were considered and proof of a negative COVID test was required on arrival. We allow volunteers to engage with the more social side of our work (with an education, design or sustainability background) or with the more ecological side (with an ecology, forestry, anthropology or biology background). Generally, volunteers work six days a week, with Sundays as a free day to relax or visit the surrounding areas. Where relevant, time is given off to participate in religious activities. Volunteers receive training in health and safety; a history of the project; introduction to the village; and training in the data collection of their area of choice. PhD students are classified as researchers and generally stay one year or more and are not considered in this study.

### 2.3. Data Collection

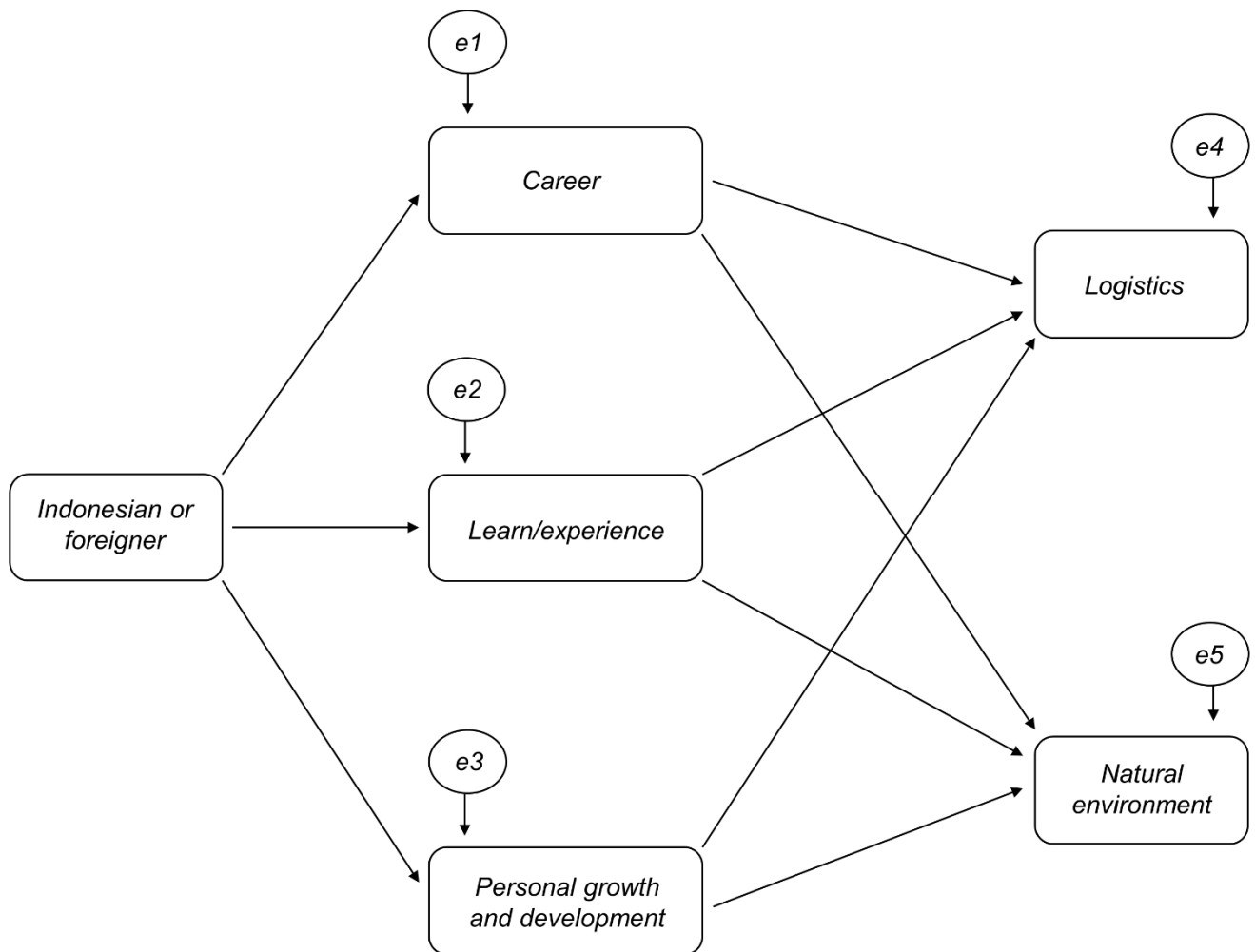
Volunteers filled in monthly reports under three categories: Loris Follows, Education and Other. Loris Follows asked volunteers to reflect on their behavioral observation shifts over the previous month, noting any special encounters, memorable moments, struggles and triumphs. Education related to the nature club, school activities, community events and other outreach opportunities. Other asked volunteers to add any comments for how their time had been, how they continued with their aims for the month and their physical/emotional feelings over the past month/week. We examined these reports for patterns and specific quotations relating to volunteer experiences.

At the end of their time with the LFP, we asked volunteers to complete a feedback form which includes several topics. We asked why volunteers chose the LFP. We asked volunteers to evaluate the information they had been given before arrival and whether their expectations met with reality, as well as their overall opinion of the field site, including the living conditions, food and facilities. We asked their opinion about working with local guides and their perception of engagement with the local community. We also asked them to give their opinion of the conservation and research work conducted by the LFP and asked about experiences during the behavior observations of lorises. For students undertaking their final projects, we asked how supportive the LFP staff were in helping them to reach their research goals. The final questions were about the LFP overall, if volunteers had any constructive advice and if there was a staff member who was particularly helpful, so we could commend them for their efforts. In 2021, we also applied a questionnaire to those volunteers participating in the project during the period of the pandemic. We asked those volunteers ten questions regarding the impact of COVID-19 on their travel plans, their length of stay, their perception of safety and any behavioral change practices.

### 2.4. Data Analysis

We tested via logistic regressions the difference between Indonesian and foreign volunteers in terms of positive and negative feedback forms related to logistics and the natural environment. We created a Structural Equation Model (SEM) to evaluate the factors affecting perceptions between foreigners and local volunteers about the environment at the field site and the natural environment (Figure 2). For both analyses, we first extrapolated the main categories from the feedback forms (Table 1), coding as 1 if the category was present and 0 if it was absent, in the feedback form. We used the Bayesian estimation of the SEM modelling with Markov Chain Monte Carlo random walk simulations (tuning parameter: 0.495) via IBM Amos v 27 software. We ran 16 simulations with 70,000 iterations each (acceptance rate: 0.29). Bayesian SEM is shown to perform better than frequentist SEMs when the sample size (N) is small and the ratio between N and the number of variables is low [61]. Models were accepted only if they passed the Convergence Statistics test implemented by IBM Amos [62]. We present the posterior predictive  $p$ -values as model fit indication, with values close to 0.5 indicating a perfect model fit and values close to 0 and 1 indicating that the model is not plausible [62]. We used the 89% credible interval as the threshold for significance as suggested for the Bayesian approach [63], while for the logistic regressions we considered  $p = 0.05$  as the threshold for significance.





**Figure 2.** Tested Structural Equation Models to evaluate the factors affecting positive and negative perceptions between 82 foreign and local volunteers about the environment at the field site and the natural environment at the Little Fireface Project between 2013 and 2021. Variables in circles (e1–e5) represent the latent variables (i.e., error terms).

**Table 1.** Categories we identified from volunteer feedback forms regarding their experiences at the Little Fireface Project, West Java, Indonesia, including example quotations. Indonesian volunteer responses are highlighted in gray; foreign volunteer responses are left unhighlighted. NA indicates that no foreign volunteers were present during the COVID-19 pandemic so no statements are available.

Category	Mentions Concepts or Terms Including:	Example
<i>Logistics positive</i>	Positive experiences with the field station/facilities/food and with staff/volunteers	“The LFP station is exactly as described in the guide. Everything was great!” “One of the best places I’ve ever lived in. It feels good to go unplugged and get away from modern cities. The lack of signal can make volunteers and crews bond much closer.”

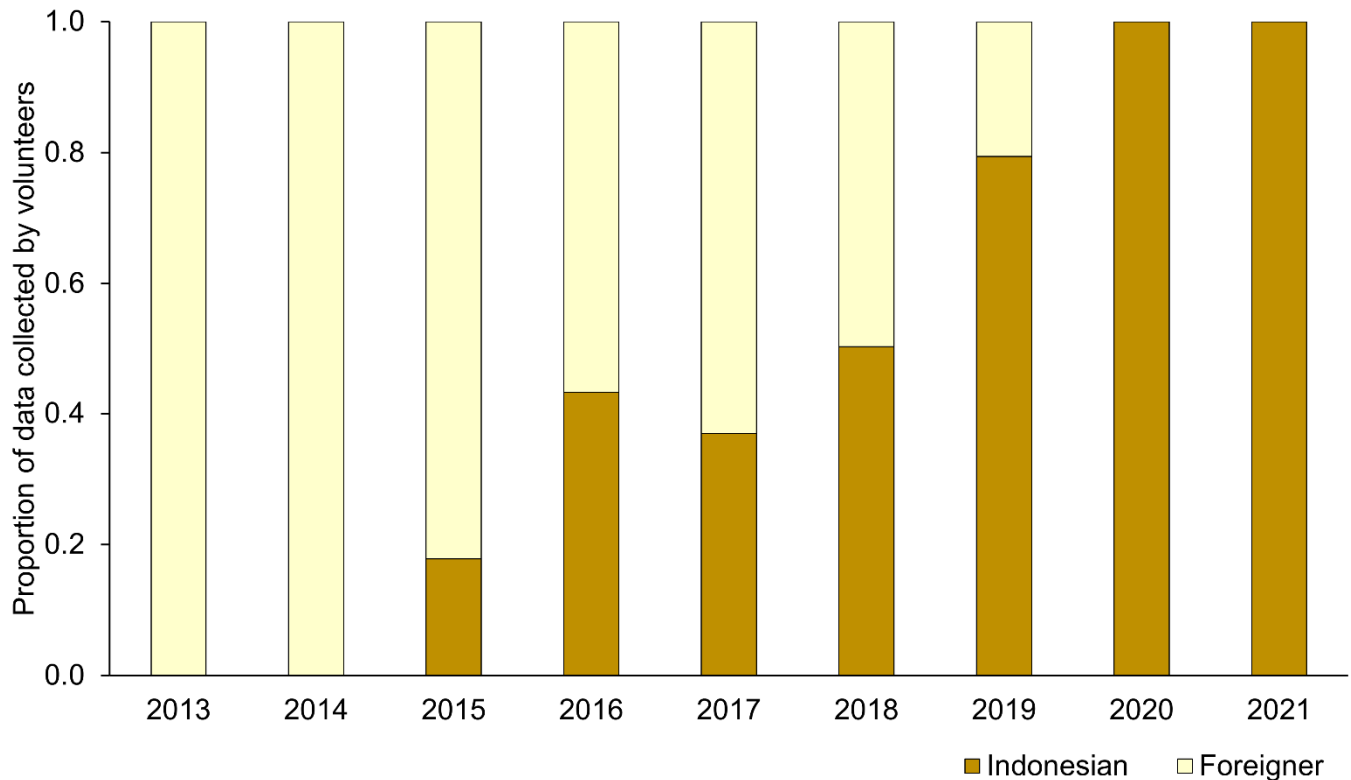
**Table 1.** *Cont.*

Category	Mentions Concepts or Terms Including:	Example
<i>Logistics negative</i>	Negative comments about the field station/facilities/food and staff/volunteers	<p>"Honestly the only thing that I dislike about it was my phone couldn't receive a good signal if it's in 1st floor"</p> <p>"One of the improvements for social integration is learn about sundanese. Just a some greetings, numbers or interesting words make them feel like they respected as a local."</p>
<i>Natural environment negative</i>	Negative experiences or things they did not like related to the village, forest or other surrounding environment	<p>"It's been another bad weather week. A couple of my shifts were cancelled before I even left the house or after spending hours sitting in huts without being able to see any lorises!"</p> <p>"It can be very cold— make sure to bring layers and extra clothes."</p>
<i>Natural environment positive</i>	Positive experiences or things they liked related to the village, forest or other surrounding environment	<p>"... the view over the city with Mt Cikuri in the background and the stars you see on a clear night is just beautiful."</p> <p>"I loved the atmosphere at the field. The moonlight, the biodiversity and the wind."</p>
<i>Career</i>	Future career prospects, desired career routes or volunteering to help with their careers.	<p>"My time at LFP was packed with experiences learning skills that I can utilize towards a career in environmental research."</p> <p>"With my veterinary medicine background, I learned more about wild animal, which is not taught thoroughly in my uni."</p>
<i>Learn/experience</i>	Learning new skills or having new experiences that are unrelated to professional or personal development	<p>"I am interested to learn about methods, camera trap, data logger, and capture. Hopefully I am able to contribute many things to LFP."</p> <p>"I got to learn a lot of things, from technical knowledge to local wisdom."</p>
<i>Personal growth and development</i>	Gaining personal wisdom, growth, maturity from the experience	<p>"I volunteered at Little Fireface Project (LFP), because I decided that it was time that I stepped out of my comfort zone."</p> <p>"This gives me confidence in moving on to the role of Javan biodiversity in providing essential ecosystem services"</p>
<i>COVID travel</i>	Questions regarding if the volunteers would travel elsewhere or had to change their plans	<p>NA</p> <p>"I stayed for 9 months, it was longer than my plan, but unrelated with a pandemic, I just stay in Cipaganti because I want to learn more"</p>
<i>COVID safety</i>	Answers regarding the safety procedures in the field site & village	<p>NA</p> <p>"We were given facemask and they check my rapid test result before coming in. Also providing hand sanitizer and disinfectant."</p>

**3. Results**

From 2013–2021, we recruited 117 volunteers (49 Indonesians, 68 foreign). The foreign volunteers were from 18 countries (the United Kingdom, Ireland, Spain, France, Italy, the Netherlands, Norway, Sweden, Austria, Germany, Australia, USA, Canada, India, Malaysia, Singapore, South Korea and Japan). Indonesian volunteers came largely from

Java but were from different ethnic groups, including Sundanese, Javanese, Betawi, Chinese-Indonesian and mixed backgrounds. Seventy-three were females and 44 were males. The mean age of volunteers was  $24.2 \pm \text{SD } 4.7$  (range = 19.0–48.0) years old. The mean duration of stay for volunteers was  $3.5 \pm \text{SD } 3.1$  (range = 1.0–18.0) months. Foreign volunteers (mean: 4.3 months; 95% CI: 3.3–5.2 months) stayed significantly more time than Indonesian (mean: 2.6 months; 95% CI: 1.7–3.5 months) volunteers (Mann–Whitney;  $U = 3.42$ ;  $p$ -value  $< 0.001$ ). We noted a demographic shift over the course of the study, with the proportion of Indonesian over foreign volunteers increasing through time. As of 2020 and 2021, during the COVID-19 pandemic, all of the volunteers were Indonesian (Figure 3).



**Figure 3.** Proportion of slow loris observation data points collected by volunteers (Indonesian vs foreign) on Javan slow loris at the Little Fireface Project between 2013 and 2021.

We examined the impact of the volunteers on the data collection. The total sampling effort on the behavioral observations on Javan slow loris by volunteers between 2013 and April 2021 was 6409 h, corresponding to 50.8% of the total amount of data collected by the project over the same period (12,606 h). Indonesians (59.5%) collected about 10% more of the data than foreigners (40.5%). Volunteers were authors on 31 scientific papers. Indonesian volunteers contributed to 19 of these, with four as the first author. Foreign volunteers contributed to 12 of these with six as the first author.

Of the 117 volunteers, 81 of them (38 Indonesians, 43 foreigners) filled in a completed feedback form at the end of their stay (Table A1). We found that Indonesian volunteers gave more frequently positive feedback on the logistics at the field station (logistic regression; positive feedback:  $\beta = 0.85 \pm \text{SE } 0.41$ ,  $p = 0.047$ ; negative feedback:  $-0.54 \pm \text{SE } 0.54$ ,  $p = 0.317$ ), but we found no difference in how volunteers perceived the natural environment (logistic regression; positive feedback:  $0.13 \pm \text{SE } 0.45$ ,  $p = 0.774$ ; negative feedback:  $0.21 \pm \text{SE } 0.45$ ,  $p = 0.636$ ). Positive aspects for both groups included positive attitudes towards the space and food. Negative attitudes varied in that foreigners complained more about illness, the toilet facilities and lack of Internet speed, whereas Indonesians felt that more social interactions should be done with the villagers. As we predicted, both groups felt positively about the forest environment and the animals, both from a career and a learn-



ing perspective. Indonesian volunteers reported significantly more frequently than foreign volunteers that they learned new skills (Bayesian SEM;  $\beta = 0.18 \pm \text{SD } 0.11$ , 89% Credible Interval = 0.02–0.35) and that they gained personal wisdom, growth, maturity from the volunteer experience (Bayesian SEM;  $\beta = 0.95 \pm \text{SD } 0.04$ , 89% Credible Interval = 0.89–1.00; Table 2). The fact that volunteers felt they learned new skills positively influenced the inclusion of positive feedback related to the village, forest or other surrounding environment (Bayesian SEM;  $\beta = 0.36 \pm \text{SD } 0.13$ , 89% Credible Interval = 0.16–0.56).

**Table 2.** Results of the Bayesian Structural Equation Models to evaluate the factors affecting positive and negative perceptions between foreigners and local volunteers about the environment at the field site and the natural environment in 81 volunteers at the Little Fireface Project between 2013 and 2021. Values are regression weights based on posteriori distributions. CI: Credible Interval. Posterior predictive *p*-values were 0.31 for Model 1 and 0.36 for Model 2.

Path	Mean	SD	89% CI
<i>Model 1 (positive)</i>			
Indonesian → Career	−0.008	0.079	−0.133–0.119
Indonesian → Learn/experience	0.184	0.105	0.017–0.351 *
Indonesian → Personal growth/development	0.947	0.035	0.891–1.003 *
Career → Logistics positive	0.012	0.167	−0.255–0.278
Career → Natural environment positive	−0.208	0.165	−0.470–0.055
Learn/experience → Logistics positive	0.154	0.125	−0.046–0.355
Learn/experience → Natural environment positive	0.358	0.124	0.162–0.555 *
Personal growth/development → Logistics positive	0.138	0.115	−0.047–0.321
Personal growth/development → Natural environment positive	−0.086	0.114	−0.268–0.097
<i>Model 2 (negative)</i>			
Indonesian → Career	−0.008	0.079	−0.134–0.118
Indonesian → Learn/experience	0.185	0.105	0.019–0.352 *
Indonesian → Personal growth/development	0.948	0.036	0.891–1.005 *
Career → Logistics negative	−0.181	0.145	−0.411–0.052
Career → Natural environment negative	−0.029	0.172	−0.304–0.245
Learn/experience → Logistics negative	0.032	0.110	−0.143–0.206
Learn/experience → Natural environment negative	−0.103	0.128	−0.309–0.101
Personal growth/development → Logistics negative	−0.086	0.101	−0.246–0.075
Personal growth/development → Natural environment negative	0.111	0.117	−0.076–0.298

\* significant based on the 89% credible interval.

Examining the questionnaires from the 15 volunteers who were at the field site during the COVID-19 period, only one of them indicated they would have gone to the outer islands. Indeed, most were able to come to the field site with minimal changes to their plans, with nine of them extending their stays and one shortening it due to non-COVID related circumstances. Only one volunteer had to delay their arrival due to a COVID lockdown. Volunteers indicated that they felt safe in the village and in the house and commended the project for implementing COVID-safe cleaning strategies (as this was not something common in the village), providing masks and hand gel and providing access to regular testing. Interestingly, despite the pandemic, Indonesian volunteers still advocated for more social events with the villagers, even when this was not allowed.

#### 4. Discussion

While the global expansion of volunteer tourism has contributed substantially to the functioning of the long-term project sites, the international community is having a recent reflexive turn on how to not promote neo-colonialist interaction among volunteers and the destination communities involved [64]. In our study site, the turn to having 100% international volunteers in 2013 with a constant increase in Indonesian volunteers over the years, reaching up to 100% in 2020–2021, goes along with this reflexive trend. Increasingly, volunteer tourists come from the tropical countries themselves worldwide,

and are often young adults in a gap year between degrees or are collecting data for a university degree [47,65]. We found that motivation to come to the project differed between Indonesian and foreign students. As has been seen in other studies, foreign students were more likely to come for the travel experience [47,66]. Indonesian students were more motivated to come either with their friends or classmates or to come after their friend had already done so [67], but were also attracted by the slow loris and the possibility to do radio tracking (which is rare in Java). Anecdotally, many national volunteers expressed a desire to improve their English language skills during their time at the LFP as English is used to communicate on social media and to distribute scientific findings. Interestingly, most who came during the COVID-19 pandemic said they would have come to the LFP anyway, with only one stating they might have gone to an orangutan project on Borneo.

#### *4.1. Shift towards Local Volunteering*

The goal of the LFP project was always to involve both local and international volunteers. In the first six years of the project, volunteer fees contributed 100% towards the renting and running of the field station and towards the salary of the housekeeper and cook. After 2016, the LFP gained sponsorship from two organizations annually that allowed these costs to be paid. This allowed us to provide local rates for Indonesian students. Even after the offer of a competitive local price, we needed to become established in order to attract or become known to Indonesian students. In 2018, much more strict permit laws were issued, meaning it became more and more challenging to allow international volunteers to come to the LFP and other conservation charities in Indonesia. This was mainly to reduce the potential negative effects for Indonesian researchers such as the so called “parachute science” (i.e., the practice whereby international researchers conduct field research in low–mid income countries and complete the study with no engagement with local researchers and communities) [68]. At the same time, the increase in Indonesian volunteers led to a much greater word-of-mouth transfer of information, making volunteering at the LFP a more popular choice. During the 2020 COVID-19 pandemic, when no foreign volunteers could enter Indonesia, local volunteering became more valuable than ever. Given that the level of international tourism flow was linked to the level of country exposure to COVID-19 [26], having only local volunteers in 2020 and 2021 provided a safer work environment and resilience of the project. Despite several negative effects of the pandemic on international volunteer tourism [69], we could see this as a positive to grow the potential of local volunteering. We noted also that the confidence in Indonesian volunteers grew and having a larger cohort seemed to foster this positivity [49]. We have to note that the fact that no foreigners were able to enter Indonesia in 2020/2021 might have biased the results from the feedback forms as only Indonesian volunteers were subjected to COVID-19 and this could have added additional stress to them. Nevertheless, Indonesian volunteers showed more positive attitudes towards the logistics at the research station, thus we think our results were not influenced strongly by this travel restriction.

#### *4.2. Volunteers’ Contribution to Conservation*

The volunteer tourism experience is grounded in the feeling of mutual benefit, where the volunteers experience and learn from the immersion in the local culture and environment and the local project also benefits from their work [64]. Overall, we would suggest that the LFP volunteer program has been a success, with the project being able to run continually by training a completely local student volunteer workforce. At the forefront of the importance of volunteers to the project has been providing person power to collect 6409 h of behavioral data collection on a Critically Endangered species. All volunteers stayed a minimum of one month, providing them with vital training to meet data collection standards (c.f., [47]). Both national and international volunteers published their data, including as first authors. At the same time, volunteers noted many positive experiences, and by and large, these did not differ whether the volunteer was Indonesian or foreign. These points included the opportunity to be in nature with a rare species, to learn transferable

skills and to grow as a person [48,66]. It shows how our project has been fulfilling the role expected from the volunteer tourism in terms of offering the volunteers an opportunity for transformative learning experiences [70]. Trust in the organization and the quality of the program are key factors influencing the attitude towards volunteer tourism [71]. Negative points regarding the environment, including trash in the village, later led to the LFP developing trash management programs, and those regarding the need for team building and building relations with villagers also led to increased activities in both areas [72]. These points show that as an organization, the LFP could also grow and take inspiration from the observations of the volunteers. Regarding impressions during the pandemic on still needing to provide activities with villagers, the LFP introduced socially-distanced activities, including cleanest street competitions and making wild animal statues out of trash from the home.

#### *4.3. International Versus Local Volunteers*

Although some foreign students had a negative impression of the anthropogenic landscape, this changed to a positive one when students were motivated to study for a degree and had a specific topic to focus on, and for students who wanted to work with the target species [47]. Even though we offered research topics to non-degree students, they usually decided they wanted to learn ‘a bit of everything’ and then could lose focus or feel frustrated and were more likely to want to be offered entertainment options [73]. These non-focused foreign students also were likely to stay for a shorter period and fell more into the definition of vacationing ecotourist rather than a volunteer who helped with species conservation [74]. Indonesian students, on the other hand, embraced the data collection, even on nights when animals were hard to see, and ultimately not only collected more data than foreign students, but more detailed data with extensive notes. It has been suggested that in East Asian cultures, students have good critical thinking skills, opposite to the common misconception that they follow instructions rather than think critically on their own [75]. In support of this statement, the number of student-led first authored papers by Indonesians shows their commitment to the critical side of the science as well.

Some observations from the feedback form are of interest when considering the values of young people in the 21st century. Feeling in a safe environment has been identified as important for volunteer experiences [73,76]. This concept had the potential to be even more heightened during the pandemic. Despite going to a ‘jungle environment’ where one might expect to be cut off, many volunteers made comments about the comfort of the accommodation, food preferences, and availability of technology, especially the Internet. It was also evident that many of the volunteers wanted a warm welcome and to be made to feel at home, and during the pandemic, appreciated the cleaning of equipment and being supplied with masks and hand sanitizer. Interestingly, volunteers during the COVID-19 pandemic expressed a higher element of safety, noting that staying in a small village and being out in the clean air was much safer than being in their crowded home cities. In Indonesia, it is common to have a “ruang tamu” or guest room that is kept clean and always available for guests. Foreign volunteers insisted that they should be allowed to use this space and keeping it free for guests was “a waste”, whereas Indonesian volunteers respected and understood this space. This element of territorialism in volunteers has been identified as a factor that may make volunteers who perceive themselves as unnurtured or unwelcome in a new space depressed, homesick or wanting to leave the project [76]. Although these areas are considered in our volunteer handbook and volunteers are asked to read this before they come, it could be important for the future to have online meetings with potential volunteers, so they come prepared to know the reality. A debrief at the end of the experience, or a few months after, would also be valuable as we go forward.

Other aspects of value that emerged included the value volunteers felt in learning new technologies and the pride and wonder they described at seeing the slow loris and other animals [47,48]. Sharing these experiences with local trackers was important for both foreign and Indonesian students, and they valued the experience of staff in their training

and as a cultural experience [65]. At the same time, there was a strong relationship between negative views and ecology. Volunteers were often disappointed, for example, if they could see only the animal's eye shine, or only hear its radio tracking signal from dense shrubbery. Foreign volunteers also felt frustrated at doing tasks such as data entry or habitat mapping as it meant time away from seeing the animals. Indonesian volunteers, especially during periods of COVID-19 restrictions when they could not leave the house, said that "doing nothing was not a problem". Cousins et al. [77] described the former phenomenon not only as frustration but taking away from the exhilaration of other potentially positive experiences. Other studies have reported the disappointment of foreign volunteers who are not prepared for uncomfortable environments, perhaps replete with vermin, cold water baths and limited technology [73,77]. Similarly, the area where we study is in a human-dominated landscape. Many foreign volunteers complained that they thought they were coming to a pristine forest and were upset when farmers cut trees on their own private land, insisting that the LFP "do something". Indonesian volunteers took a different approach, saying these behaviors could be mitigated if the project hung out more in the village or had a larger national certification. Feelings of hopelessness, anger or culture shock by volunteers seem to be common across the sector but may also improve when volunteers stay longer [48,49]. Anecdotally, but similar to Otoo et al. [78], we found that three months was a critical period for foreign volunteers to get over these feelings. For Indonesian volunteers, the more Indonesian volunteers joining at the same time as they did was the key criterion for staying longer, as the field station was then considered a mini family where people wanted to come back to.

## 5. Conclusions

We show the positives of promoting local volunteer tourism to ensure the persistence of conservation initiatives executed in any geographic setting. For our relatively small initiative, the Little Fireface Project, adapting our program to different volunteers has resulted in considerable benefits, including the continuity of activities during the COVID-19 pandemic. By providing volunteers the opportunity to join the project, we show that they learned invaluable field skills, have access to study globally threatened species and are able to obtain considerable knowledge about conservation management. This focus on a science with a tangible output of species conservation seems a key strength to improve overall volunteer satisfaction. In light of the COVID-19 pandemic and its domestic and international travel restrictions, field projects or ecotourism sites that rely on international participation or visitors needed a serious model reassessment. In a post-COVID era, the diversification of revenue sources to reduce this overreliance on foreign personnel and income, together with the empowerment of local and regional people has been consistently recommended for the continuity of the projects and their conservation interventions cf., [79–81]. We did not see marked differences in the values of volunteers, and we found that that both foreigners and nationals felt they gained an excellent experience; this provides positive support for other projects that have a reluctance to work with a local, rather than international, workforce. The COVID-19 pandemic affected the tourism and travel sector substantially. From now, what will define the success of the projects is the ability to manage and adjust to changing global circumstances. The COVID-19 pandemic also brought a sense of avoiding non-essential movements, which could have long-term consequences on the travel industry cf., [82]. In this sense, local volunteer tourism can offer a decent argument to transform the sector, considering that it has a purpose that goes beyond knowing a new place, but actually contributing to the local development and conservation and learning from the local experiences.

**Author Contributions:** Conceptualization, K.A.I.N., V.N., A.V.W. and M.C.; Methodology, K.A.I.N., M.B., H.R.E.B., T.Q.M., A.V.W. and M.C.; Software, M.C.; Validation, M.B., A.V.W. and M.C.; Formal analysis, M.C.; Investigation, K.A.I.N., M.B., T.D., K.H., A.V.W. and M.C.; Resources, K.A.I.N.; Data curation, K.A.I.N., M.B., T.D., K.H., A.V.W. and M.C.; Writing—original draft preparation, K.A.I.N., H.R.E.B. and M.C.; Writing—review and editing, M.B., T.D., K.H., T.Q.M., V.N. and A.V.W.;

Visualization, M.C.; Supervision, K.A.I.N. and V.N.; Project administration, K.A.I.N., M.B., T.D. and K.H.; Funding acquisition, K.A.I.N., M.B. and M.C. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research was funded by Augsburg Zoo, Brevard Zoo, Cleveland Zoo and Zoo Society, Columbus Zoo and Aquarium, Disney Worldwide Conservation Fund, Global Challenges Fund Initiative—Oxford Brookes University, Henry Doorly Zoo, International Primate Protection League, Little Fireface Project, Mohamed bin al Zayed Species Conservation Fund (152511813, 182519928), Margot Marsh Biodiversity Fund, Memphis Zoo, Moody Gardens Zoo, People’s Trust for Endangered Species, Primate Action Fund and Shaldon Wildlife Trust.

**Institutional Review Board Statement:** The study was conducted in accordance with the Declaration of Helsinki, and approved by the University Research Ethics Committee at Oxford Brookes University (#OBUUREC\_1718\_VN003). Protocols followed the ethical guidelines proposed by the Association of Social Anthropologists of the United Kingdom and Commonwealth. All research and corresponding activities were approved by the Ministry of Research, Technology, and Higher Education of the Republic of Indonesia (KEMENRISTEKDIKTI) (# 104/SIP/FRP/E5/Dit.KI/IV/2018).

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** The data presented in this study are available upon request from the corresponding author.

**Acknowledgments:** We thank Indonesia RISTEK and the regional Perhutani and Balai Konservasi Sumber Daya Alam for authorizing the study. We thank the staff and trackers, as well as the many volunteers who helped Little Fireface Project over the years.

**Conflicts of Interest:** The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

## Appendix A

**Table A1.** Proportion of volunteers who reported the categories we identified from feedback forms regarding their experiences at the Little Fireface Project, West Java, Indonesia (Table 1). These categories were used in the Bayesian SEM (Figure 2; Table 2).

Category	Total (n = 81)	Foreigner (n = 43)	Indonesian (n = 38)
Logistics positive	0.60	0.51	0.71
Logistics negative	0.23	0.28	0.18
Natural environment negative	0.42	0.40	0.45
Natural environment positive	0.46	0.44	0.47
Career	0.14	0.14	0.13
Learn/experience	0.69	0.60	0.79
Personal growth and development	0.44	0.00	0.95

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