



A PORTFOLIO  
*Design Studio*

Nanyang Academy of Fine Arts  
Univ'rsity of the Arts London



G2o23o2i8 - Muhammad Al-Hakim



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# Introduction and reflection

I have always believed in the future, with sometimes unwarranted optimism that the future will always be better. But is always tempered with the reality that this brighter, better future can only happen if those with the vision, ideals and will come together and create that future.

I was hoping that this would have been a big opportunity to do that from my desire to exemplify my keen interest in public transportation and manifest it through design, having the ability to turn my imagination for a better future into a reality.

However, I am proud of the work my team has created, and it is a testament of the service design tools that it has lead us naturally towards our solutions proposed, and one that all of us are happy and satisfied with.

This module has been both a learning and humbling experience on that front, but one that fills me with ideas and skillsets for me to venture forth and dig in deeper on the notions of public accessibility, better public spaces for all, and a building a better physical world for those whose world may be limited by their health and disability.



# Chapter I: Which NGO?

As a team, comprising me, Harshi, Ria, Naz, Syafiqah and Damien conducted a deliberative discussion exercise on what kind of organisation we'd prefer based on the suggested list.

While I was keener on engaging in an art and heritage-based NPO, it is clear that the common class consensus was towards NPOs, that is, Health and Animals. This presents a unique opportunity as I have rarely engaged with NPOs of that form so far, and it would present unique challenges for me.

After said discussion, we came up with a list that piqued our interest the most, as well as organisations that we felt had the potential to fulfil our briefs to the fullest extent.

To that end we choose three organisations:

## 1. Arces

Acres (Animal Concerns Research and Education Society), is animal welfare charity founded in the 2001 by Louis Ng, currently a Member of Parliament for Nee Soon GRC. Acres is most known for their stance against animal cruelty and illegal animal trafficking, and for their flagship Wildlife Rescue hotline programme.

### Mission:

To create a caring and socially responsible society where animals are treated as sentient beings.

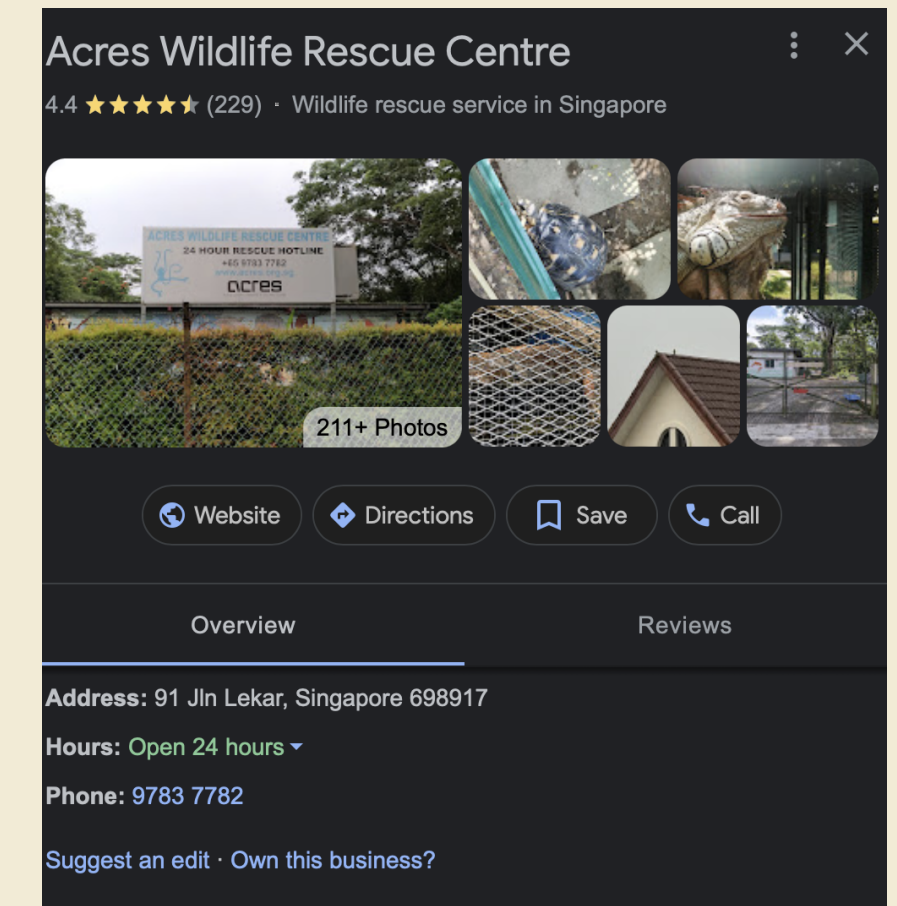
### Vision:

A world where animals are treated with compassion and respect.

### Ambition:

To drive forward a collaborative and sustainable animal protection movement in Asia.

## Option I: Acres



## Location

### Objective:

- \* To foster respect and compassion for all animals
- \* To improve the living conditions and welfare of animals in captivity.
- \* To educate people on lifestyle choices which do not
- \* involve the abuse of animals and which are environment-friendly.

### Areas of Focus:

- \* Wildlife trade
- \* Wildlife Rescue and Rehabilitation
- \* Humane Education
- \* Community Outreach
- \* Promoting Cruelty-Free Living



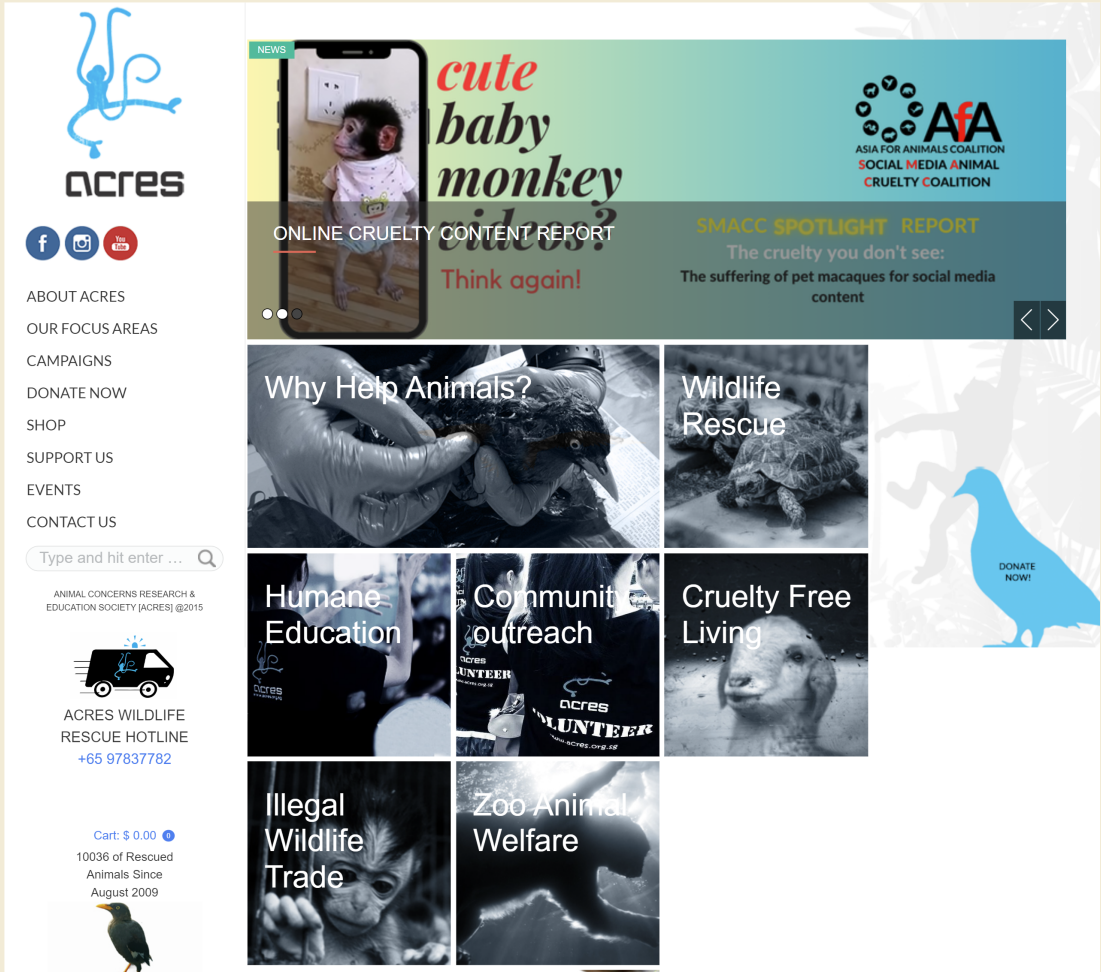
# Findings

## 1. Online and social media presence.

As a amateur webmaster, I was most keen in understand how Acres present itself online, as NPOs and NGOs in the past often neglect to make good use of online space as a means of advocacy and fundraising, this is a potential gap that we may be able to fill in.

Acres uses Wordpress to host their website, which is stable and relatively conventional platform for them to use. A cursory look at their webpage shows several basic UI/UX issues such as legibility and hierarchy issues but nothing major that would prove a hinderannce if we were to enhance their core service.

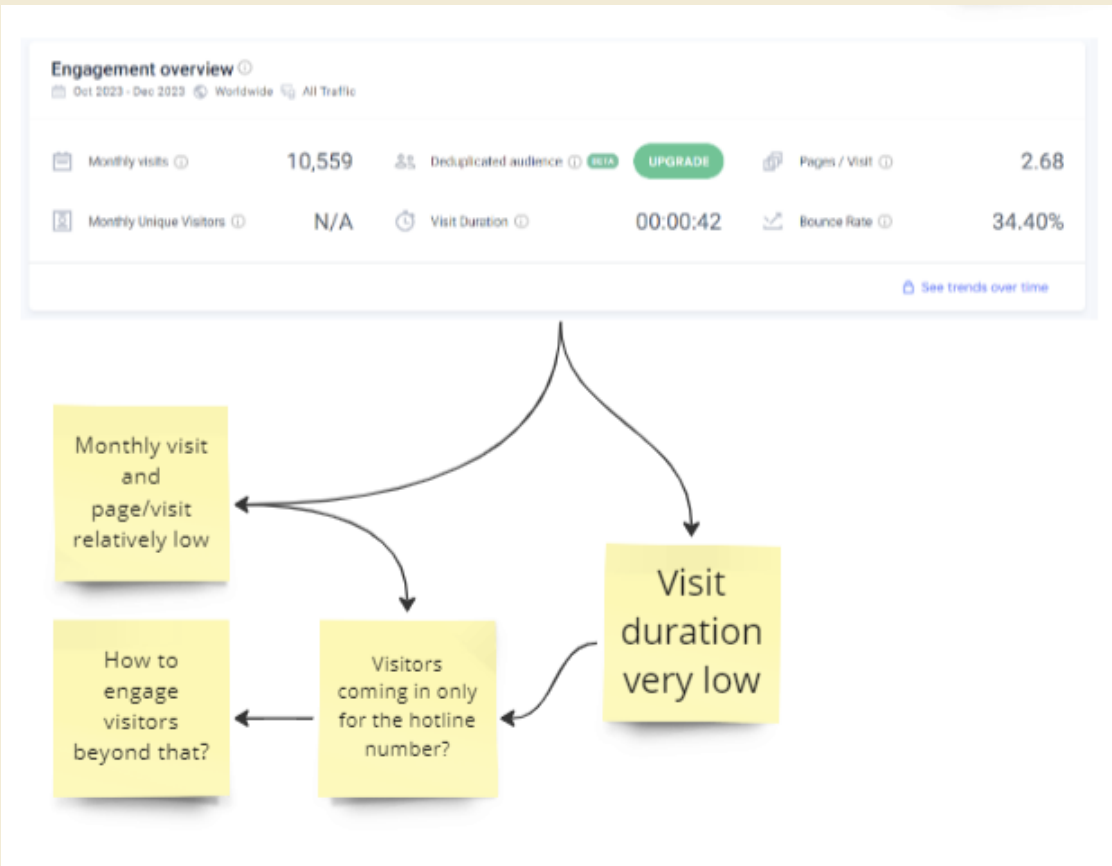
A good thing of note is their Call To Action (CTA) is clear and legible for visitors to the website, With a clear “Donate now” button, support us subpage and their wildlife rescue hotline all clearly indicated for visitors to see.



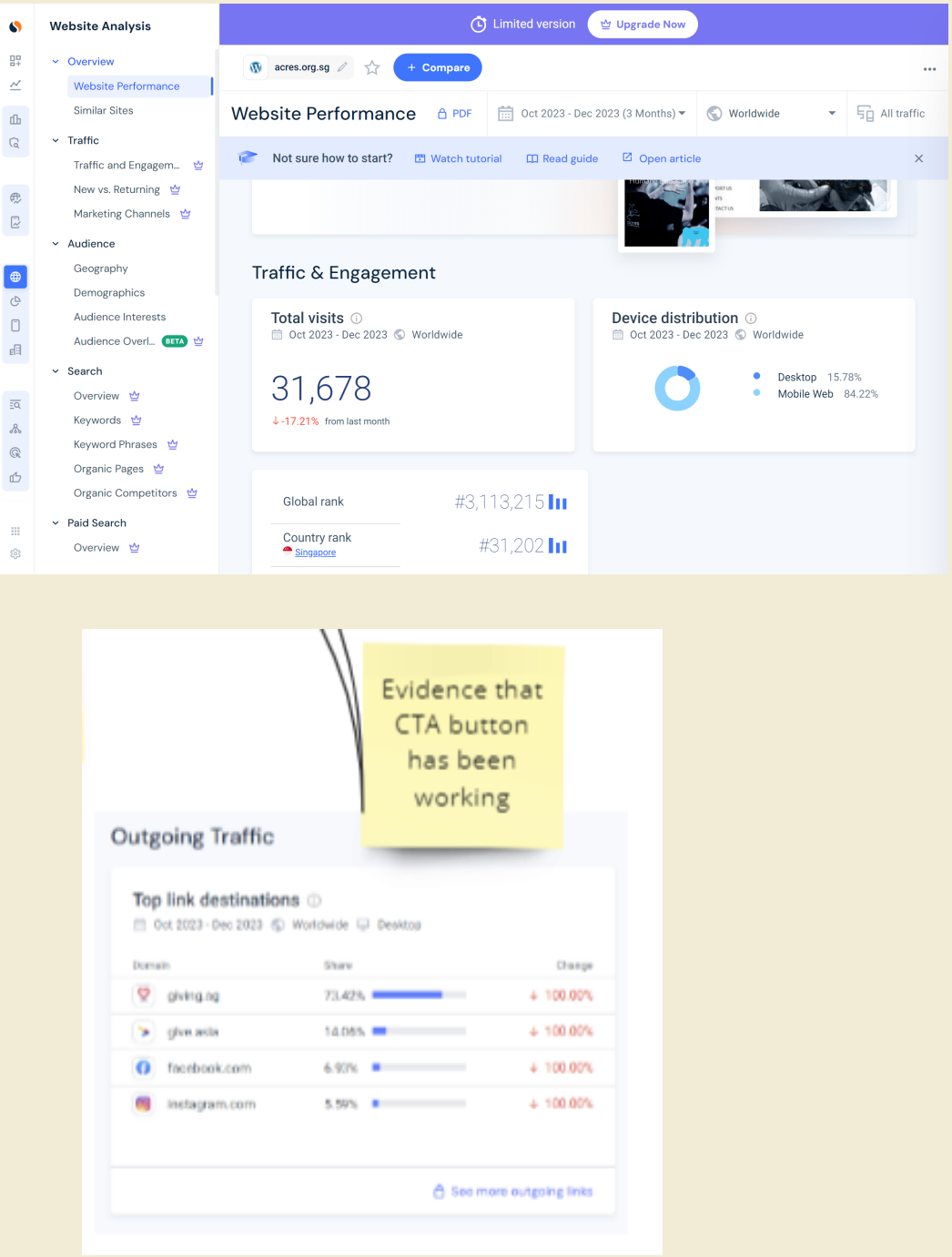
Not Great, Not terrible.

I also ran through the website on Similarweb to give me data on the website performances, and see if there’s any issues or gaps in their online presence. This would be important information regardless of our solution for Acres, as it may hinder any outreach on that front.

Key issues that Similarweb highlighted are:



Relatively low visit duration, but it could be due to visitors engaging the website for the hotline, CTA and their social media links.



Through similarweb, I was also able to determine that their CTA has been effective to engaging visitors to visit their donation page on giving.sg, with the vast majority of outgoing traffic heading towards the link. A possible opportunity would be one that pushes an increase in online engagement, which subsequently would push an increase in engagement.



2.Sources of Income

Through our research analysing Acres's annual reports, news articles, and postings, we found that their funding comes from several sources, from charitable donations and fundraising events to grants from organisations such as Mandai Wildlife.

The most prominent is the Acres Gala, which is their main fundraising event. Events like Galas or appreciation nights are a common method for NGOs (and certain art schools) to raise funds and promote themselves.

However, through that and the research that my colleagues have conducted, we can determine that Acres has a narrow focus towards wildlife advocacy, orientating their programmes towards promoting animal welfare, which works both as a means of helping their cause and as a way to generate revenue, especially for their animal rescue program and fight against illegal animal trafficking.



We'd love for you to join us on this special evening, to celebrate what a difference you have made in creating a better world for animals.

Share an evening of entertainment, great food, laughter and, of course, lots about the animals at

## ACRES GALA DINNER 2013

SATURDAY 18<sup>TH</sup> MAY 2013  
ORCHID COUNTRY CLUB  
6.30PM UNTIL LATE

**Ticket: \$200**  
**Table of 10: \$1800**

All proceeds to ACRES' animal protection programmes

Ticket price inclusive of  
**9-course vegan dinner & free-flow of wine/beer**

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Animal Concerns Research and Education Society (UEN: T01SS0121K)						
Audited Financial Statements Financial Year Ended 31 March 2023						
6. Donations						
2023						
Unrestricted fund	Restricted funds					
General fund	Wildlife Campaign Initiatives	CPS - Vegetable Garden	Other funds	AYA XI Regional Grant	Total unrestricted and restricted funds	
S\$	S\$	S\$	S\$	S\$	S\$	
Tax deductible donations						
Voluntary income						
Donations	696,495	0	0	0	0	696,495
Activities for generating funds						
Fund raising income	144,569	0	0	0	0	144,569
	841,064	0	0	0	0	841,064
Non-tax deductible donations						
Voluntary income						
Donations	241,632	0	0	0	0	241,632
Activities for generating funds						
Fund raising income	11,217	0	0	0	0	11,217
	252,849	0	0	0	0	252,849
	1,093,913	0	0	0	0	1,093,913
Fiducia LLP, Public Accountants and Chartered Accountants of Singapore						
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Animal Concerns Research and Education Society (UEN: T01SS0121K)			
Audited Financial Statements Financial Year Ended 31 March 2023			
3. Significant accounting judgements and estimates (Cont'd)			
3.2 Key sources of estimation uncertainty (Cont'd)			
Useful lives of property, plant and equipment			
Management determines the estimated useful lives and the related depreciation for its property, plant and equipment based on the period over which the property, plant and equipment are expected to provide economic benefits. Management's estimation of the useful lives of property, plant and equipment is based on collective assessment of industry practice, internal technical evaluation and experience with similar assets.			
The estimation of the useful lives of the property, plant and equipment could change significantly due to physical wear and tear, technical or commercial obsolesce and legal or other limits on the use of property, plant and equipment. The depreciation is increased where useful lives are less than previously estimated lives.			
The carrying value of property, plant and equipment as of 31 March 2023 and 2022 are disclosed in Note 13 of these financial statements.			
Based on Management's assessment, no change in the estimated useful lives of property, plant and equipment is required as of 31 March 2023 and 2022.			
Impairment of property, plant and equipment			
Property, plant and equipment is tested for impairment whenever there is any objective evidence or indication that these assets may be impaired. This requires an estimation of the value in use of the cash-generating units. Estimating the value in use requires the Company to make an estimate of the expected future cash flows from the cash-generating units and also to choose a suitable discount rate in order to calculate the present value of those cash flows.			
4. Income tax			
The Society is a charity registered under the Charities Act, 1994 since 11 January 2005. Consequently, the income of the Society is exempted from tax under the provisions of Section 13 (1)(zm) of the Income Tax Act, 1947.			
5. Total incoming resources			
(a) Total incoming resources for the year:			
	Note	2023 S\$	2022 S\$
Donations	6	938,127	828,511
Fees	7	127,170	184,067
Fund raising income	6	155,786	22,472
Grant income		68,028	0
Other income			
- Amortisation of deferred capital grants		14,110	23,211
- Gain on disposal of property, plant and equipment		5,500	0
- Utilisation of deferred income		21,308	3,295
- Other miscellaneous grants and subsidies		34,768	12,955
- Others		4,913	30,389
		1,369,710	1,104,900
Fiducia LLP, Public Accountants and Chartered Accountants of Singapore			
Page 23 of 43			

One of the key lessons I have learnt is how important annual reports can be in analysing finances and seeing how public organisation get their funding and how they incur costs.



Personal opinion

Acres is an exciting organisation whose prominence in Singapore’s public society belies its relatively young age and smallness. Compared to other organisations we shortlisted, Acres is one that the public has encountered in some form or another, whether through its wildlife rescue service, prominent advocacy efforts for animal welfare, or against the illegal animal trade hitting the news cycle.

Whilst I am interested in seeing how much we can develop parts of Acres, I foresee that we’d end up tackling either their rescue services or finding new avenues/enhancing their funding.

Strengths

- 1. Focus:
  - \* Wildlife rescue and rehabilitation
  - \* Spreading animal welfare awareness
  - \* Local wild and exotic species
- 2. Initiatives:
  - \* Wildlife rescue
  - \* Promoting cruelty-free living
  - Education initiatives
- 3. Collaboration:
  - \* Collaborates with different brands for fundraising initiatives
- 4. Public Engagement:
  - \* Workshops and events for different age groups
- 5. Donation Channels:
  - \* Multiple donation options- monthly or one-time contributions from the public and companies
  - \* Government support through CDC vouchers

Weakness

- 1. Resource:
  - \* Limited resources
  - \* Primarily relying on donations and public support
- 2. Location:
  - \* focus in Singapore- limit their ability to address larger regional or global animal welfare issues in Asia
- 3. Dependency:
  - \* Dependence on collaborations with brands for fundraising
- 4. Regulatory Challenges:
  - \* Rescuing animals and going against illegal wildlife trade -lead to legal challenges

Opportunities

- 1. Alternative expansion:
  - \* Development of educational initiatives and workshops - creative alternatives to raise awareness
- 2. Technology:
  - \* More online campaigns and social media for fundraising, awareness, educational purposes etc
- 3. Unique Partnerships:
  - \* forming unique partnerships with various industries - larger outreach

Threats

- 1. Finances:
  - \* Development of educational initiatives and workshops - creative alternatives to raise awareness
- 2. Enviroment:
  - \* climate change and habitat destruction - threat to wildlife

2. Nature Society (Singapore)

The Nature Society Singapore is an non-profit organisation, with a history stretching back to 1940 as the Malayan Nature Society. Being one of the oldest organisations in Singapore that is focused towards the natural environment and its conservation, the Nature Society is a well-developed and highly regarded organisation by both government and by the public.

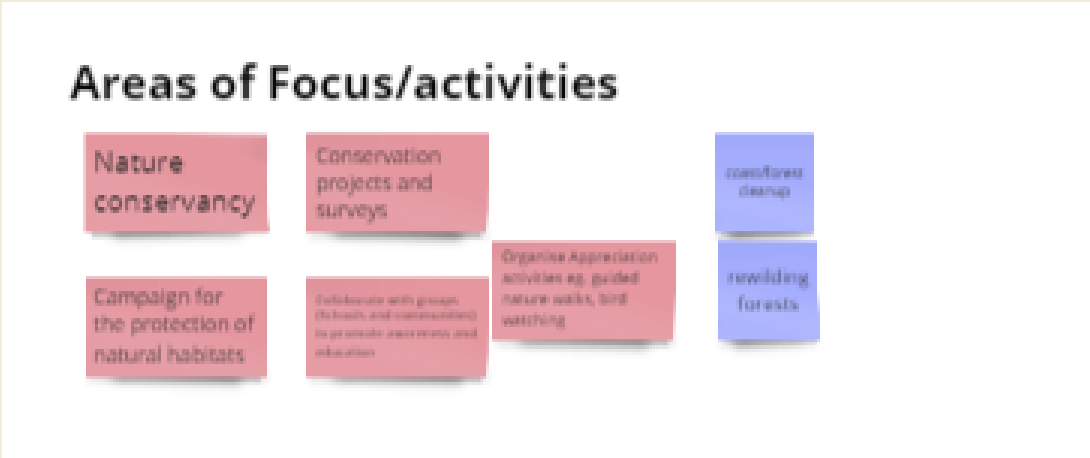
Mission:

- \* To promote nature awareness and nature appreciation
- \* To advocate conservation of the natural environment in Singapore
- \* To forge participation and collaboration in local, regional and international efforts in preserving Earth's biodiversity

What we do:

- \* Organise nature appreciation activities like guided nature walks, bird and butterfly watching, slide talks and overseas eco-trips.
- \* Conduct conservation projects and surveys.
- \* Collaborate with schools and community groups to promote nature appreciation and education.
- \* Campaign for the protection of natural habitats..

Option II: Nature Society (Singapore)



Nature Society (Singapore)

Nature Society (Singapore)

4.5 (8)

Non-profit organization

Overview

Reviews

Directions

Save

Nearby

Send to phone

Share

510 Geylang Rd, Singapore 389466

nss.org.sg

6741 2036

8V7P+C4 Singapore

Send to your phone



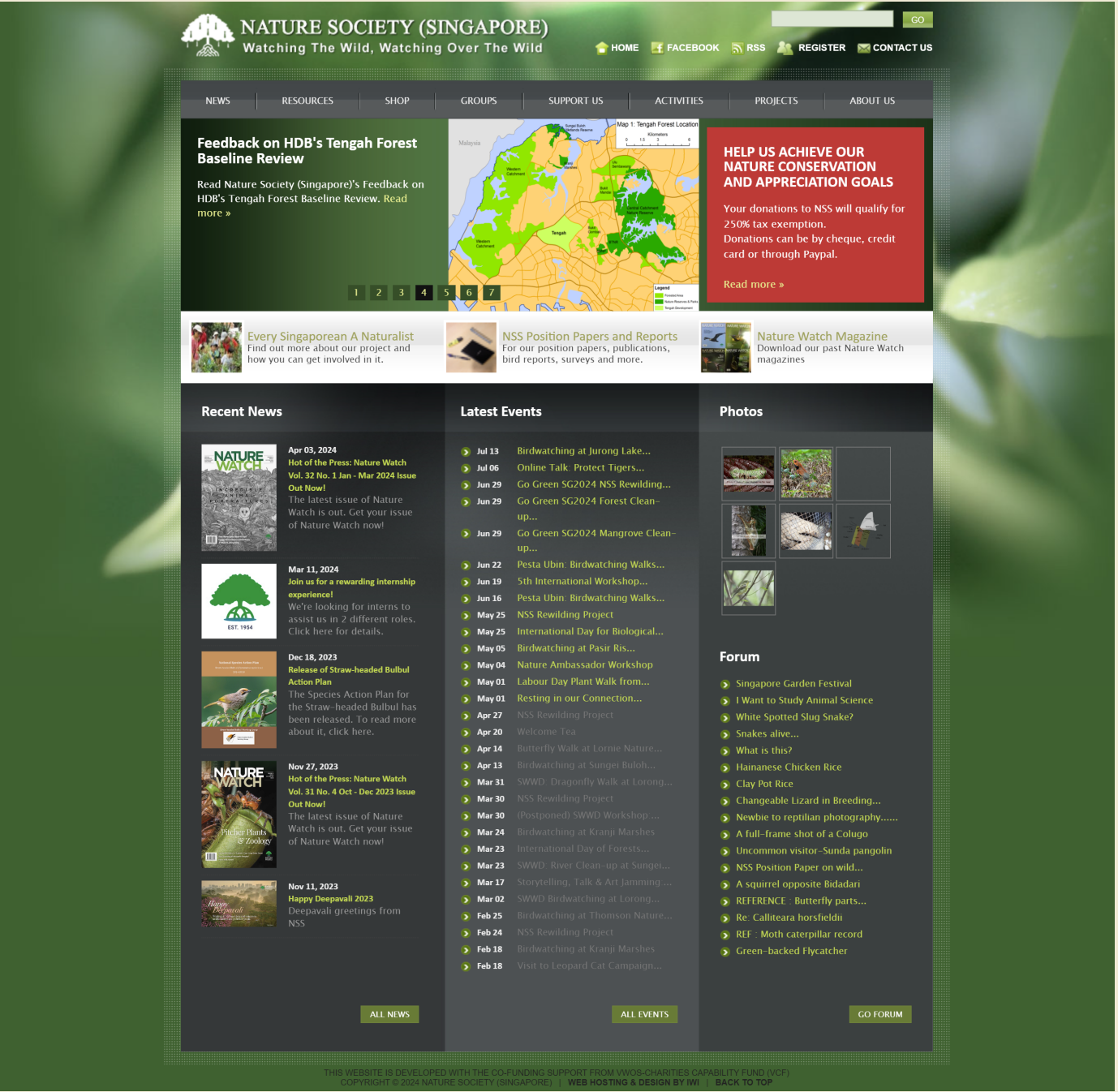
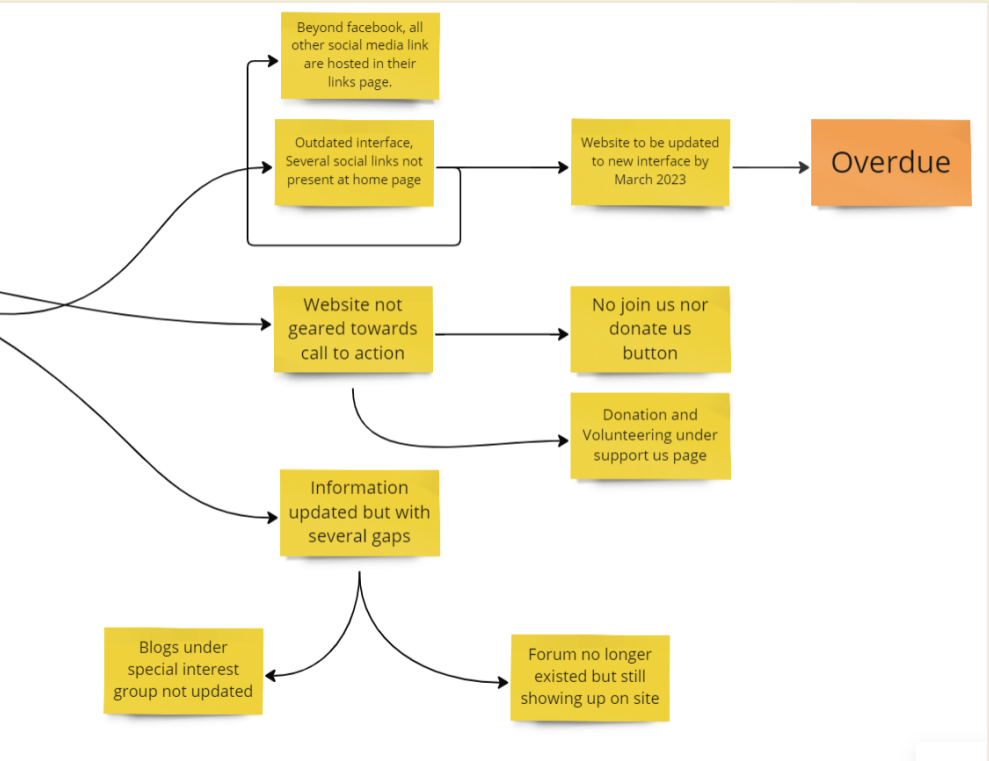
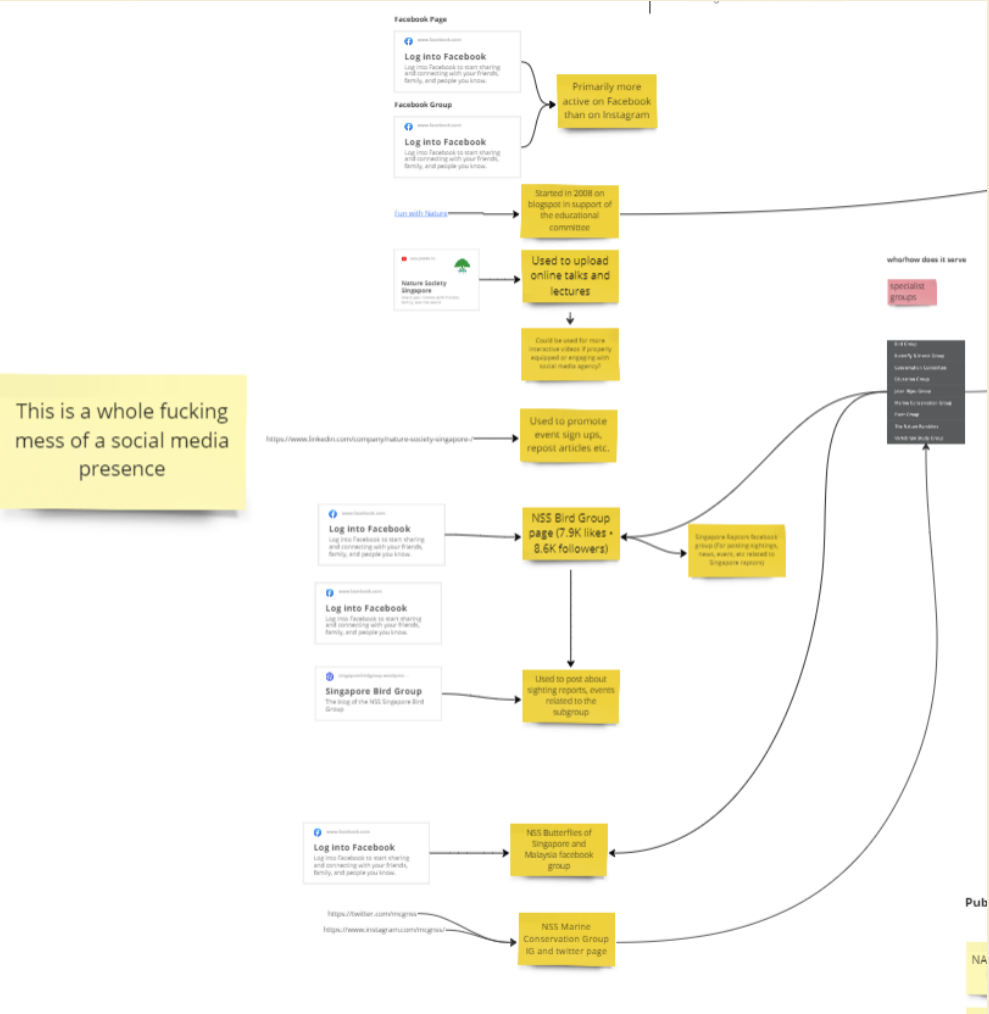
# Findings

## 1. Online and social media presence.

As an older NGO, the Nature Society has a wide and extensive social media and internet presence, with even its sub-organisations having Facebook pages and groups to engage with its members and members of the public interested in its activities, such as the Birdwatching group.

However, it is evident that more content needs to be standardised, leading to a disparity in the quality of social media posts and content. This inconsistency presents a confusing image to the public, depending on what they encounter. It's crucial to address this issue promptly to ensure a unified and impactful online presence.

Their website is a travesty, however, whose interface is a throwback to the late 2000s. While the content is constantly updated and maintained well, it is clear there are limitations for such an old interface, such as the lack of CTAs that would encourage donations and volunteering, which is a big waste for an organisation as big as theirs.



2.Sources of Income

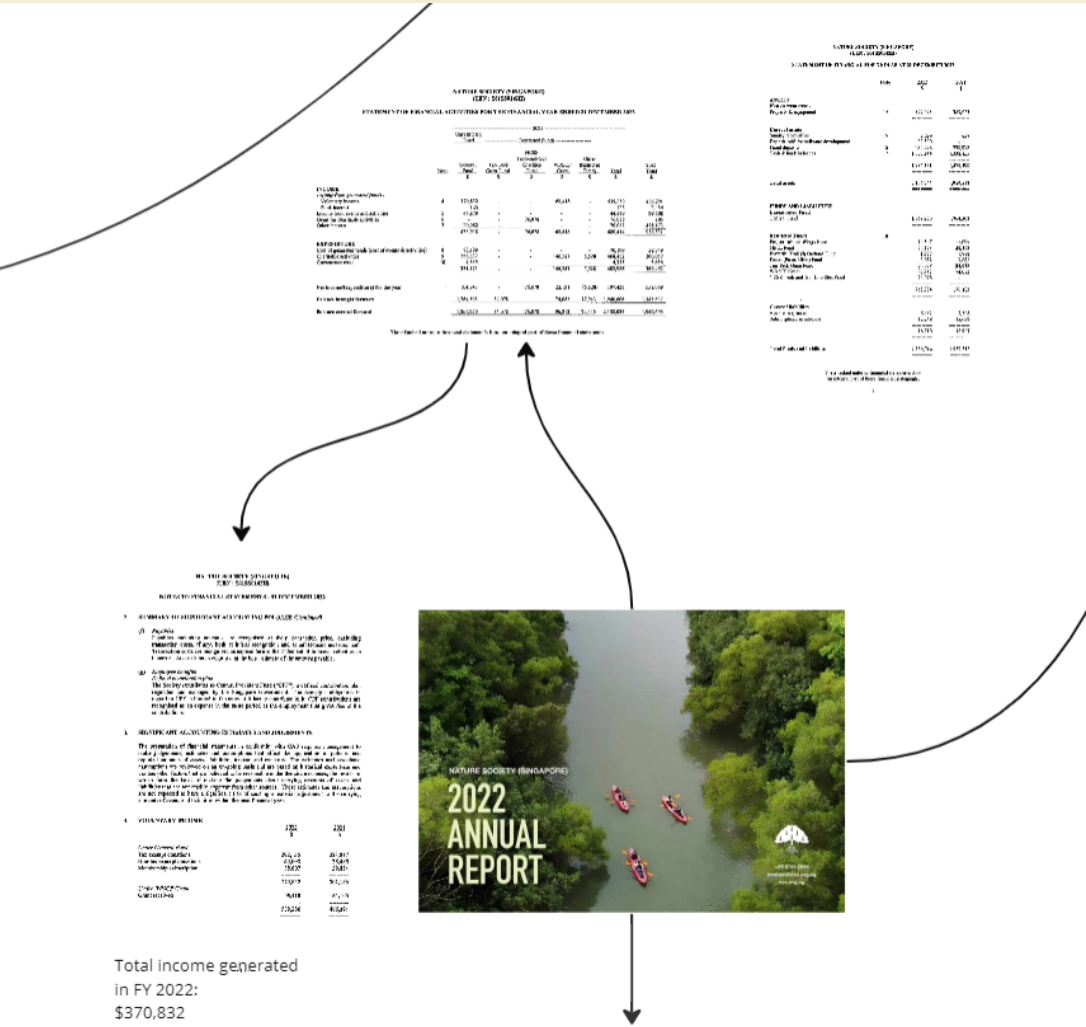
As a senior organisation, The Nature Society's funding situation is much more stable. They strongly emphasise tax-exempt donations and membership fees. Their credibility as an organisation, not to mention longevity, may play an important part in creating this stable base.

Most interesting was the discovery of the membership tiers, which are a pretty ingenious way of raising funds. The higher tier levels, such as corporate membership, may give these companies first dibs on Nature Society's variety of community and engagement projects.

Funding

- Membership subscription (see membership)
- Tax-except and non tax except donations
- Restricted Grants (Funds restricted to be used for specific intentions like eg. research)

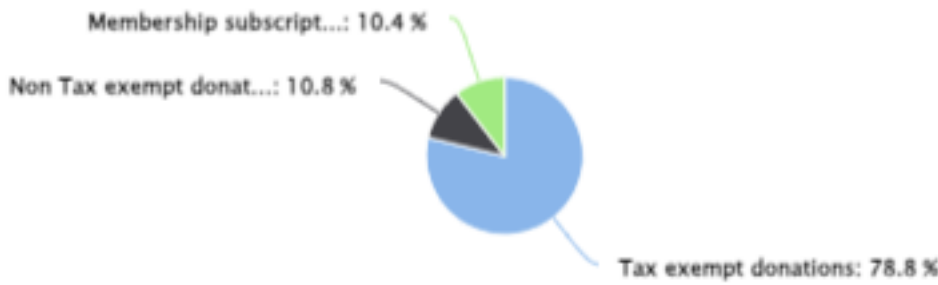
Based on an analysis of their latest annual report, their funding comes from several sources:



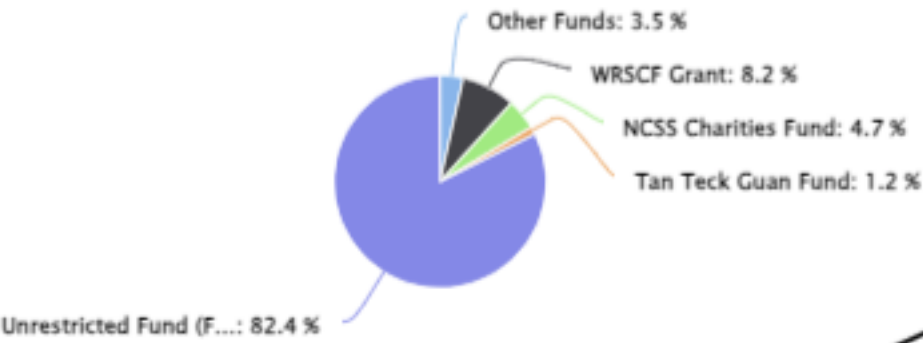
Total income generated in FY 2022: \$370,832

Voluntary Income generated

Pretty solid donation base



Total income balance



Membership tiers

**\$540 - Ordinary Member**  
Age 18 and above

**\$575 Family Member**  
Husband, Wife & Children under Age 18

**\$518 Junior & Student Members**  
Age 12-18 & Full-time Students Age 18-35 enrolled in a Singapore-based institution

**\$51,000 Life Member**  
Applicable to Ordinary Members who have joined for 10 years or more

**\$5200 Affiliate Member**  
Non-Profit Organisations & Schools

**\$54,000 Corporate Member**  
Nominal Fee of \$5200 + Annual Tax-Exempt Donation of \$53,800

NSS may need to articulate better the benefits of being a member

Possible NSS merch?

4. VOLUNTARY INCOME

	2022 \$	2021 \$
<i>Under General Fund</i>		
Tax exempt donations	292,135	223,817
Non-tax exempt donations	40,090	38,485
Membership subscription	38,607	39,884
	370,832	302,186
<i>Under WRSCF Grant</i>		
Grant received	168,418	164,105
	539,250	466,291

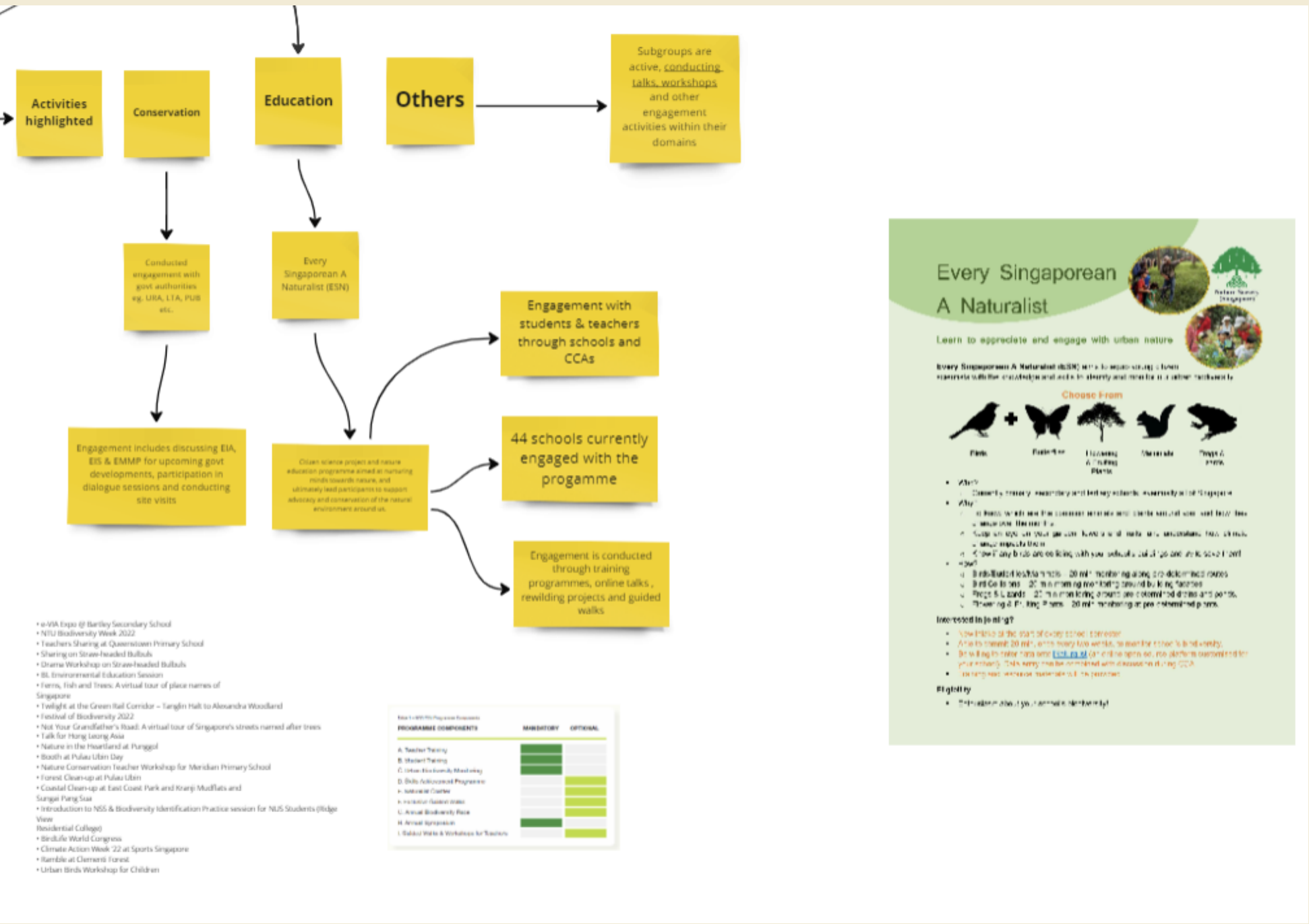


### 3.Engagment and Education

The Nature Society has many engagement programmes, some of which fall under their sub-organisations, such as the bird-watching group, which naturally engages those interested and involved with bird-watching.

Beyond that, they do many engagement projects, such as rewilding, beach clean-ups, talks, and workshops, which help in their advocacy efforts and spread awareness of the Nature Society itself.

The Nature Society's flagship programme, Every Singaporean a Naturalist, is a citizen science project and nature education programme with a clear mission to foster a generation of Singaporeans deeply connected to the natural world. Currently, 44 schools across Singapore are part of this transformative initiative. Students and teachers are equipped with the knowledge and skills to identify, monitor, and appreciate common species of birds, butterflies, frogs, lizards, and mammals in their schools. This hands-on approach not only encourages a long-term study of nature but also instils a deep appreciation for Singapore's biodiversity.



Sales Ended

View event

# Healing Outer World: Re-Wilding Project with Nature Society Singapore

View details

Follow this organizer to stay informed on future events

By Thekchen Choling Singapore

110 followers

Follow

NSS Youth Naturalist Leader Network (YNLN)

About

Launched in 2024, YNLN aims to engage NSS ESN Alumni and in-school students in working towards environmental stewardship, conservation, sustainability efforts within the school, community and beyond.

G20230218



Personal opinion

Personally, I am in favour of using the Nature Society as our NGO as there are many more options for us to use and play with, from its variety of engagement programs to the activities of its many subgroups.

Society’s much stronger financial base also allows us more space to think about our solution and action plan than the other options.

However, it will be a big challenge for us to narrow down our preferred approach and target, and we still should consider the limitations of what we could and couldn’t do for our project.

Strengths

- 1. Multiple activities:
  - \* Nature conservation projects
  - \* Cleanup initiatives
  - \* Guided nature walks
  - \* Rewilding efforts.
- 2. Social Media:
  - \* High Social media presence, including Facebook, Instagram, LinkedIn, and Twitter
- 3. Community Engagement:
  - \* Schools, communities, and special interest groups - workshops, talks, and events promoting nature appreciation and conservation
- 4. Membership base
  - \* Various membership tiers and engagement activities- solid donation base
- 5. Government Collaboration:
  - \* Engages with government authorities- site visits
  - \* Dialogue sessions- enhances advocacy efforts

Weakness

- 1. Outdated Website:
  - \* lacks a clear call-to-action and direct avenues for donations or membership sign-ups.
- 2. Information gap:
  - \* Inconsistent updates across platforms, blogs, and forums
- 3. Finances:
  - \* Reliant on donations, memberships, and grants

Opportunities

- 1. Online presence:
  - \* Improved call-to-action - attract more donations, volunteers and memberships.
  - \* Interactive content (videos, live sessions) on social media platforms - reach and educate a wider audience.
- 2. Merch and Fundraising:
  - \* Merchandise and fundraising activities - financial growth
- 3. Education:
  - \* Educational programs in schools-collaborate with educational institutions

Threats

- 1. Limited Funding:
  - \* Over reliance on donations and memberships-financial instability
- 2. Competition:
  - \* Competition from other environmental NGOs -divert attention and resources.
- 3. Public Interest:
  - \* Change in public interest toward environmental causes - affect engagement and financial support

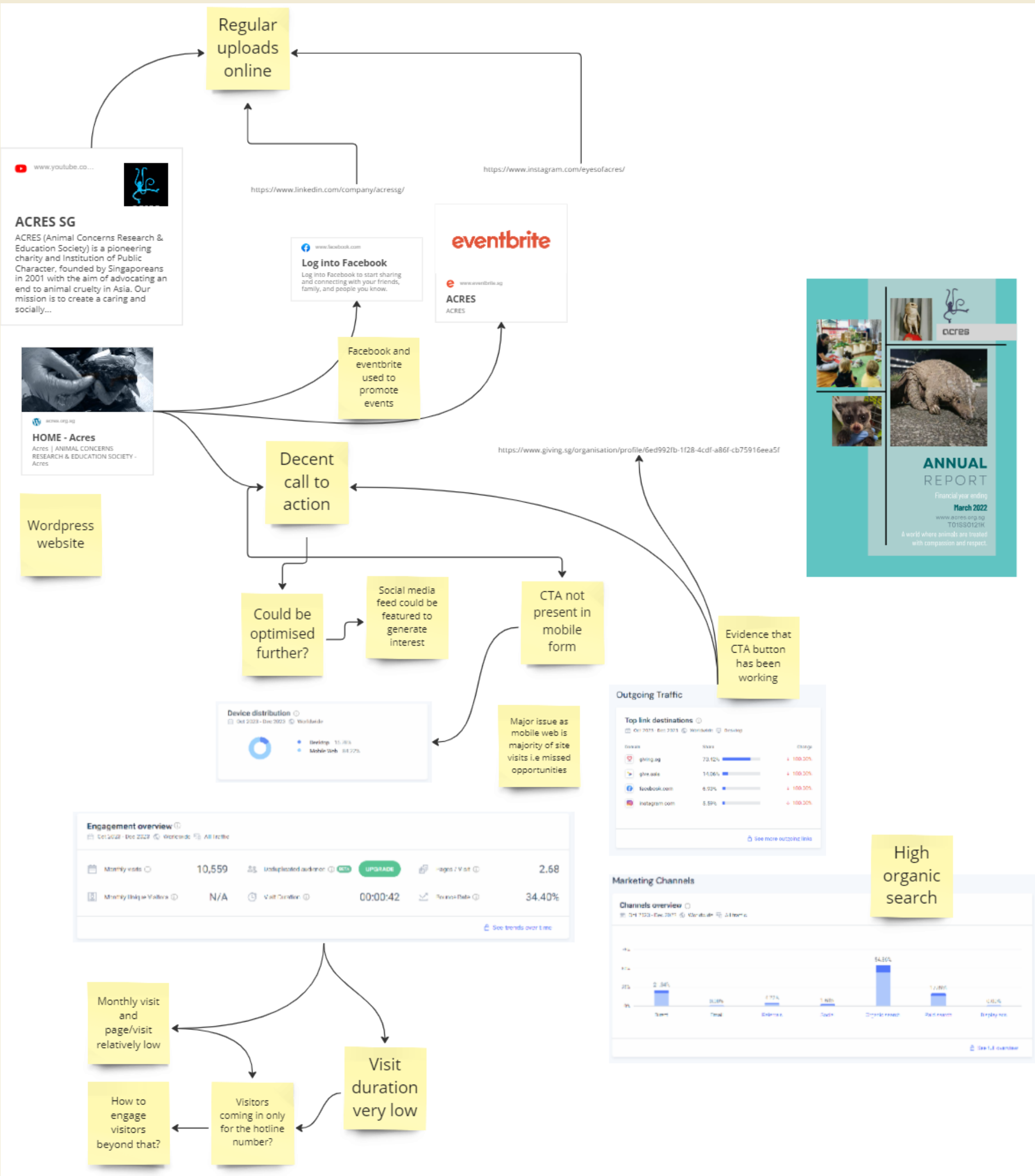
# Chapter II: Next steps

After extensive consultation with our lecturers, we decided to focus our project on Acres, weighing in their more directed focus towards animal welfare and more precise direction as part of our decision.

While Acres is widely recognized, particularly due to the ongoing advocacy of its founder and Member of Parliament, Louis Ng, for animal welfare, our project aims to delve deeper into Acres' operations and initiatives, beyond its founder's reputation.

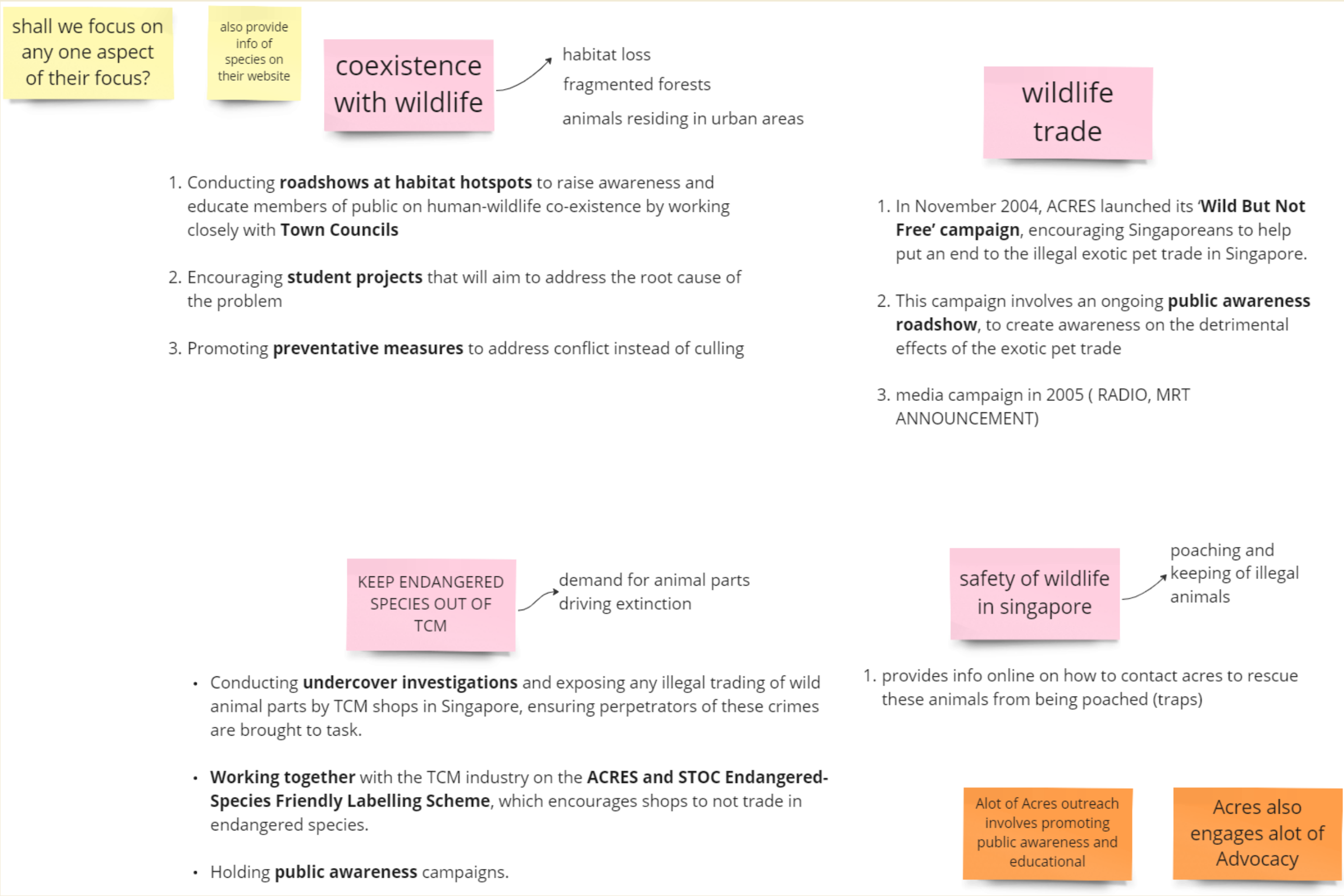
To that end, we researched the Acres online before engaging with them directly, allowing ourselves to be prepared with necessary knowledge before forming up potential directions and questions during our interview, with my side focusing on their online presence, viewing how they conduct outreach, get donations, etc., from the online perspective.

From there, I identified potential pain points, such as the poor visit duration, which we highlight could be due to visitors searching Acres to contact their animal rescue service rather than for other information. However, a better interface and engagement could do much more to get people hooked on visiting the site.





We started to go in-depth and studied their various engagement points and assess their suitability visa-vis to our own project.







The Wildlife Rescuer | The Other Sight of Singapore | Cha...  
YouTube | Updated 15-01-2024 @ 23:34 GMT+08:00

1. Seems to be an animal hospital where people can drop off the injured animals
2. Night shift starts at 5pm, on average night shift 5-6 calls but may be up to 11 to 12 calls
3. They handle roughly 600 to 700 cases a month
4. Snakes seem to be one of the most common calls during the night shift (snakes are nocturnal) because people are more concerned and scared of them
5. Morning shifts, they lose more time in traffic on rescues compared to night shifts
6. Their van serves similarly to an animal ambulance, they do checks on equipment to make sure their in good shape and stocked up
7. Sometimes the animals don't have to be saved but they go down to educate people anyways to raise awareness
8. They form 3 groups of 2 during night shifts



I Was Burnt Out - But Wildlife Rescue Work Must Go On | ...  
YouTube | Updated 15-01-2024 @ 23:34 GMT+08:00

1. Video touches on ACRES during the covid pandemic and financial recession during 2021-2022
2. Half of the ACRES team work in the rescue and rehab team
3. This charity needs 70k a month
4. Gala dinner is their biggest fundraiser, they raise up to 130k (got cancelled during circuit breaker)
5. During circuit breaker, to keep potential donors engaged they have been posting behind the scene videos on social media, they posted every other day
6. Rescuers need to have a very good range of knowledge of animals to come up with a rescue plan on the spot.
7. Other common animals includes civets, shrews, squirrels and birds
8. During phase 2, they received 1200 calls monthly whereas they had less calls during circuit breaker
9. Money seems to be a constraint on why the manpower numbers has been the same for the past 10 years

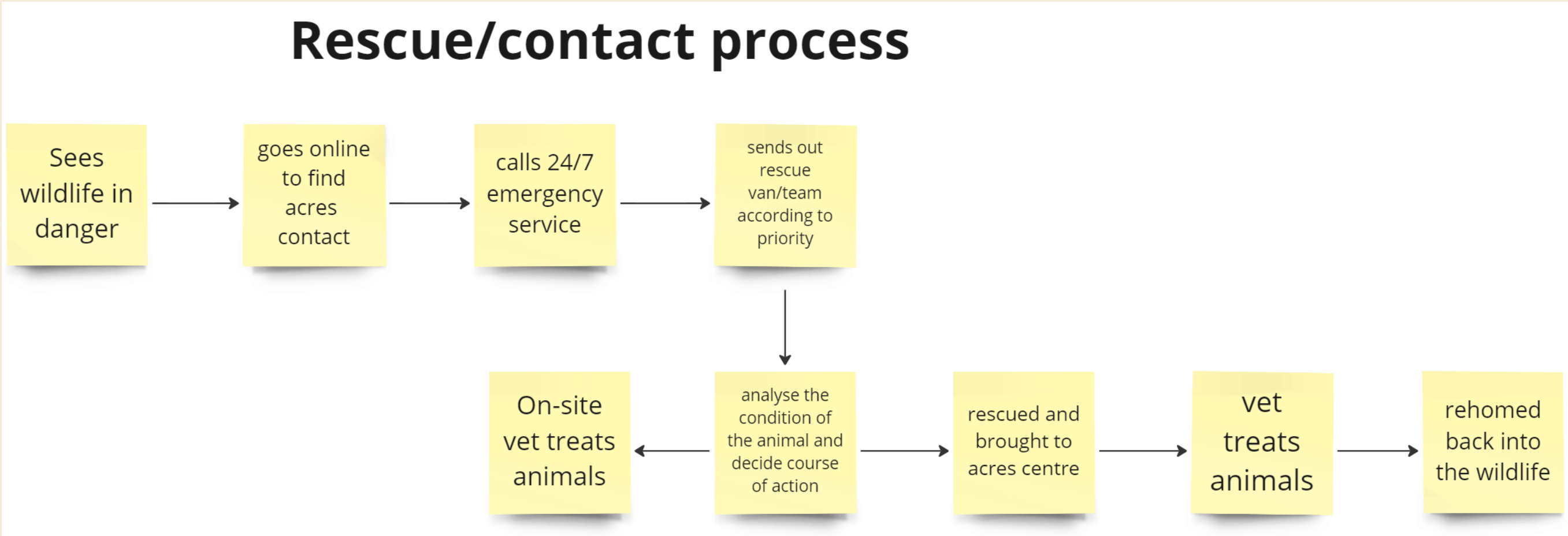


Working As An Animal Rescuer From ACRES | Unlikely Bed...  
YouTube | Updated 15-01-2024 @ 23:33 GMT+08:00

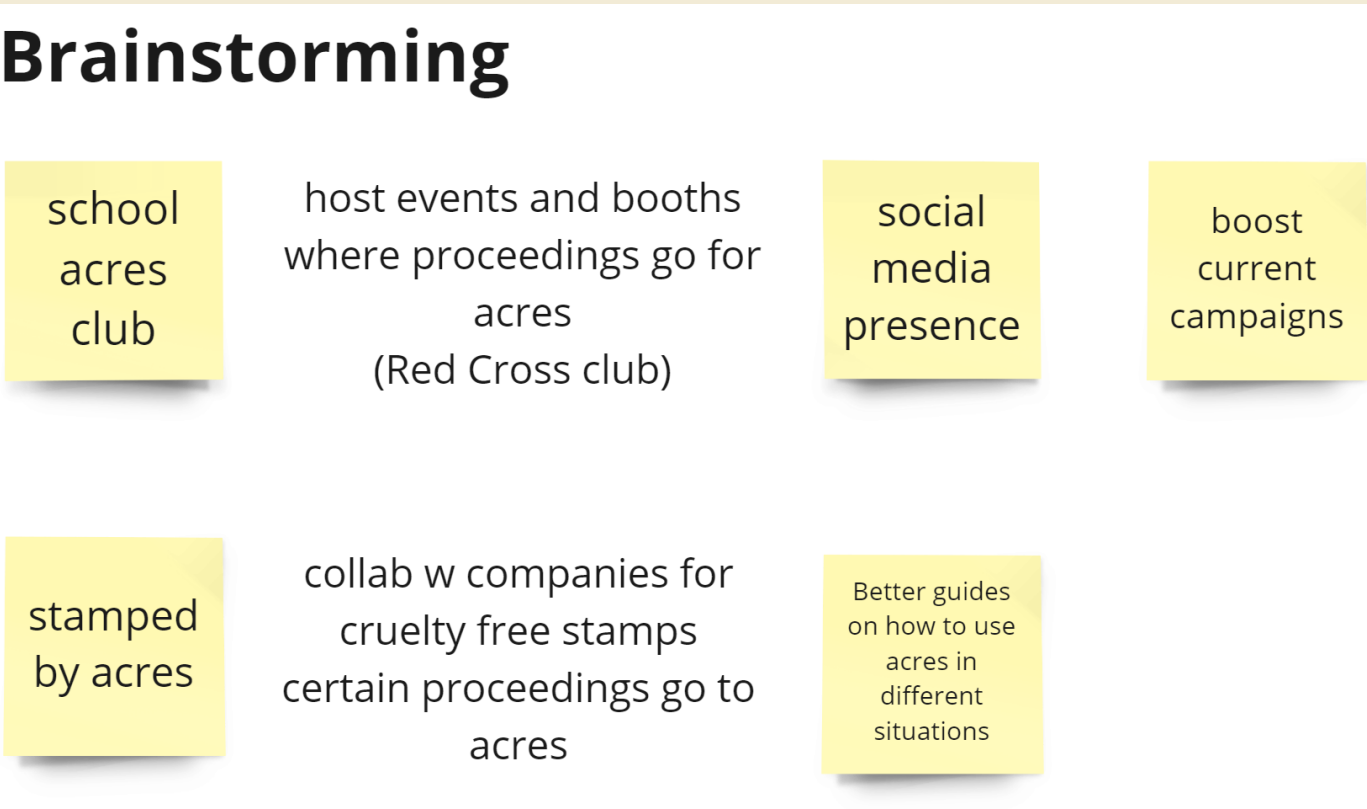
Videos produced by CNA and other content creators was helpful in understanding Acres operations, in this case, Animal Rescue.



Understanding potential stakeholders...



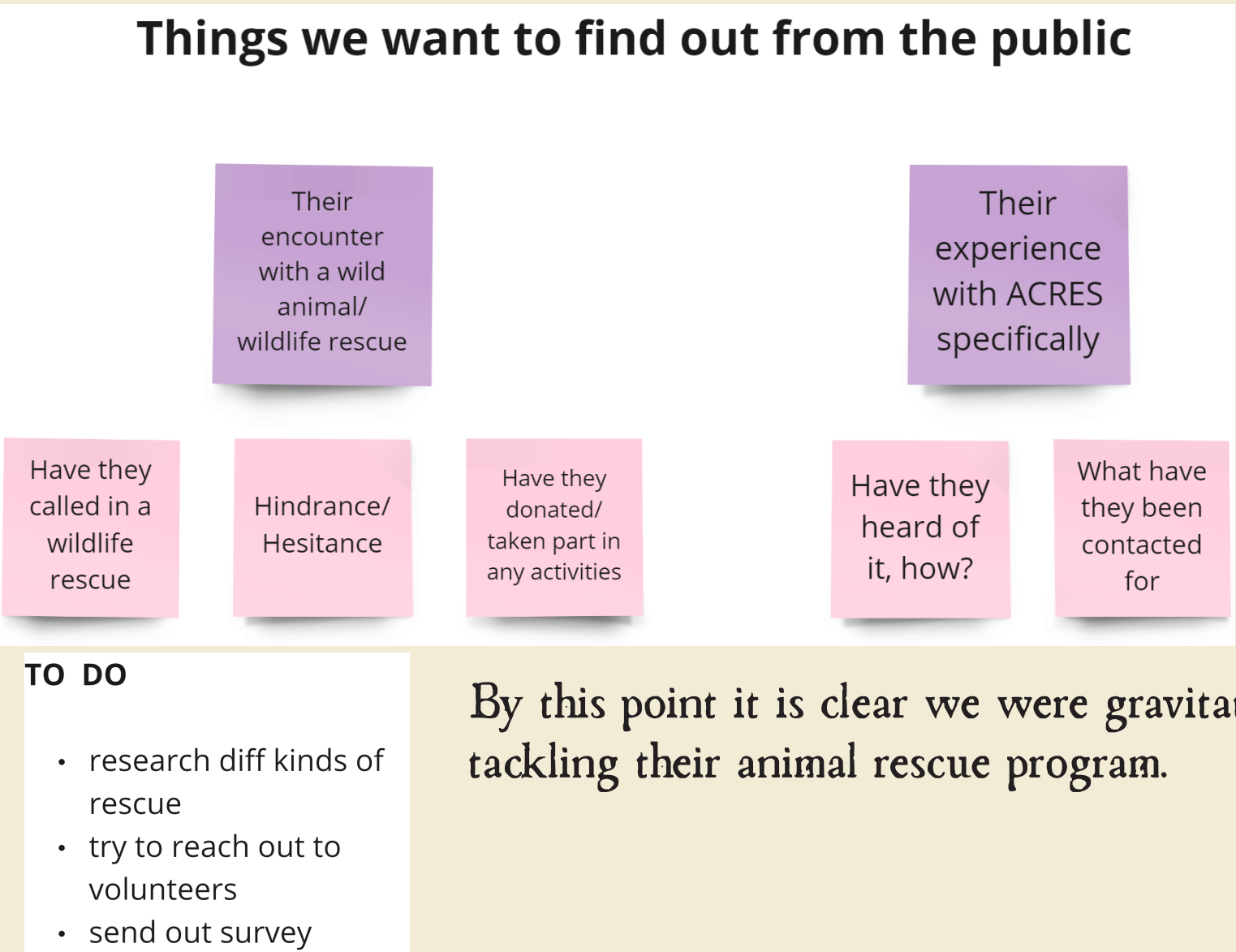
And figuring out how Acres rescue operations would go about. Until the interview, we'd assume that there was a support staff handling calls.



Initial brainstorming of ideas to help Acres



We also started formulating action plans to gather information



By this point it is clear we were gravitating towards tackling their animal rescue program.



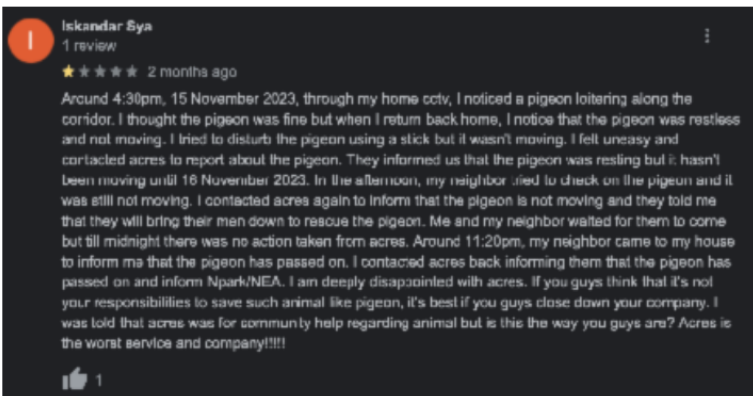
At this point, it was increasingly clear that we were heavily inclined towards Acres's animal rescue program section.

Our overview research clearly shows that while they are deeply passionate about this aspect of work, they are struggling in many ways. With my whole heart and consent, I firmly believe that if we directed our energy towards improving this part of Acres, we could make a tremendous impact, both on Acres and the animals they are very concerned about.

Thus, we started orienting ourselves to understanding the issues, the animal rescues, and, most importantly, the gaps in the rescue process.

Gaps

waiting  
time

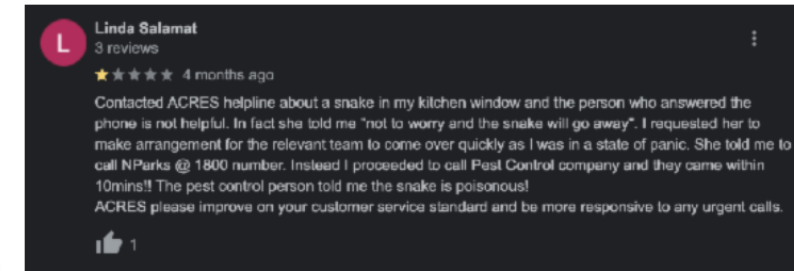


education  
and  
awareness

Public does not  
know who to  
contact  
(Nparks  
/ACRES/SPCA)

severity  
of diff  
calls

lack of  
information



Types of Rescues

**Wildlife Rescues:**  
Individuals may encounter injured, sick, or distressed wildlife and seek Acres' help in rescuing and providing appropriate care.

**Wild Animal Cruelty or Abuse:**  
Reports of animal cruelty, abuse, or neglect, either involving domestic pets or wildlife, may prompt people to contact Acres for intervention and investigation.

**Wildlife Intrusions in Urban Areas:**  
Cases where wild animals enter urban or residential areas, posing potential risks to themselves or the public, may lead to calls for Acres' assistance in safely managing the situation.

**Stranded or Trapped Animals:**  
Animals that are stranded, trapped, or stuck in unusual locations, such as drainage systems, construction sites, or buildings, may prompt individuals to seek Acres' expertise in safely relocating them.

**Injured or Orphaned Wildlife:**  
People may encounter injured or orphaned wildlife, particularly young animals, and contact Acres for guidance on appropriate care or rescue.

**Illegal Wildlife Trade Concerns:**  
Reports or suspicions of illegal wildlife trade, trafficking, or possession of protected species may lead individuals to reach out to Acres for intervention and reporting.

**Public Awareness and Education:**  
Calls for assistance in educating the public about coexisting with wildlife, understanding local laws related to animals, and promoting humane treatment may be directed to Acres.

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Calls for assistance in educating the public about coexisting with wildlife, understanding local laws related to animals, and promoting humane treatment may be directed to Acres.



# Survey Questions

Have you encountered wild animals in singapore?

What organisation have you contacted when encountering a situation regarding a wild animal?

If you have encountered a situation with a wild animal can you detail the situation?

If you have never been directly involved in a wildlife rescue, what barriers or challenges prevented you from doing so?

The next step they should do when they encounter wild animals.

reasons for contacting the NGO

What kind of wild animal does the encounter ?

How would you rate the effectiveness of wildlife rescue organizations in responding to and addressing wildlife emergencies?

Reasons for contacting the NGO in case of a wildlife encounter?

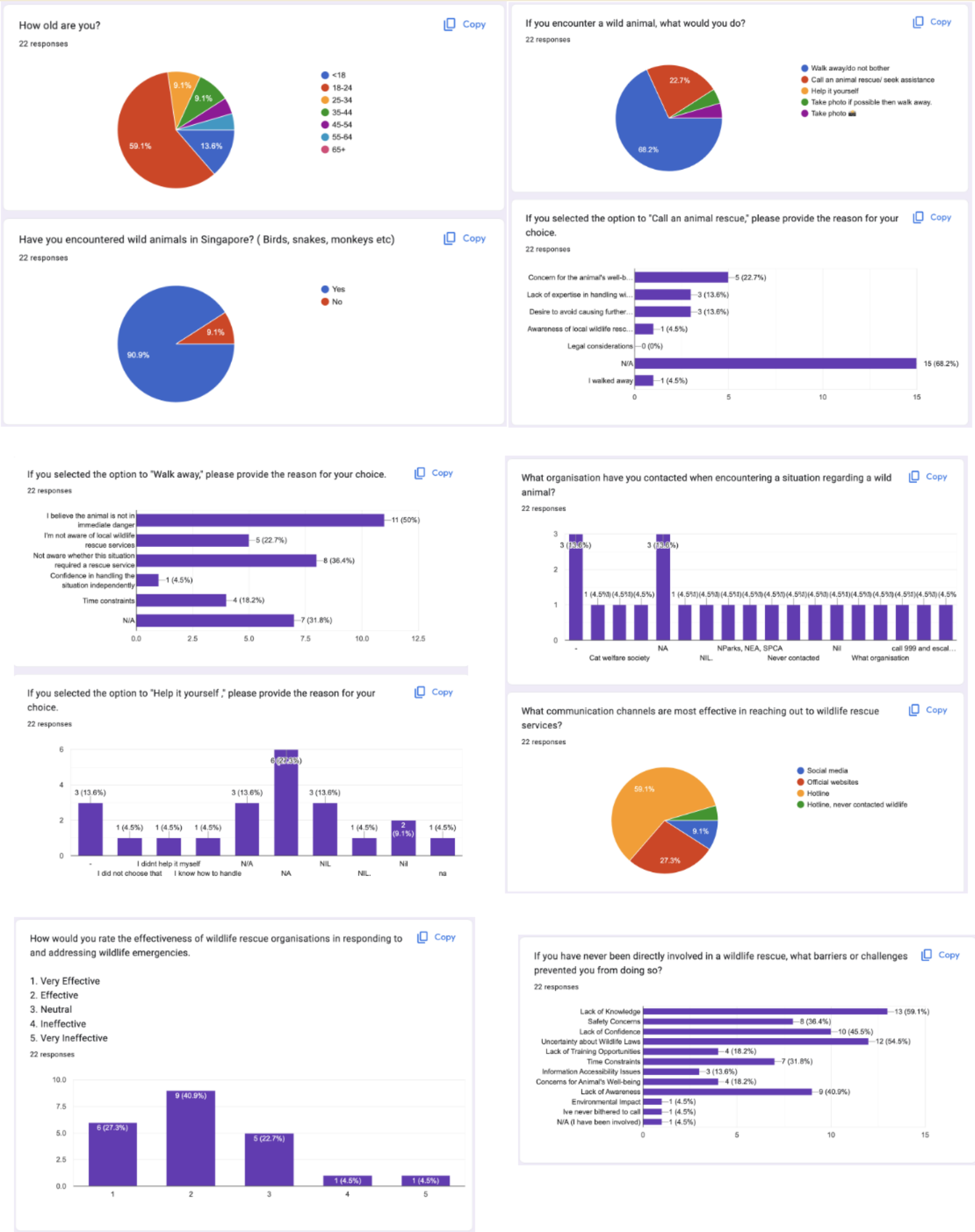
What communication channels are most effective in reaching you for wildlife rescue-related information?

if you encounter a wild animal would you walk away or call an animal rescue

if you encounter a wild animal would you walk away or call an animal rescue

Our team, in collaboration, crafted survey questions for the public. The aim was to gain a deeper understanding of their views and experiences with animal rescue, and how they respond in such situations.

At first, I was highly sceptical about the need to do a survey as I believed we only needed information from Acres to understand our next course of action. However, the answers we have gotten from the survey surprised and intrigued me, and I was thoroughly humbled.



## SUMMARISED POINT

The vast majority has encountered wildlife of all forms

they have lack of awareness when they see any wildlife out there.

However, a substantial number does not render help nor contact assistance

However, a substantial number does not render help nor contact assistance

People tend to take pictures instead when encountering wildlife

The hotline seems to be a much more major source of awareness compared to website and social media

The majority that did not render assistance may not be aware that the wildlife require help

However, respondents believe that rescue orgs have been doing a good job

before we settle on the rescue topic, our main goal with the survey is to find out about the general attitude towards wildlife.

Many people have encountered wildlife, but a significant portion doesn't offer assistance, possibly due to a lack of awareness that the animals may need help.

Despite this, respondents generally believe that rescue organizations are doing a commendable job. The lack of awareness is evident when people come across wildlife, with many opting to take pictures instead of providing assistance.



**Herpetile Roadkill Project**

As we know, Singapore is a highly urbanized country! We have over 9500 kilometres of paved roads and just under a million motorised vehicles! Sadly, this comes at a high price for local wildlife. A...

**2023 WVC Report Map**

**2023 Taxa Breakdown**

- 163 SNAKES
- 46 LIZARDS
- 32 AMPHIBIANS
- 6 TURTLES

**2023's Top Reported Species**

- 74 MALAYSIAN WATER MONITORS
- 43 ASIAN TODADS

**Herp Roadkill Records**

**Dendrobates agalensis** (Agouti) (Singapore, 2023)

**Varanus salvator** (Monitor Lizard) (Singapore, 2023)

**Naja sumatrana** (Equestrian Spitting Cobra) (Singapore, 2023)

**Asian black-spined toad** (Singapore, 2023)

**Duttaphrynus melanostictus** (Asian Common Toad) (Singapore, 2023)

**Calotes versicolor** (Spotted Lizard) (Singapore, 2023)

**Common Animals**

- Snakes: Bronzeback, Retiulated Python, Equatorial Spitting Cobra
- Lizards: Monitor Lizards, Changeable Lizard
- Amphibians: Asian Toad

**roadkills**  
**bird traps**  
**accidental tap/injury**

Upper Seletar Reservoir and Upper Thompson

Tengah

Rifle Range Rd

Harding Rd

## iNaturalist

citizen-science database  
any member of the public can contribute sightings to it

**How It Works**

- Record your observations
- Share with other researchers
- Discuss your findings

iNaturalist helps you identify the plants and animals around you while generating data for science and conservation.

iNaturalist is also being used as a tool for stewardship to help gardeners [avoid accidentally planting invasive plant species](#) and helping golf courses [diagnose tree diseases](#).

**Who Eats Whom?**  
A GLOBAL FOOD WEB

**Projects**  
These projects are your chance to add value by contributing data to areas such as understanding the effects of climate change on biodiversity, or the impact of land-use changes on our environment.

**Green = Plants**  
**Red = Insects, Molluscs, Arachnids,**  
**Blue = Ray finned fishes, Birds, Amphibians, Reptiles, Mammals, and "Other Animals"**  
**Pink (kind of a Magenta) = Fungi Including Lichens**  
**Brown Red = Kelp, Diatoms, and Allies**  
**Purple = Protozoans**  
**Gray = Unknown, Prokaryotes, Bacteria, and Viruses**



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# Chapter III: Site Visit and Interview

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We decided to visit Acres' headquarters and rescue centre at Old Chua Chu Kang Road. The area is generally inaccessible without private transport.

For context, a significant portion of my life was spent at HomeTeam Academy located within the same area. Even that was considered challenging to reach by the average Singaporean. However, the situation at Acres's HQ is even more dire. We must consider that only 11% of Singaporean households own a car, which means the vast majority of Singaporeans cannot reach only ables HQ without renting bying a cab. This lack of accessibility is a pressing issue that needs to be addressed.

We also found a drop-off point cage outside the HQ, which looks slightly ragged and old but decently maintained despite being exposed to the elements.

We also interviewed Aaron, a Wildlife Rescue Officer who was tirelessly involved in the rescue operations. His dedication and commitment are truly admirable. However, it was a shocking revelation to learn about the strain on their manpower. We discovered that only two individuals are tasked with conducting rescues and managing incoming calls at all times. This, coupled with having only one in-house vet to handle all those cases, underscores the significant manpower challenges they are facing.





# Aaron Text Interview

What is your official role/ title in ACREs and can you also share about the rescue process or common cases you guys handle?

My official title is Wildlife Rescue Officer. Primary role is to handle incoming calls and go for rescue. We also all do animal care when we aren't on rescue.

A typical rescue...so there's 2 people on shift. 1 driver, 1 handling the rescue phone. When a call comes in, it is logged immediately. We can get up to 40 calls in a shift, so logging accurately and timely is critical. The rescue team plans out our route by the location and urgency of each case. With just the one van to cover the whole island we must constantly update our planned route.

Ideally, by the time we arrive at the location we've gathered enough info about the setting and the animal to have a rough idea of what to do. Often it's as easy as just collecting an injured bird to take to our centre for treatment. Sometimes it can be as involved as hacking a sidewalk drain to free a stuck python. A pretty typical case would involve trying to figure out where a baby bird might have dropped from with no nest in sight. Then deciding the best way to put up a makeshift nest that is secure, covered, and still close enough that the parents will find it easily. Every case is unique.

I volunteered doing rescue for about a year or more before coming on full time last February, so at around 2 years experience I'm still relatively new. The basic structure of the process (log the call, evaluate the situation, plot the route, handle the case) has been pretty consistent. That question may be better answers by someone who has been around a bit longer 😊

During the rescue process, do you guys patrol certain areas because cases in a certain neighbour hood will be higher?

Ehh guess it depends on how you mean, we don't really "patrol" at all. We respond to cases as they come in. We definitely do get a lot of cases from certain areas like Bukit Timah for example, so we do spend a lot of time there.

It's actually really very common to hit four sides of the island in a shift. The wildlife is concentrated in the parks and reserves... so having cases near Changi/ECP, Bukit merah/Mt Faber, Punggol/Yishun, and Jurong all in one shift is not unusual. Whereas it's less common to go to more commercial districts like Orchard, and we are only occasionally called to CBD. Although, we do treat pigeons so anywhere they are found, we'll get calls. And they are found everywhere lol



## Drop off point at ACREs headquarters

This is the drop off point at ACREs headquarters. When people are able to drop off the injured animals this is what is used to contain them until they can be attended by ACREs staff.

It contains steps of how to notify the staff, a donation QR Code and their social media page links. Also a very outdated hand sanitiser bottle.

I was thinking there might be an opportunity to create smaller pick up points for ACREs that are manned by volunteers to help keep an eye on the injured animals because some people are unable to go all the way to their headquarters or unwilling to wait and keep an eye on the animals to make sure they are alive.



## My Mother's experience with ACREs (By Damien)

My Mother picked up an injured and starving baby bird from Orchard Rd last year Sept on the way to her Zumba class. She didnt know what to do so she first took the bird to class and brought it home to feed it Qinouia and Peach. She only thought of to contact ACREs later who directed her to put the bird in a cage with towels draped over it. While contacting ACREs they were suggesting if she could deliver the injured chick to their head quarters but my mother was only willing to "meet them halfway" at a nearby neighbourhood instead. They said its ok then nevermind they will come down in 45mins.

After which they asked her how she found the bird and if she fed the bird in which they advised her next time not to feed the injured bird next time. Although they did not the chick probably has not eaten in a while and was most likely abandoned by it's parents and fell out of the nest.





Interview notes/ points

- pros to taking calls on the road.
  - they get **assess** the nature and severity of **the call themselves**;
  - get to **respond quicker**, rather than the call centre person getting back to the caller later.
- cons to talking on the road.
  - However, getting **difficult to manage** now with the amount of calls they have been getting.
  - Also difficult cuz of the number of **non emergency** calls
  - Need to **talk the person through**, while balancing the rest.
- Closer to Mandai, and also Nparks;
- In regards to **roadkill**, they gather the body for certain rare animal breeds to pass them to Mandai.
- If they are **unable to manage** the injury of an animal they also pass it to Mandai.
- There isn't any **one specific area** that has more sightings of a specific wild animal, they get calls from everywhere; particularly town area.
- They have a **map/database** for rare/endangered animal sightings/injury;
  - Created by their stakeholders at **NTU**
  - Really helps cuz ACRES **doesn't have the resources** for it.
  - Shares database with other organisations upon request; usually **sensitive info**
  - Rather than focus on the location where the calls are coming from, they think in terms of what is happening that so many cases are being reported.
- During the rescue, send out shortcut messages to people.
- The lines of wildlife are constantly blurred/they need to keep up with it. (Abandoned animals)
- Have a policy where they don't follow up with the people as it will be harder to manage/deal with them more

The interview was most enlightening as we started brainstorming afterwards, taking the opportunity from the gaps we identitied and have started to map out the opportunities and potential solutions

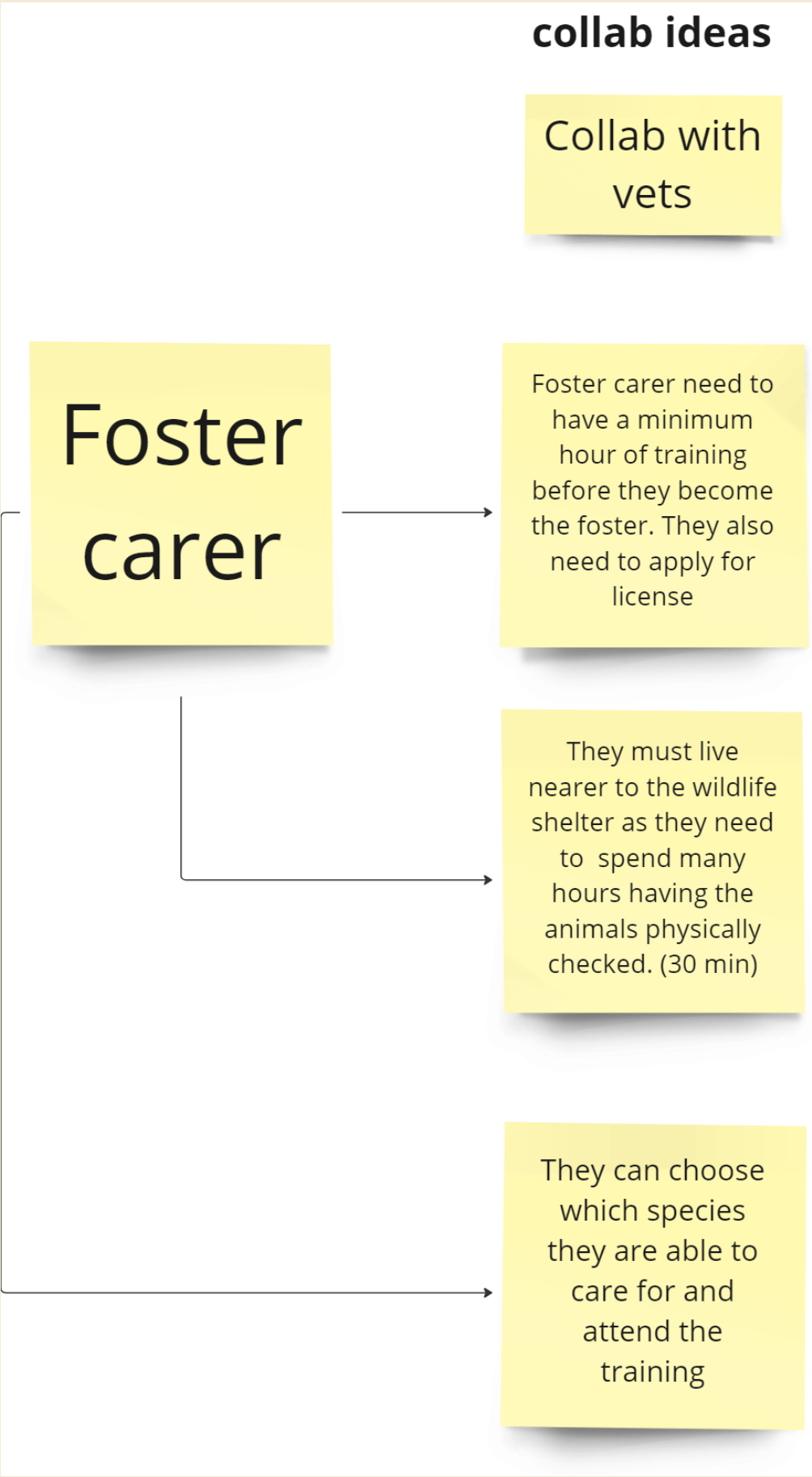
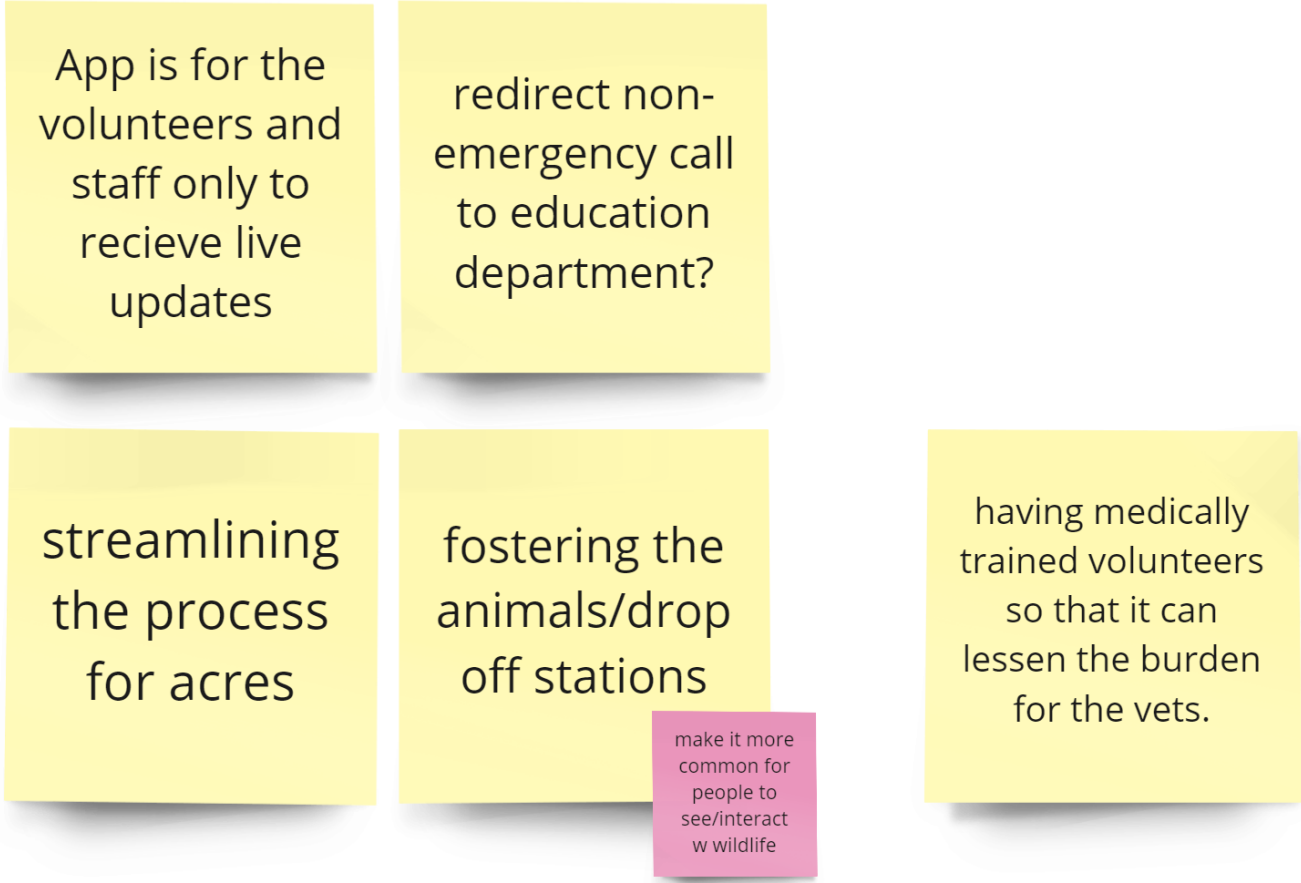
Struggles

- People have a sense of entitlement that the NGO must take the animal off of their hands. (do their job)
- If action isn't taken quickly enough people threaten to injure the animal.
- Stay with the animal until they arrive
- People trap animals found in their garden
- Moving towards sustainability and nature, but not ready for the wildlife/ things that come with it.
- People are only willing to send the animal in if they say they can only come down the next day.
- they struggle with letting the audience know that they are supposed to be called when a rescue is need instead of calling them for fun.

Other issues

- Manpower
- Pay rent on land cuz it gov land
- Makeshift enclosures (get damaged during storms)
- Not enough space to take in a lot of animals

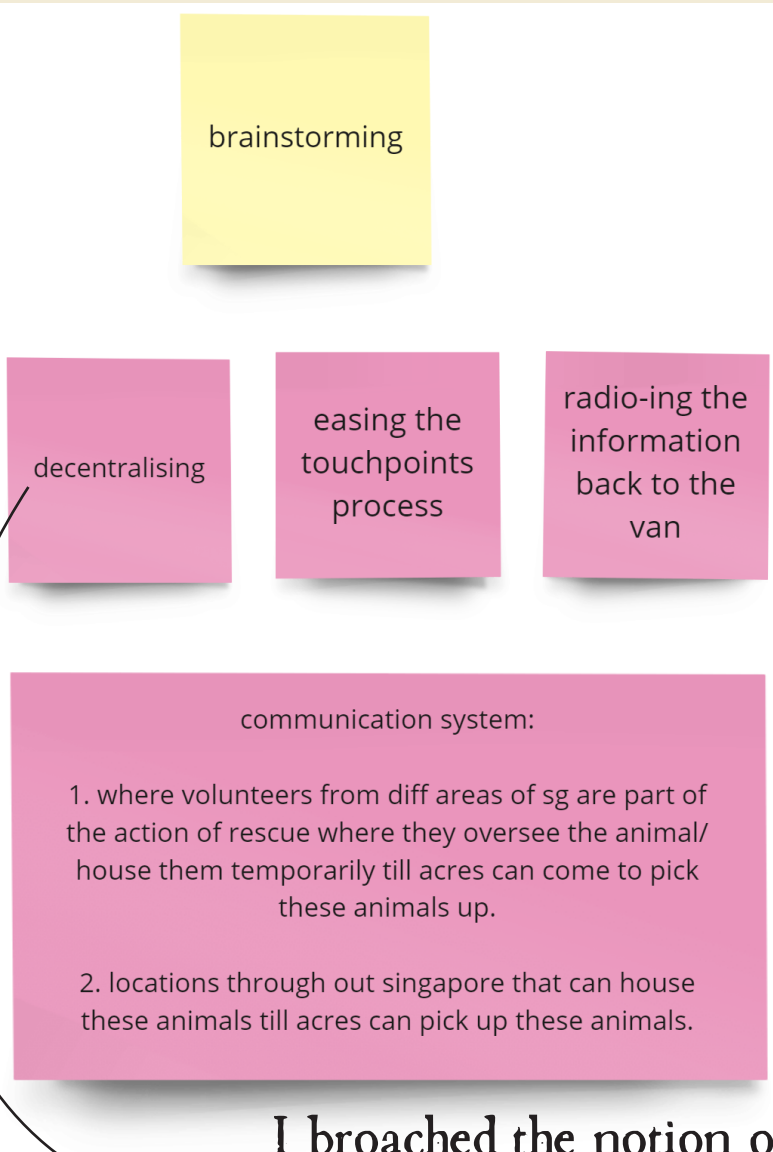
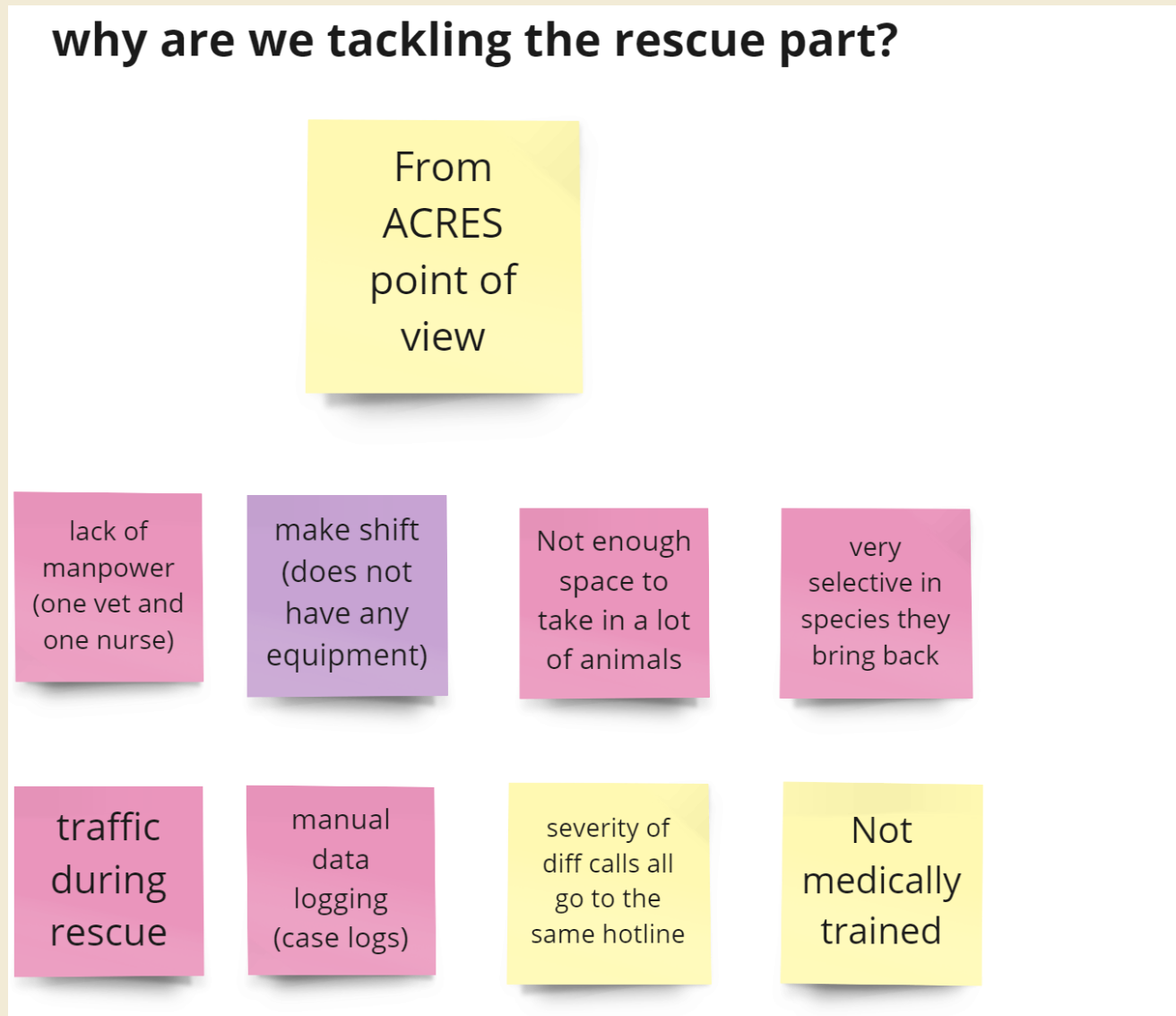
Suggestion



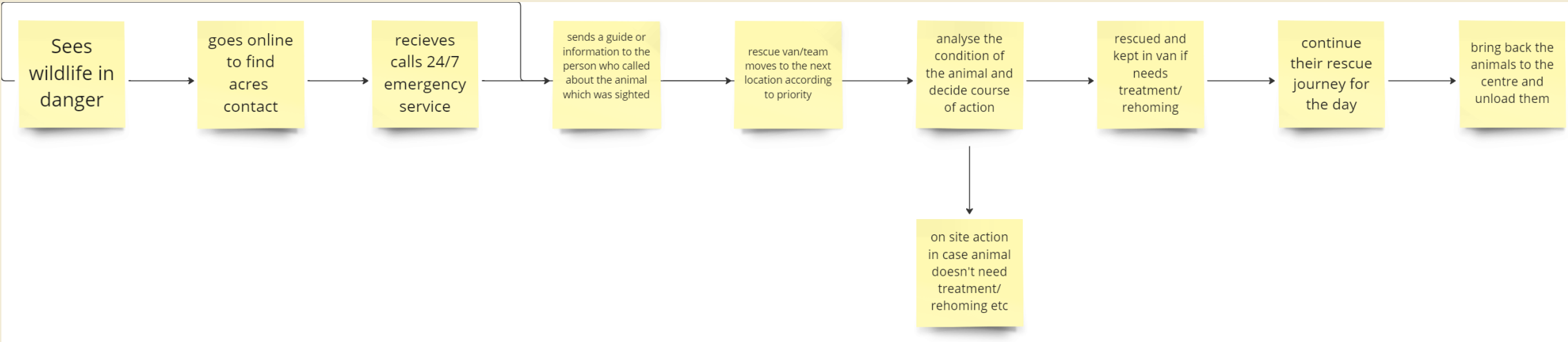
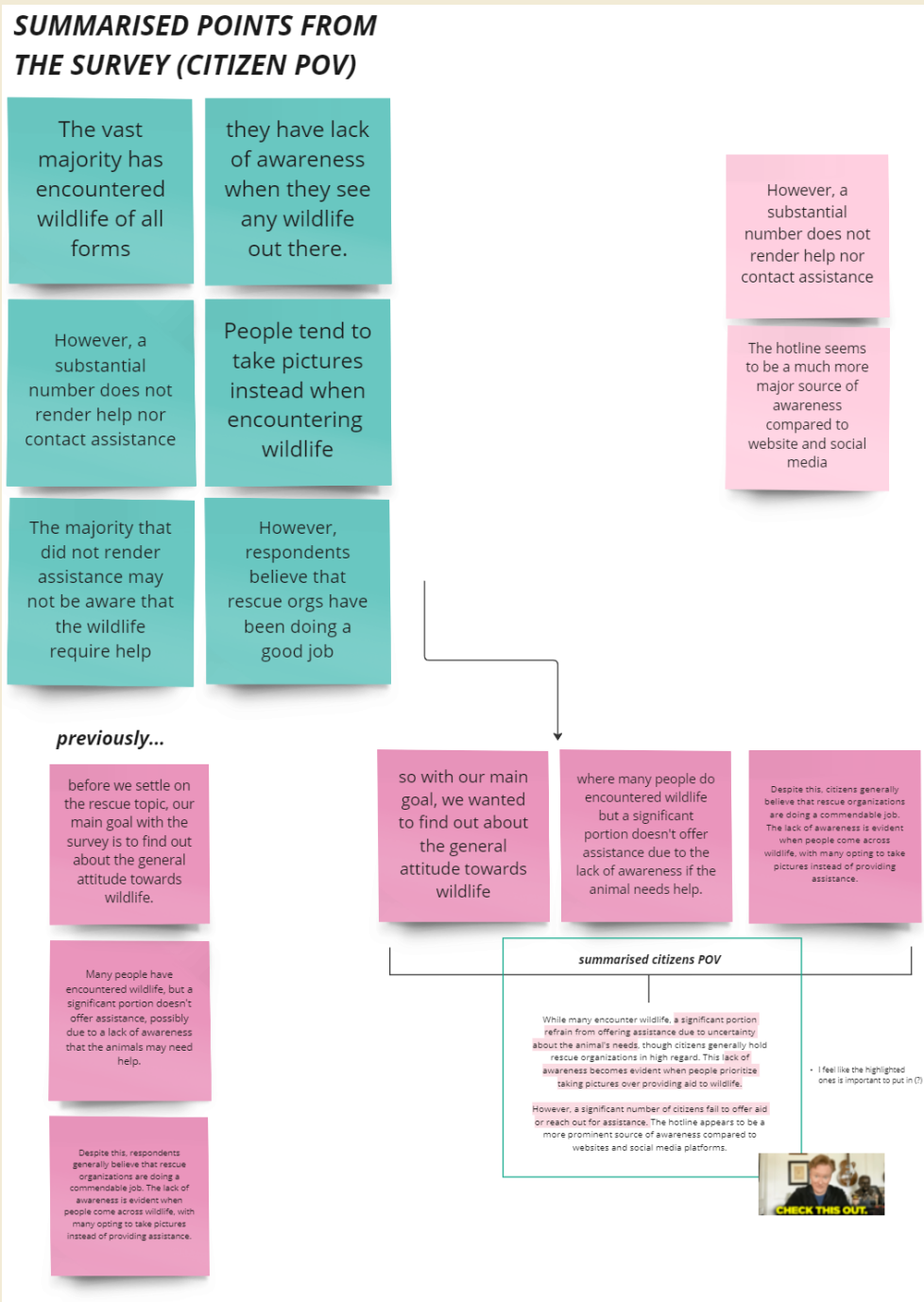
# Chapter IV: First major presentation

For the first significant presentation, we held a wide-ranging discussion on how to structure it, from presenting our information and findings to pitching our possible opportunities to our lecturers and our comrades-in-arms.

I contributed to the creation of the slides, from the design to aspects of the language, ensuring we were doing our best to convince the class of the viability of our direction.



I broached the notion of decentralisation, allowing others to take active action on saving injured animals and relief a key pain point of the rescue team.






# Our Proposed Solutions:

## OPPORTUNITY #1

### Community Drop Off points

- Creating temporary shelters cum drop-off points for easy access for the callers.
- Facilitating community engagement through accessible and convenient avenues for everyone to contribute and make a difference.



I am supportive of this idea as I am confident that Acres can leverage support from the community and that it would be a cost-effective way to manage calls by relieving direct pressure on the team.

I would question however if it is safe to do it within community spaces, especially with the spate of random animal abuse cases happening in the country. Any acts perpetrated whilst under Acres drop-off point section may negatively affect Acres's reputation.

## OPPORTUNITY #2

### ACRES support team

- Stationed from their homes, these support staff provide immediate assistance and care, managing waiting periods until the main rescue team arrives.
- Fostering community empowerment involves training individuals interested in contributing to the rescue process and equipping them with the skills and knowledge necessary.




I initially supported this idea as I have faith and confidence that Acres would be able to train and maintain a corp of volunteers, not to mention using the opportunity to expand their agenda towards prime targets such as students.

However, the more that I pour my thought on this idea, I wonder if we are optimistic on this front.

## OPPORTUNITY #3

### Enhancing our internal framework

- Creating an internal communication channel in coordination with the ACRES team and other stakeholders
- Future proof increase in call numbers, pushes efficiency and better coordination
- Allows for more flexible ways for volunteers to help and connect with ACRES off duty.



I firmly support this idea as I believe it is the most effective proposal we could make, leveraging possible outside solutions such as business plans for communication apps and implementing them into Acres' daily operations.



# Chapter V: Feedback and moving forward

4 00:00	Thank you. Aside from rescuing, do you have any other point? At the moment you are focusing on rescue. Yes.	1 01:44	They are where wild animals live. Okay, so first thing. Second thing, it might be good to start to map your information you have regarding the call. I'm just curious if the call to rescue align with the biological map. I think I did as well. Because the reason, because one of your strategy	1 03:14	We can compile information and assume. For example, you search in Google, right? Just search Singapore vegetation map, for example. You're gonna get the map, and in the map itself, it will identify where is a primary forest. Okay, then they can have a second tier. They can have this thing called old secondary forest. Primary forest is confirmed the way that the biologists label that way, because it's a habitat.
1 00:08	I think it's quite clear based on the habitat alone. I think Singapore more or less needs probably two areas that you can really see the level properly as the primary problem. Which is still be a habitat, which means around the central area, Bukit Gimah, all the way to Mandai, that area. But Mandai now is already cleaned up. Another area, I think, is also nearby, Pulau Ubin, Paran, and Kampong. So that analysis together, I know the more I listen to these animal-centric issues, I start to think that	1 02:06	But it's become necessary. The reason is because one of your strategies is to look at the strategically-planned point, right? When it's about manpower shortage, aside from the system alone, one thing is about management. Do you have the limited amount of people? Do you need to centralize them somewhere? At least they could monitor that. It happens around these areas as well. I don't think it's going to happen at the Shanghai airport. I think these are the areas already removed. And once you map that, you start to see the point where an animal lives,	1 03:38	It's really where wild animals live. But old secondary forest is where, if you wait longer, wild animals will start to expand from primary forest to old secondary forest. Then you can really overlay that. Then you start to spot where the problematic points are. which is where we live in the HDB estate or condominium estate, overlap with all these areas. For example, you start to be able to solidify the state in a more tangible way. There is actually another way this wild animal travels, which is over through your parkland.
1 01:06	it might be good to have the present. To look at two things. First, it's a map talking about the existing habitats. Look at it objectively, okay? Which is mean usually we spot the area where it's really categorized properly as a primary forest. Okay, which is now left only, I think,	1 02:37	and where we live, and where it overlaps. That's the problem that we have. That might be the value.		
1 01:25	one or two percent of the whole land. Okay, that is where the wild animal really live. If you want to count the marine life as well, definitely it's not the South Sea. It should be the North Sea. It's still a field, not a field. So you can start to plot those areas that tentatively they are habitat.	3 02:45	We started off with the location, so we kind of mapped out where these sightings are going. So we also like, when we were interviewing the ECO team, we asked them also. So like, contrary to what people believe, it's actually like housing areas that get the most number of calls. Because if you see animals usually near like these forest areas, that's where they're supposed to be. So there won't be calls from those areas. So calls are more concentrated in housing areas like HDBs, condos, or landed property. So it's hard to like map out where exactly?	2 04:19	So there are of course a lot of sightings of snakes, but they are usually in HDB near the park. So I guess you just need some guidelines to help you be able to start identifying what you call strategic locations. So then the insight is a little bit more useful. The conflict comes because human beings in the urban environment doesn't know how to handle animals that are supposed to be in the wild. Which I don't think is our problem. The thing is, if you see them in Bukit Timah Nature Reserve,

Key pointers from our feedback include the need to go further if we are conducting mapping, including potentially using data gathered from public and possibly private sources (From Acres?) to comprehensively see where cases of animal sightings, injuries, and road kills are happening.

The latter is challenging as Acres has highlighted during our interview that they are guarded about who they share their data with, especially since some of the data may include sightings of endangered species, which is sensitive information.

We also explored potential areas for our drop-off points.

Funnily, part of the exploration involved the rifle range road area, which is effectively an extension of my neighbourhood, with a park connector to that area conveniently located only a few meters from my place.

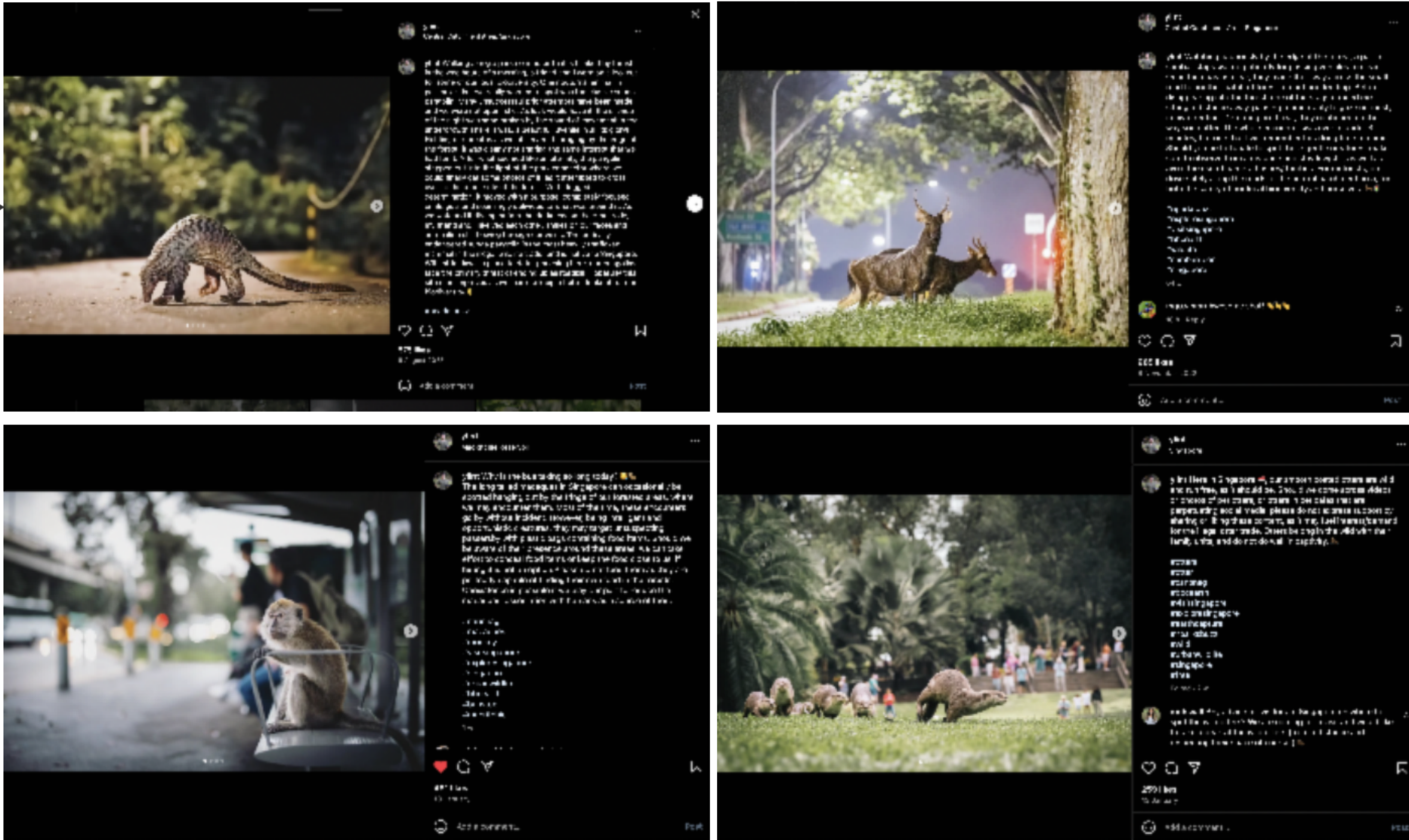
Thus, I can vouch for the ‘wildness of that area’, with monkey and wild boar sightings common. It is also a busy area for a variety of Singaporeans (Nature enthusiasts, joggers, bicyclists, etc.). So, I can definitely foresee the utility of having a system in place for these people when they encounter wild animals.



Public sightings of these animals in urban areas

<https://www.instagram.com/ylint/>

photographers who take on these locations will have a good idea of where the animals are.



Roadkill sightings 9 May 2023

Monitor lizard

Asian sunbeam snake

Critically endangered Sunda pangolins at risk of losing their home in May 2023 Tengah forest BTO site

Central Catchment Nature Reserve

Bukit Timah Nature Reserve

1900 units of 2B Flats, 3B, 4B & 5B

Sunda pangolin (Manis javanica)

Western wetland forest

Tengah forest

Central nature reserves

NEW ECO-PEDESTRIAN BRIDGE FOR WILDLIFE AND PEDESTRIANS

Tengah forest in 2017

Tengah forest in 2023

Wild boar

Long-tailed macaque

Leopard cat

Singapore's housing push sees more wildlife encounters | Time is running out for Tengah forest

Bridges for animals - Urban Green Lab

HDB | MNH - Explore Our Green Green Grass of Home Across HDB Towns

New nature corridor for wildlife identified in Clementi for ecological connectivity

person finds animal and calls acres but its not a severe case so acres sends link to the caller

link opens acres website section where caller can key in their address and find nearest support staff or drop off location

they call the support staff and they either guide them through the process or actually come down to help them.

they drop the animal at the nearest drop off location

acres rescue team picks up the animal from the location after tending to more severe cases

is there a way to avoid the calling process for non emergency cases


www.nparks.gov...

NATIONAL PARKS

LET'S MAKE SINGAPORE OUR CITY IN NATURE

Eco-Link@BKE

The Eco-Link@BKE is an ecological bridge that spans the Bukit Timah Expressway, connecting Bukit Timah Nature Reserve and Central Catchment Nature Reserve. The first of its kind in Southeast Asia, its main purpose is to restore the ecological connection...



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# Chapter VI: After London

After our exchange in the United Kingdom, we returned and moved forward with our Acres project.

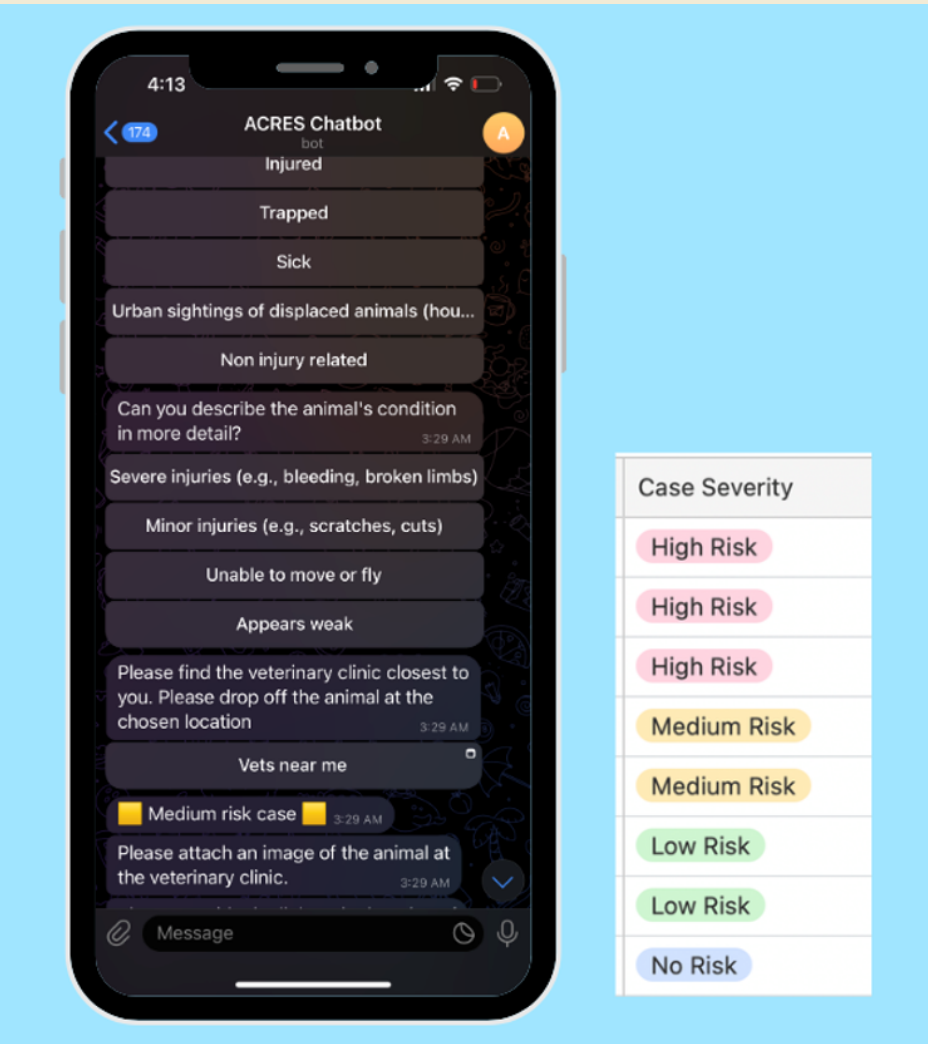
Together, we engaged in a comprehensive discussion to identify the most promising opportunities for our project.

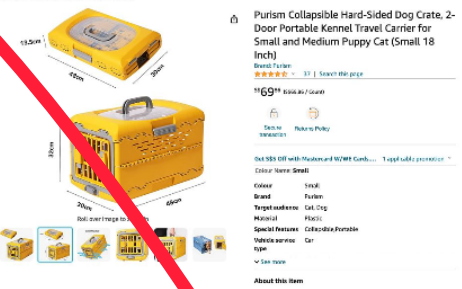
After careful consideration, we decided to set aside the second opportunity. This was primarily due to concerns over staffing and cost-effectiveness, factors that could potentially hinder Acres's progress.

At this point, we started killing off ideas, such as Damien's First aid kit idea, but this is due to potential cost issues; as Acres's finances are meagre, it is impractical for us to use his idea.

We latched onto the live chat idea, which is much more practical due to advances in technology and accessibility. We prototyped it. Although Acres uses WhatsApp, we had to use Telegram for the prototyping as their software is publicly available. However, the concept is the same regardless.

We also decided to remix the drop-off point idea, narrowing it instead towards vet clinics, which provide better shelter and protection for these animals. We based it on the thread we heard during our interview that mentions that Acres asks callers to drop off injured animals at vet clinics before Acres can pick them up.






Parton Collapsible Hard-Sided Dog Crate, 2-Door Portable Kennel Travel Carrier for Small and Medium Puppy Cat (Small 18 Inch)

Maybe vet drop off point is a first aid kit of collapsable cages and cloths etc.

Easily replaceable parts and just a list of materials at the vet.

Afterwards maybe press bell at the vet once utilised



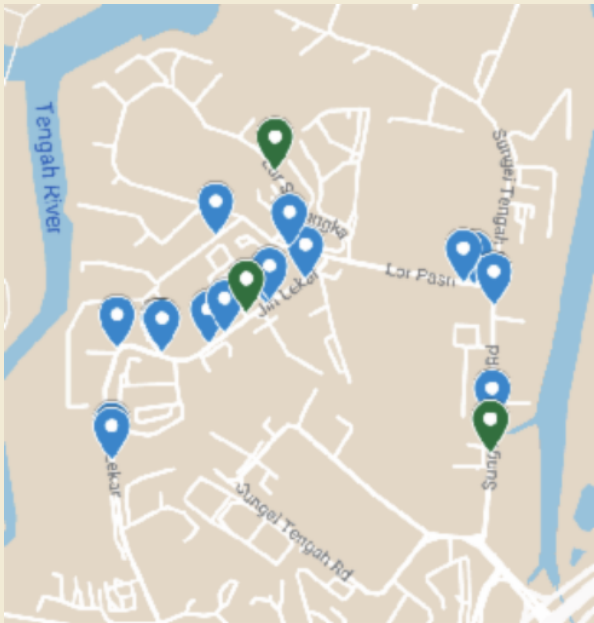
Intention of the first aid kit idea:

- to facilitate a faster and more convenient pick up with the carrier
- To separate resources from the vet
- To also avoid contamination of vet's resources

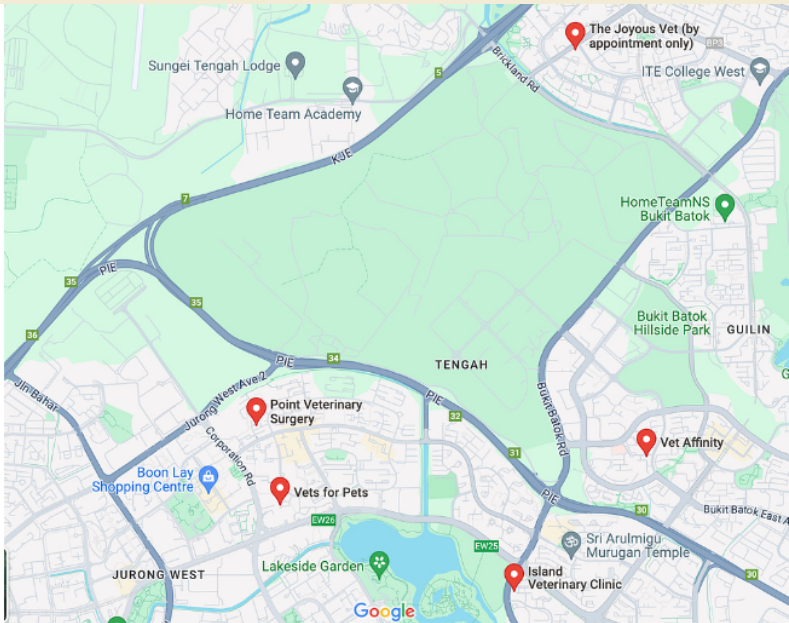
- Gloves:** Disposable gloves to protect yourself and the animal from potential contamination.
- Sterile Gauze Pads and Rolls:** Useful for cleaning wounds, applying medication, and providing padding for injuries.
- Adhesive Tape:** For securing dressings and bandages in place.
- Scissors:** To cut gauze, tape, or clothing away from the injured area.
- Tweezers:** Handy for removing splinters, thorns, or debris from wounds.
- Antiseptic Solution:** To clean wounds and prevent infection. Diluted betadine or chlorhexidine solution is commonly used.
- Sterile Saline Solution:** For flushing eyes or wounds to remove dirt and debris.
- Hydrogen Peroxide:** Can be used as a disinfectant for cleaning wounds, but should be used with caution as it can be irritating to tissues.
- Sterile Syringes and Needles:** Useful for administering medications or flushing wounds.
- Emergency Blanket:** To help maintain body temperature in hypothermic animals.
- Muzzle or Fabric Strips:** For safely restraining injured animals, especially if they are in pain or frightened.
- Splinting Materials:** Upside sticks, tongue depressors, or rolled-up newspapers can be used to immobilize broken limbs.
- Styptic Powder or Gel:** For stopping bleeding from minor cuts or broken nails.
- Digital Thermometer:** To monitor the animal's temperature. Make sure it's specifically designed for animal use.
- Instant Cold Packs:** Useful for reducing swelling and inflammation in injured animals.
- Non-Stick Bandages:** To cover and protect wounds without sticking to fur or skin.
- Electrolyte Replacement:** Especially useful for wildlife rescue, electrolyte solutions can help rehydrate animals suffering from dehydration.
- Pet-Safe Pain Relief Medication:** Consult a veterinarian for appropriate pain relief options and dosage instructions.
- Contact Information:** Include contact details for local veterinarians, wildlife rescue organizations, and animal control agencies.
- Pet Carrier or Transport Box:** To safely transport injured animals to veterinary care or rehabilitation facilities.



# Mapping of Vet Clinics near potential injured animal hotspots



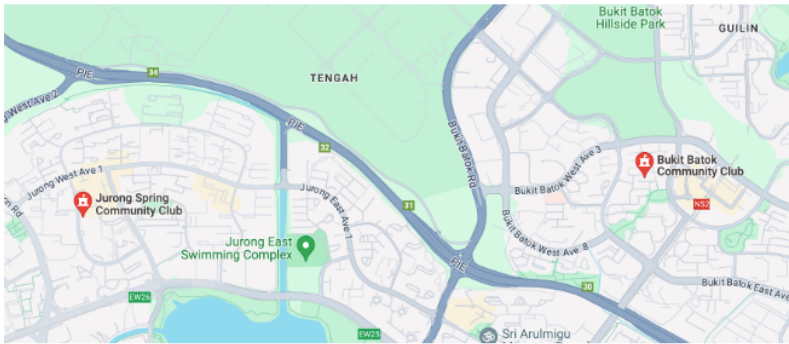
Tengah



Vets in Tengah area



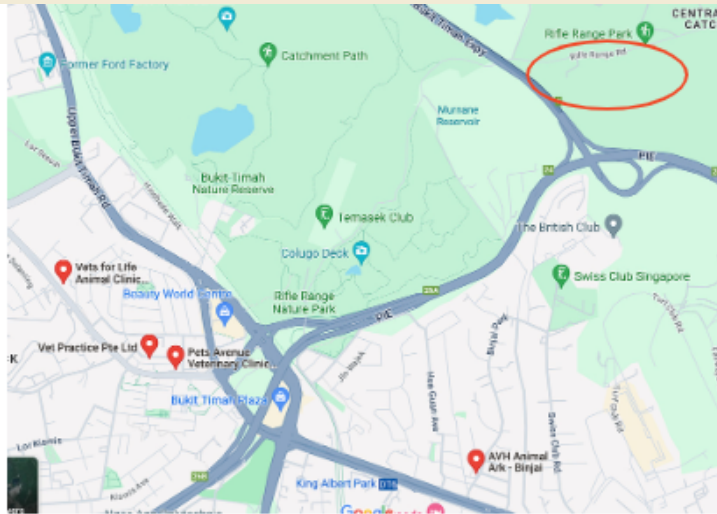
Acres is nearest to Tengah hotspots



CCs near Tengah



Rifle Range Rd



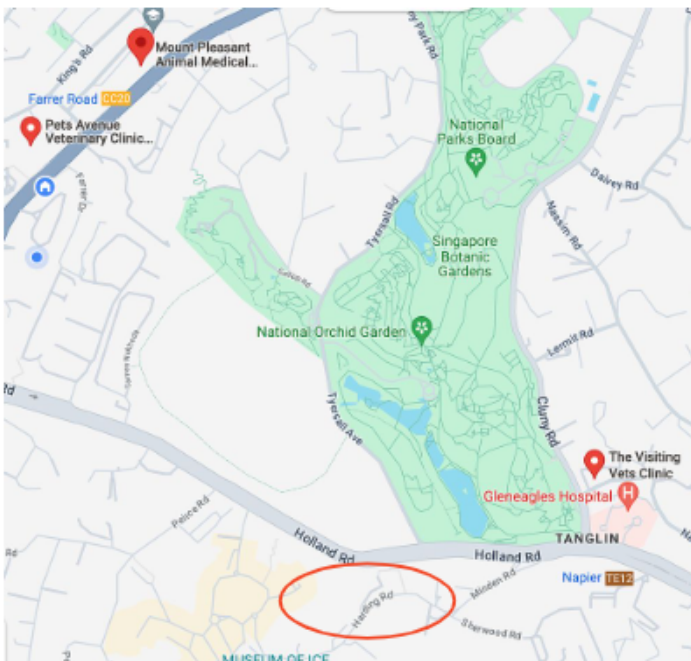
Vets near Rifle Range Rd



Nearest CC to Rifle Range Rd



Harding Rd

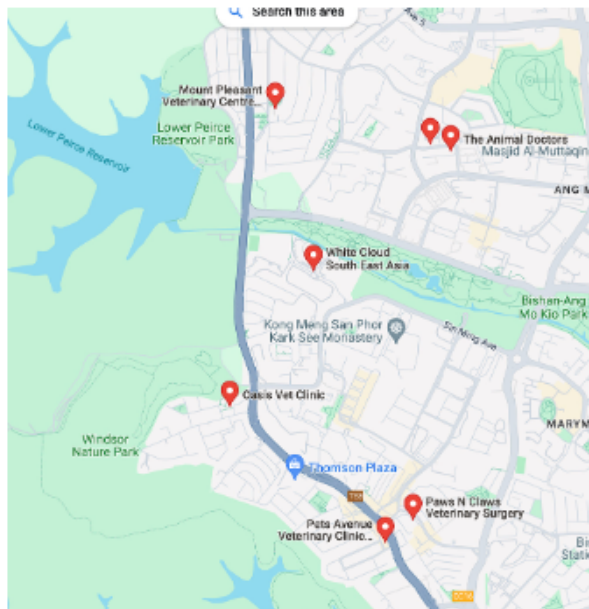


Vets near Harding Rd and Botanic Gardens

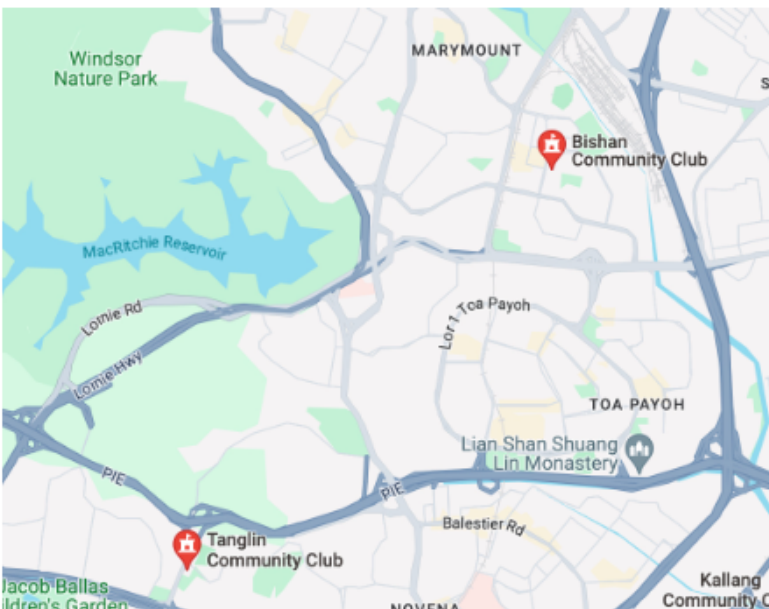


Upper Seletar Reservoir and Upper Thompson

No vets in Mandai area



Vets along Upper Thompson rd



CCs near Upper Thompson



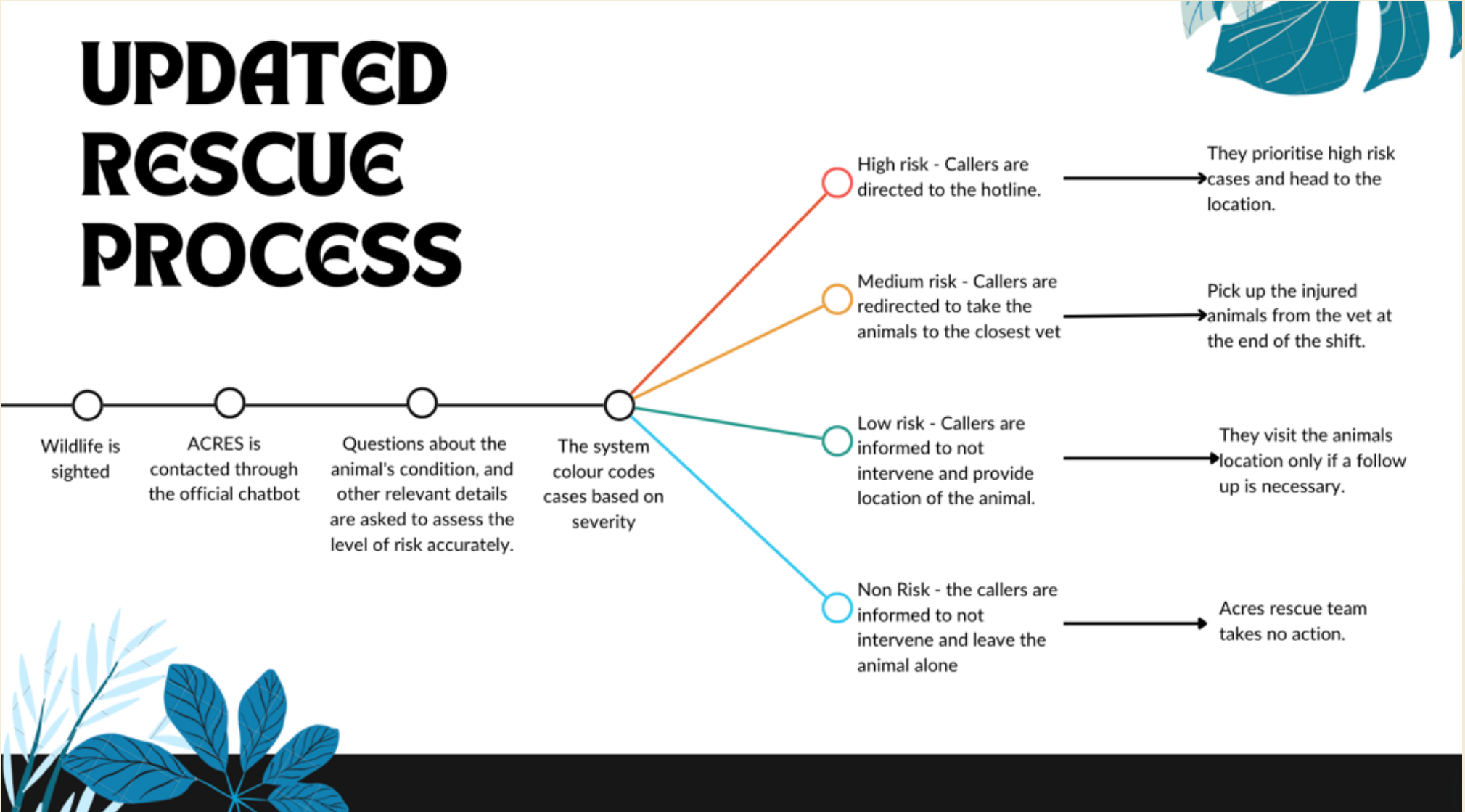
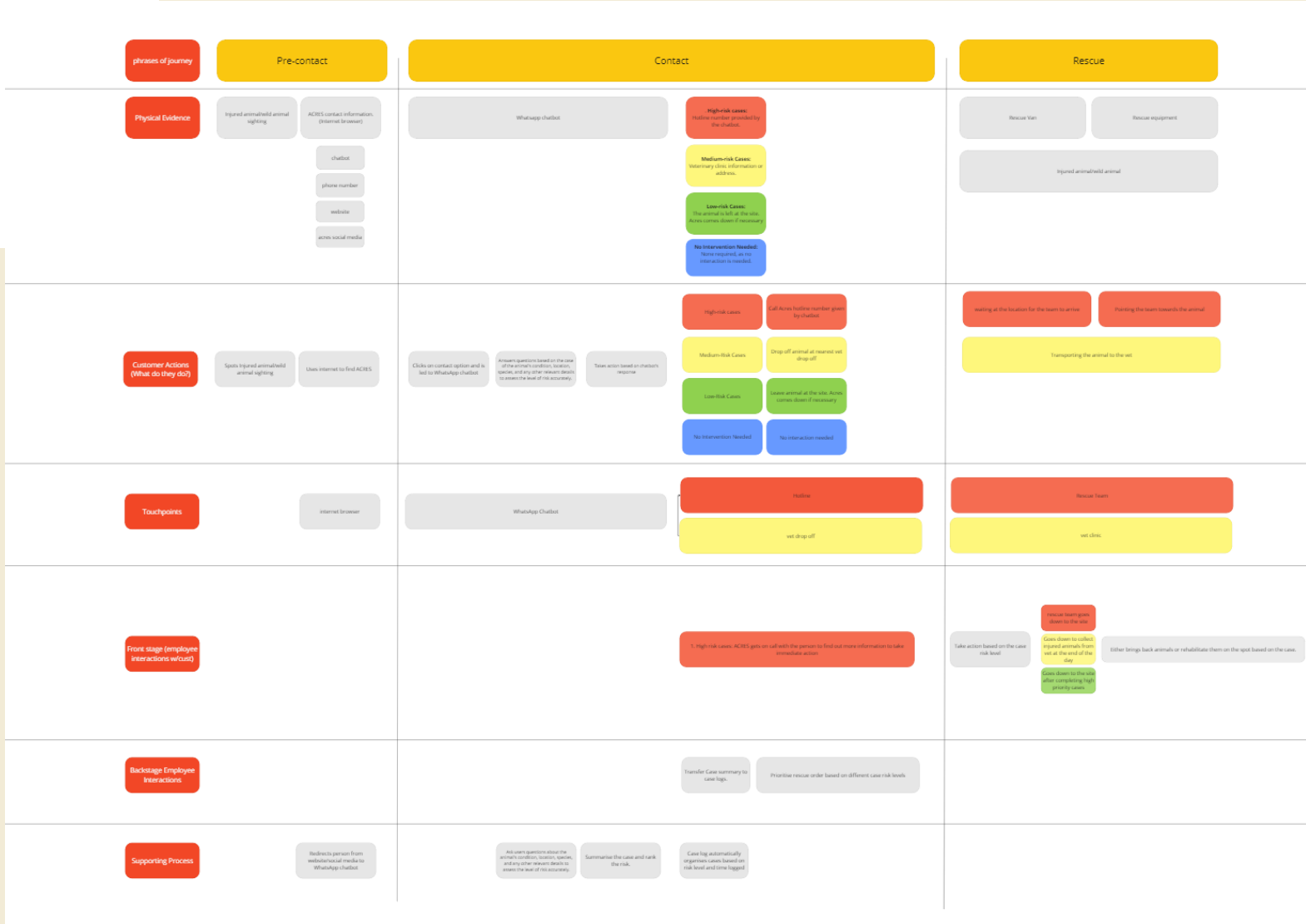
# Segmenting Cases, building a new rescue processs

An essential element that we need to figure out in building our Chatbot and case management process is segmenting the types of rescue cases and filtering them by importance and risk.

This also helps us build a new emotional journey and blueprint, seeing how our changes help build capacity and improve efficiency within the system.

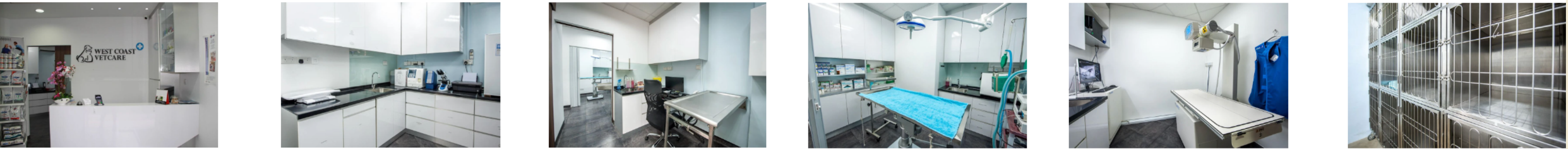
Despite looking more complicated, it improves efficiency by allowing Acres to filter cases according to the seriousness of the call and what kind of action they need to take (A high-risk call involving dangerous animals such as a snake in a dwelling would be taken first over an injured small bird, etc.)

High-risk cases	Medium-Risk Cases	Low-Risk Cases	No Intervention Needed
Severe injuries or life-threatening conditions in any species.	Wildlife with minor injuries or illnesses requiring medical attention.	Healthy wildlife found in natural habitats.	Wildlife behaving naturally in their habitat, not in distress.
Endangered or critically endangered species in distress.	Species vulnerable to habitat loss or human activity.	Animals showing signs of temporary distress but likely to recover without intervention.	Species that are not endangered or threatened and are better left undisturbed.
Venomous snakes and other dangerous reptiles.	Birds unable to fly due to minor injuries or exhaustion.	Non-threatened species in need of temporary shelter or relocation.	Instances where intervention could cause more harm than good (e.g., disrupting natural processes).
Birds of prey or large carnivorous birds in distress.	Turtles or small mammals found in areas with moderate human activity.	Birds or mammals temporarily displaced due to weather conditions or human activity but able to return to their habitat.	
Small mammals caught in traps or snares.	Animals trapped in urban areas but not in immediate danger.		

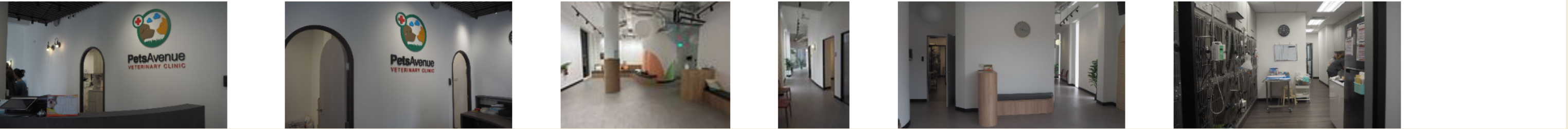




West Coast Vet Care



Pets Avenue Veterinary Clinic



Some of my colleagues also conducted field research on these vet clinics, assessing for their suitability towards our drop-off concept.

They also interview staff at some of the clinics, of which many expressed interest in collaborating with Acres in such a format.

Town Vets

[www.townvets.com.sg](http://www.townvets.com.sg)

22 Havelock Rd, #01-687, Singapore 160022





# Chapter VII: Towards our final presentation

Based on previous feedback on our presentation slides, we realized we needed to make our presentation concise and easy to digest, especially for the other lecturers and comrades-in-arms who may not have seen our presentation and project before.

This would be a struggle as our presentation has been commented on as being too long, and we had to make it more engaging and concise. Also, it will be a challenge to explain the branching out of our rescue case, the communication system, etc.

To that end, I, together with my colleagues, spearheaded efforts to restructure and reorient our presentation towards our goals. I was mainly involved in ensuring structure and continuity within our slides, such as a standard set of colours, balancing language between simplicity and imparting knowledge, etc.

To- do list

1. add problem statement

2. edit opportunity statement

3. 2 storyboards

4. Chatbot + Log system

5. Clean up slides

6. Exhibition display

7. A1 board



Hakim

help w the slides

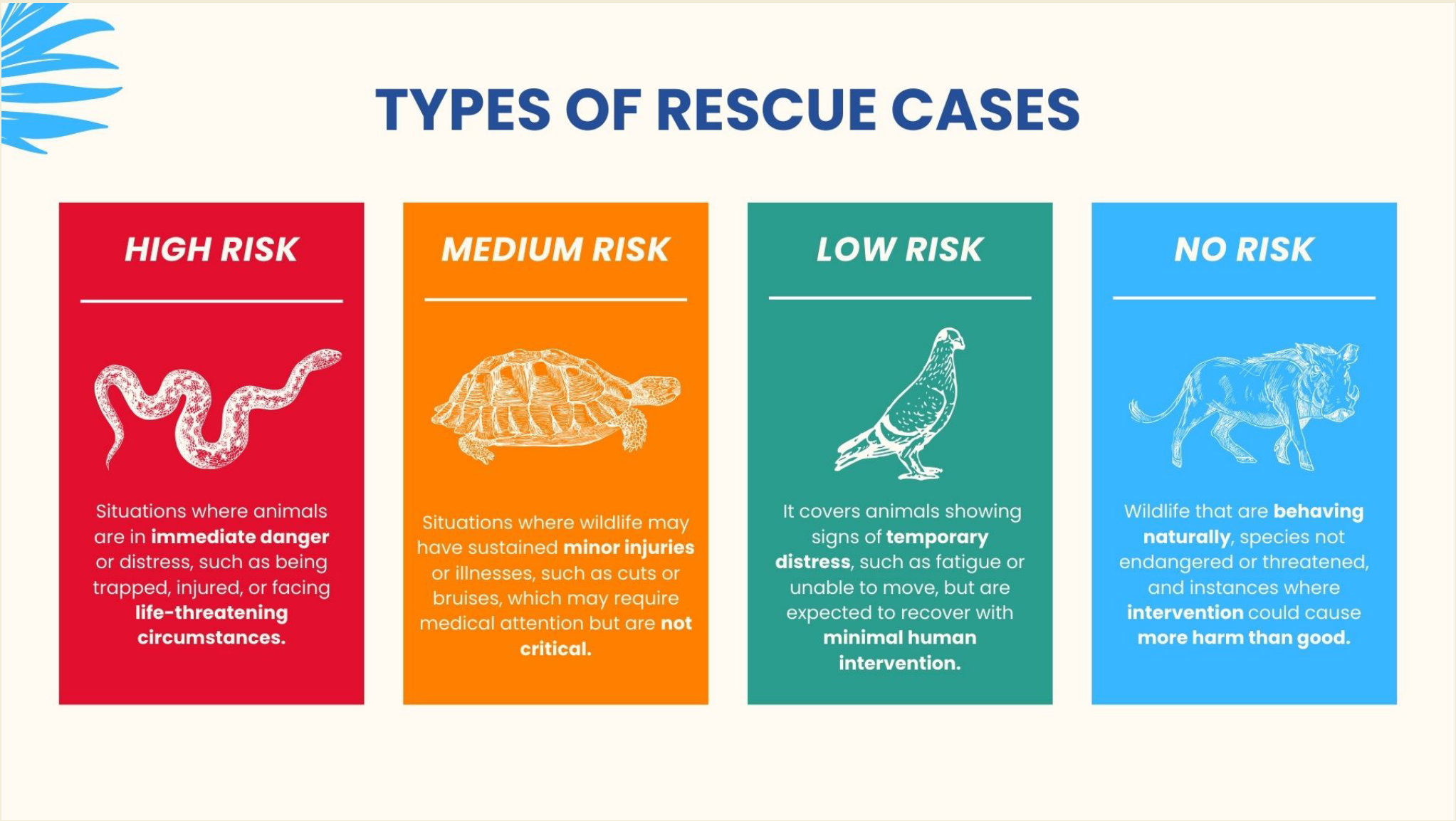
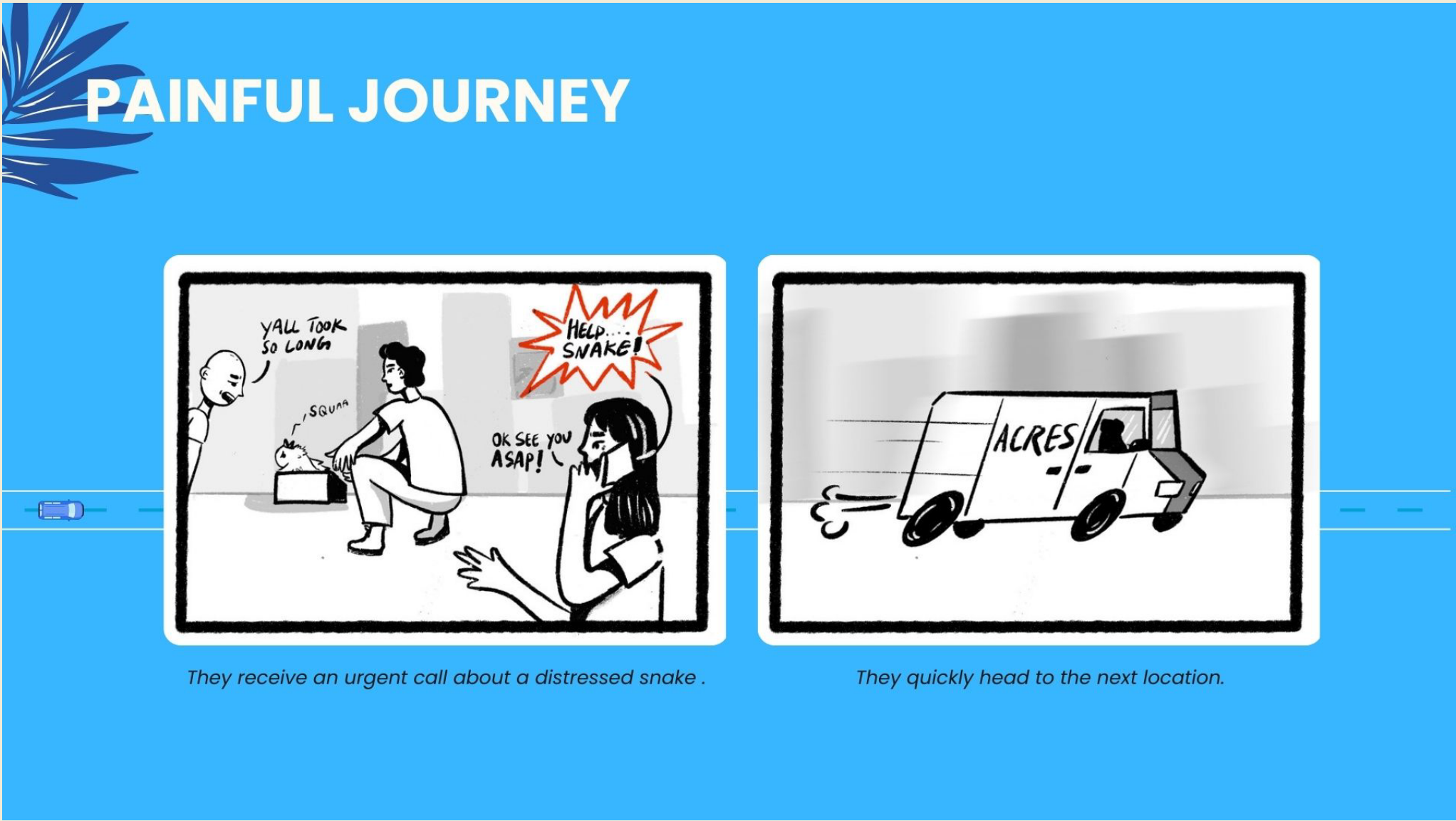
add in info about special risk cases

help with the road and acres van drawing.

restructure the slides



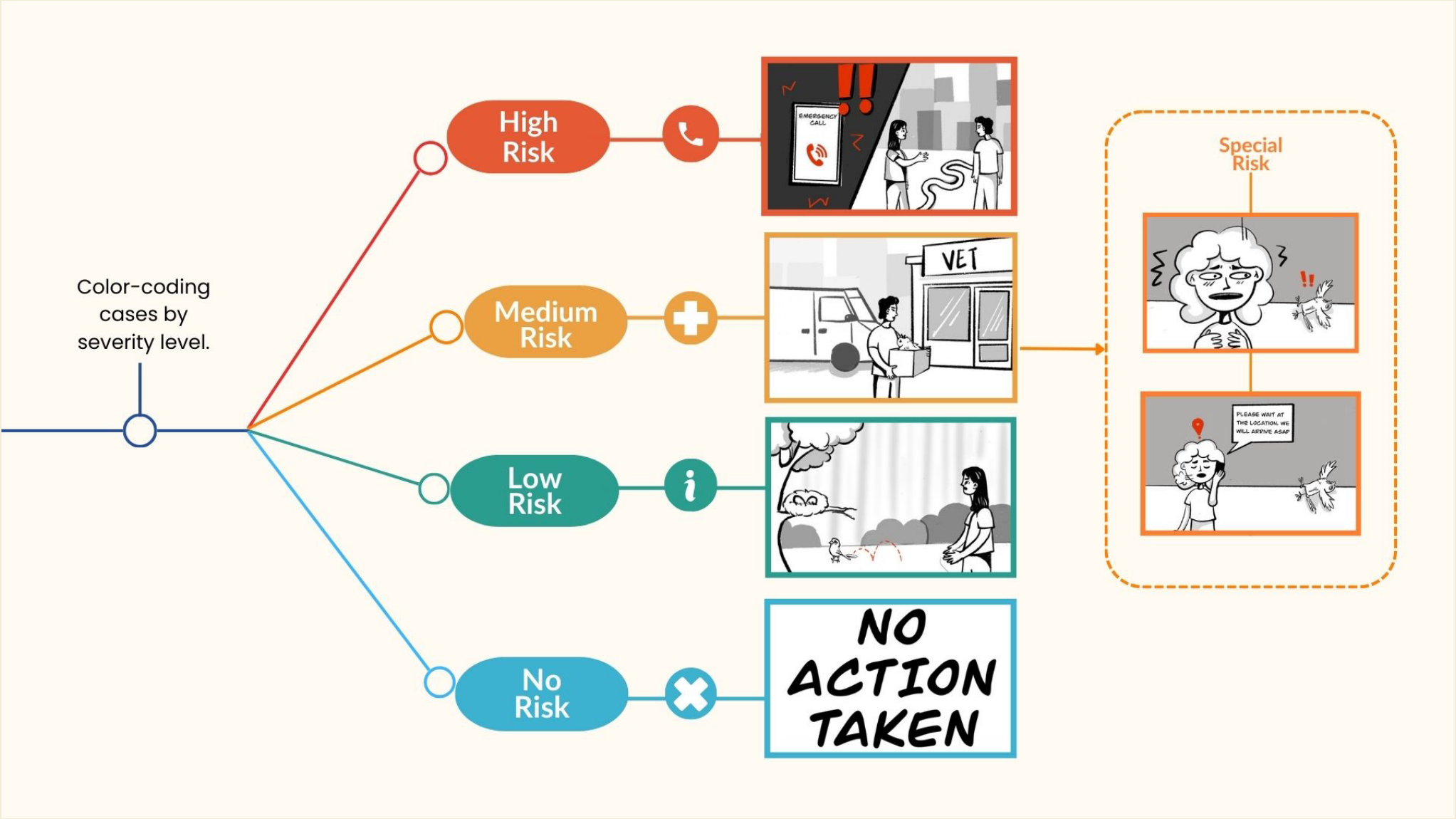
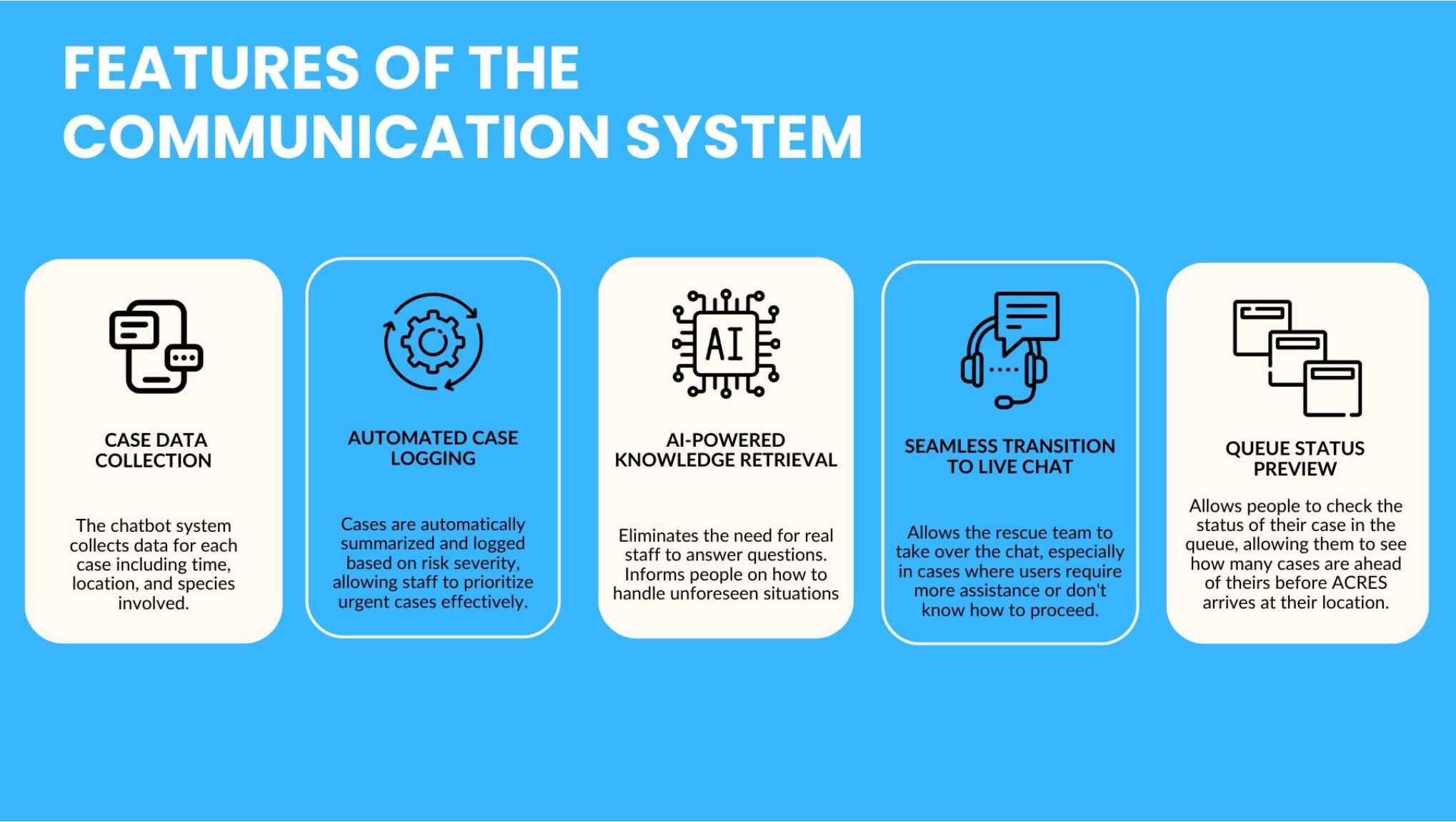
# Chapter VI: Final Presentation



Our final presentation represent the peak of the our project’s development, both in terms of presentation and our solutions to Acres problems.

Using illustrations and visuals to communicate our points more clearly to our audience.





Our solution to the issue of presenting our new rescue process and how our communication help resolves the pain points Acres has.

