The Population Puzzle

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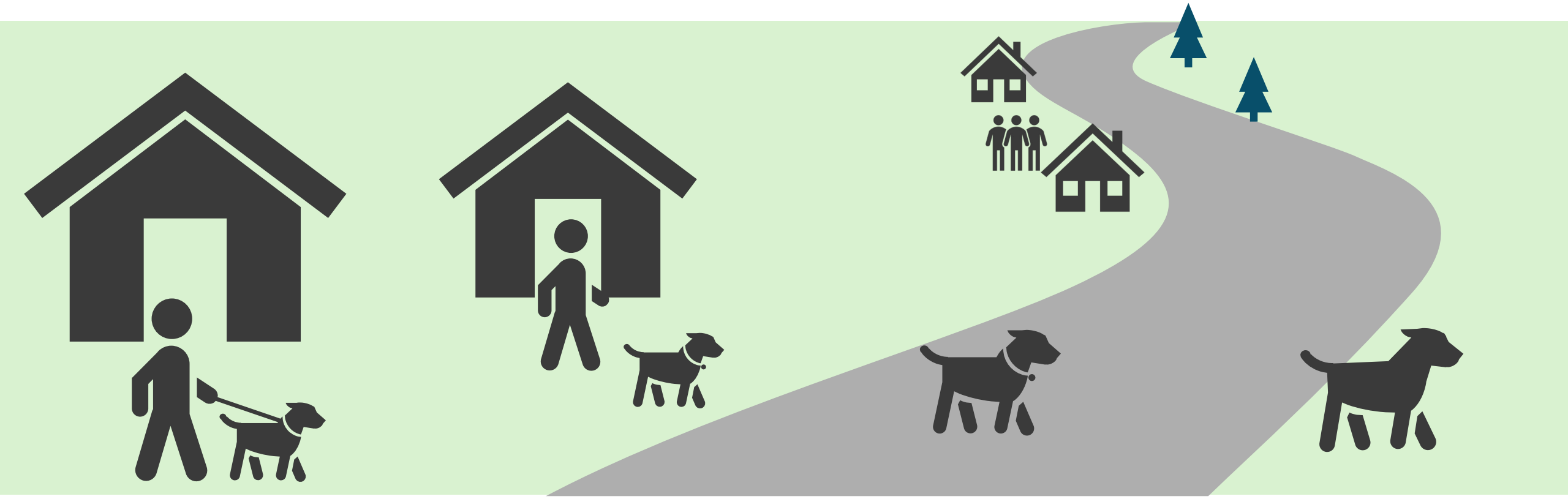
World Organisation for Animal Health

WVS

MISSION RABIES

DYNAMICS OF DOG POPULATION

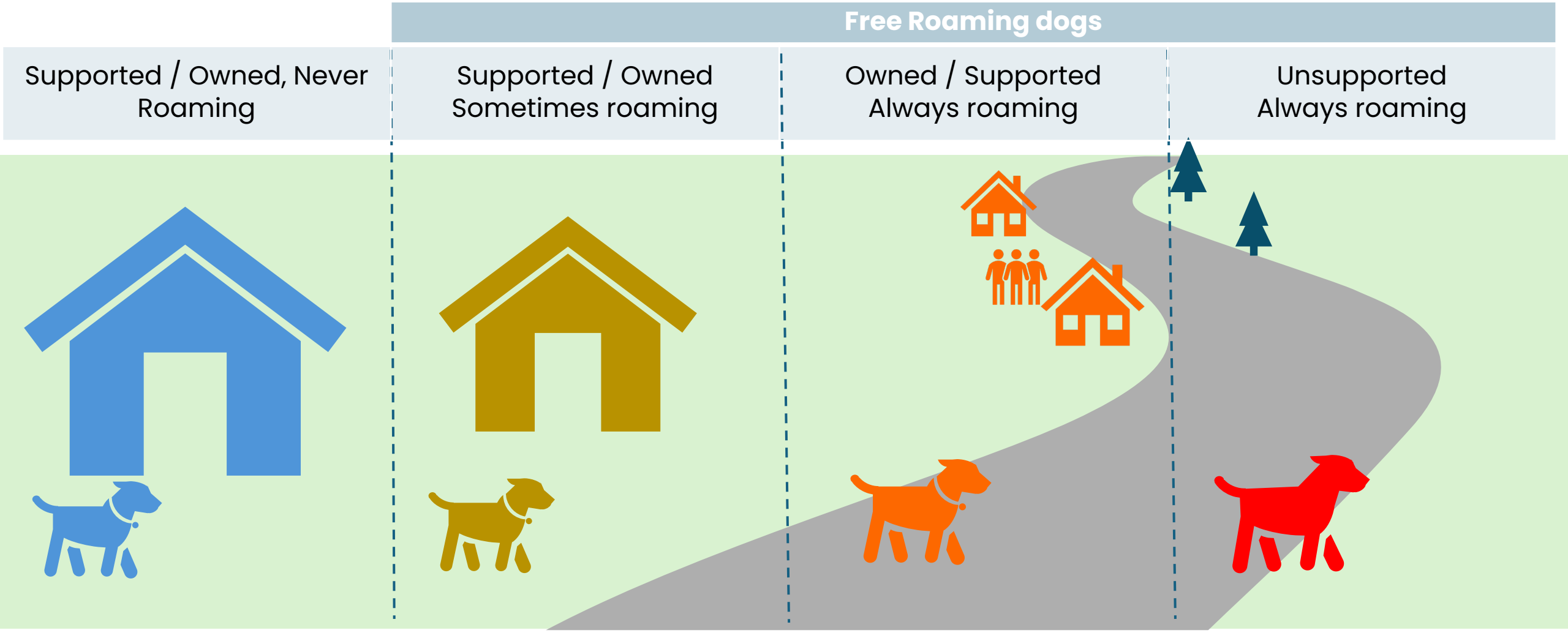
Addressing misconceptions
‘Pet dogs’ vs ‘Stray dogs’



DYNAMICS OF DOG POPULATION

	Free Roaming dogs		
Supported / Owned, Never Roaming	Supported / Owned Sometimes roaming	Owned / Supported Always roaming	Unsupported Always roaming

DYNAMICS OF DOG POPULATION



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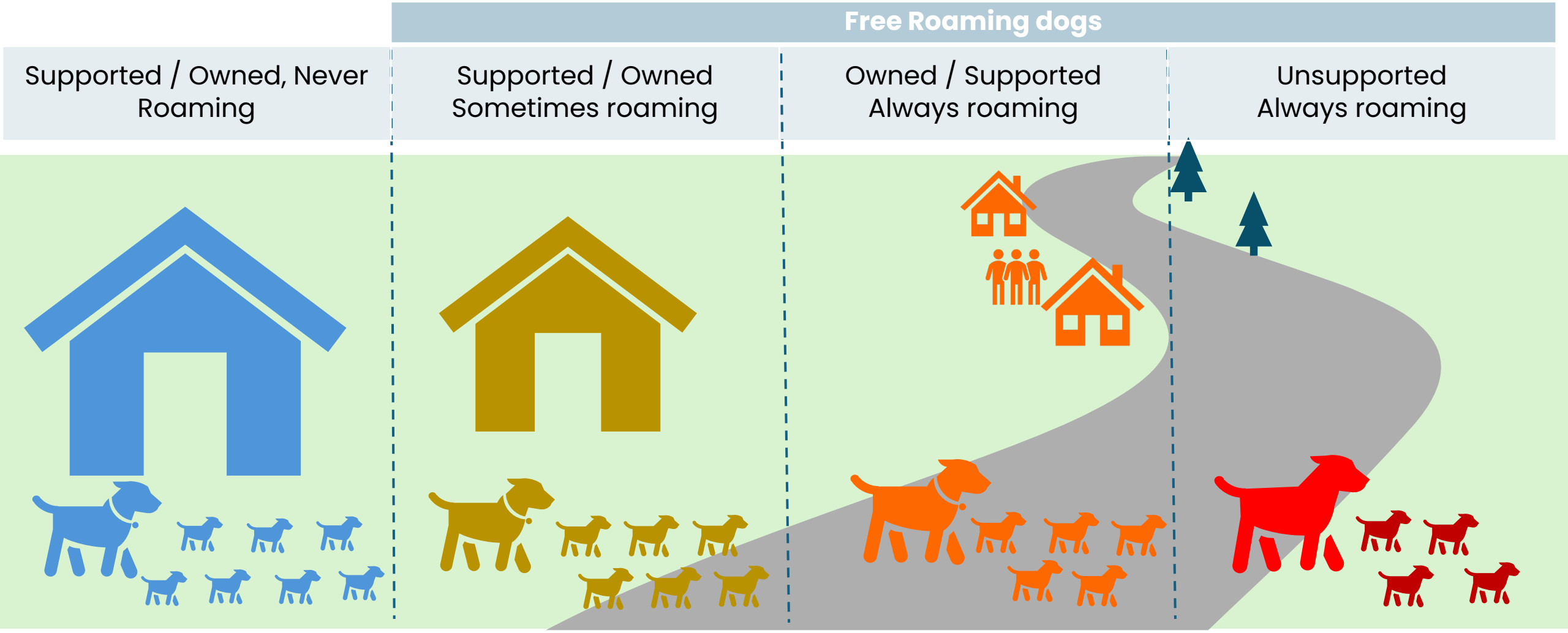

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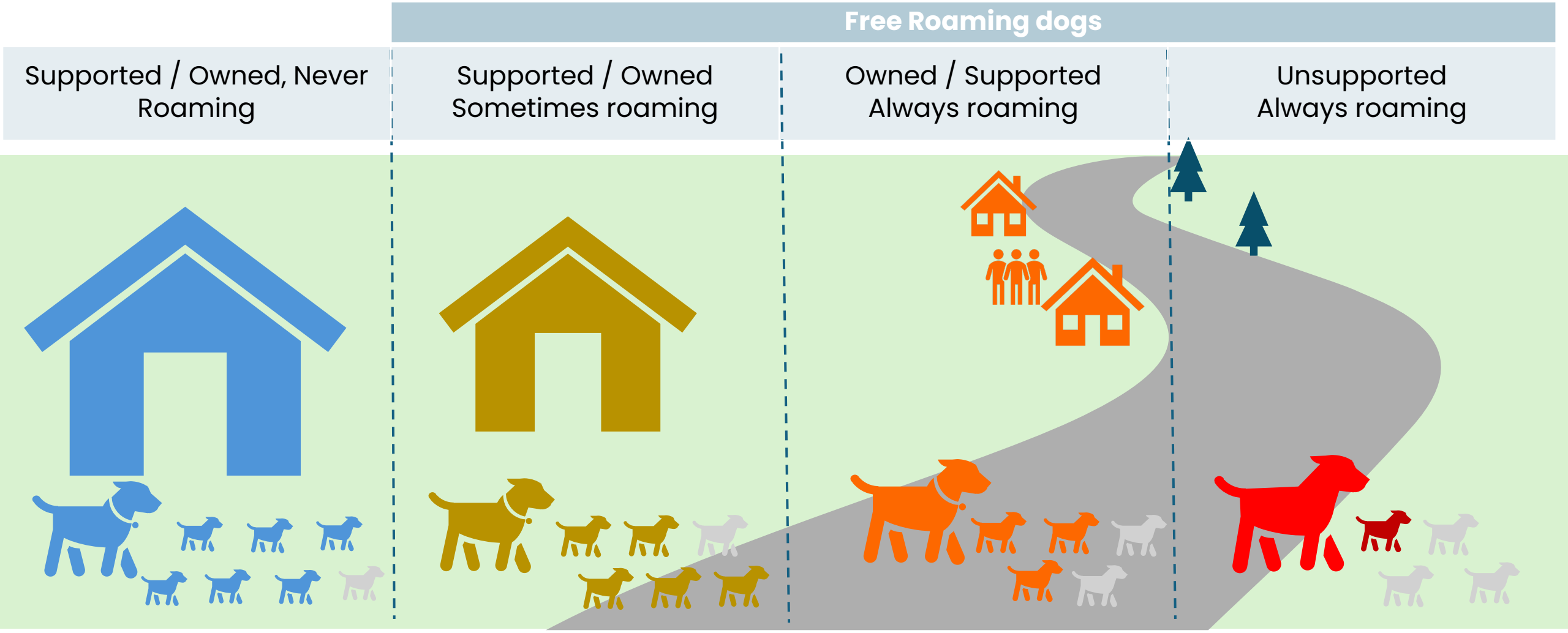

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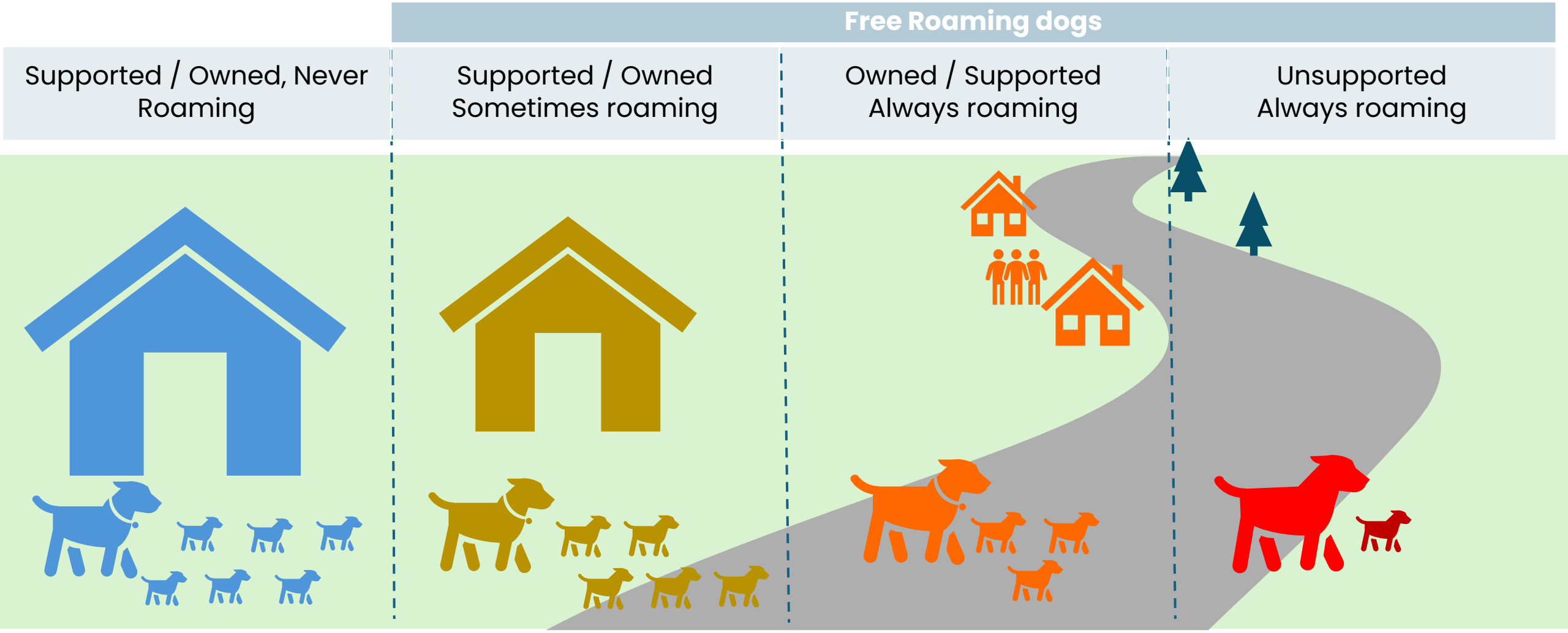

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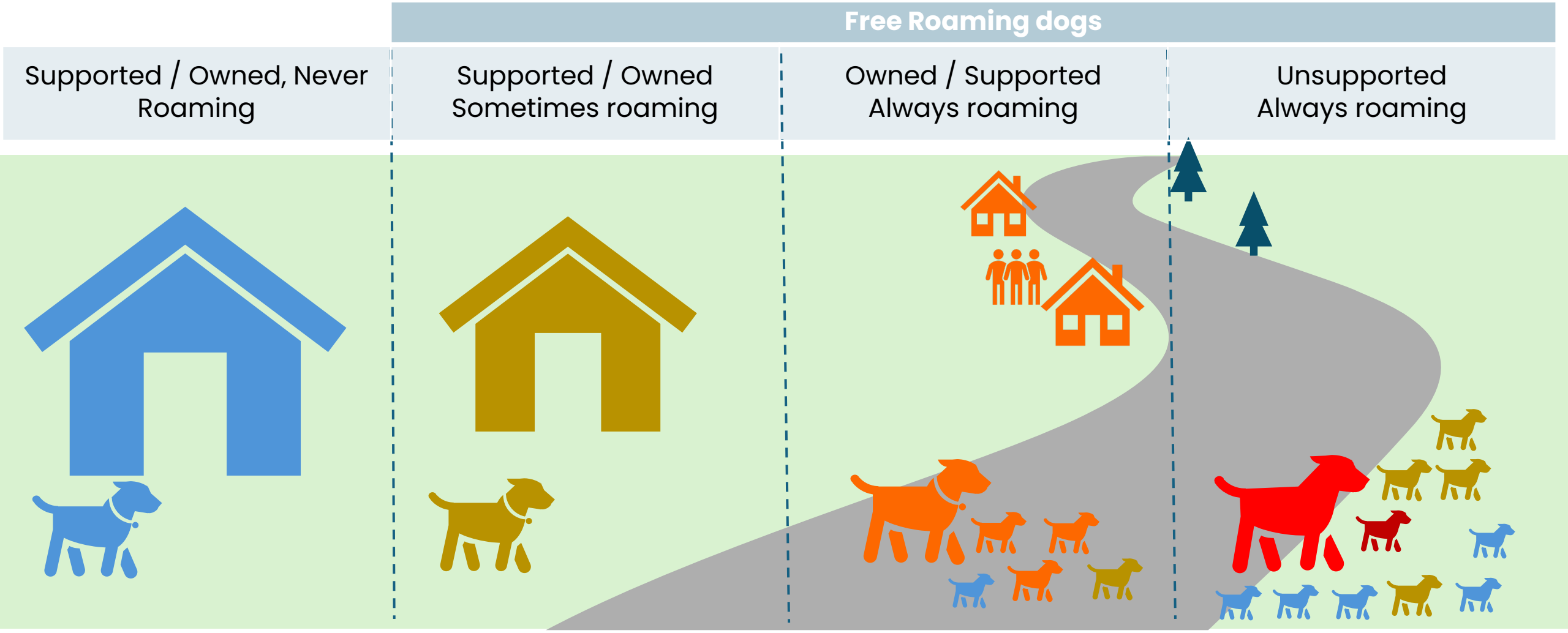

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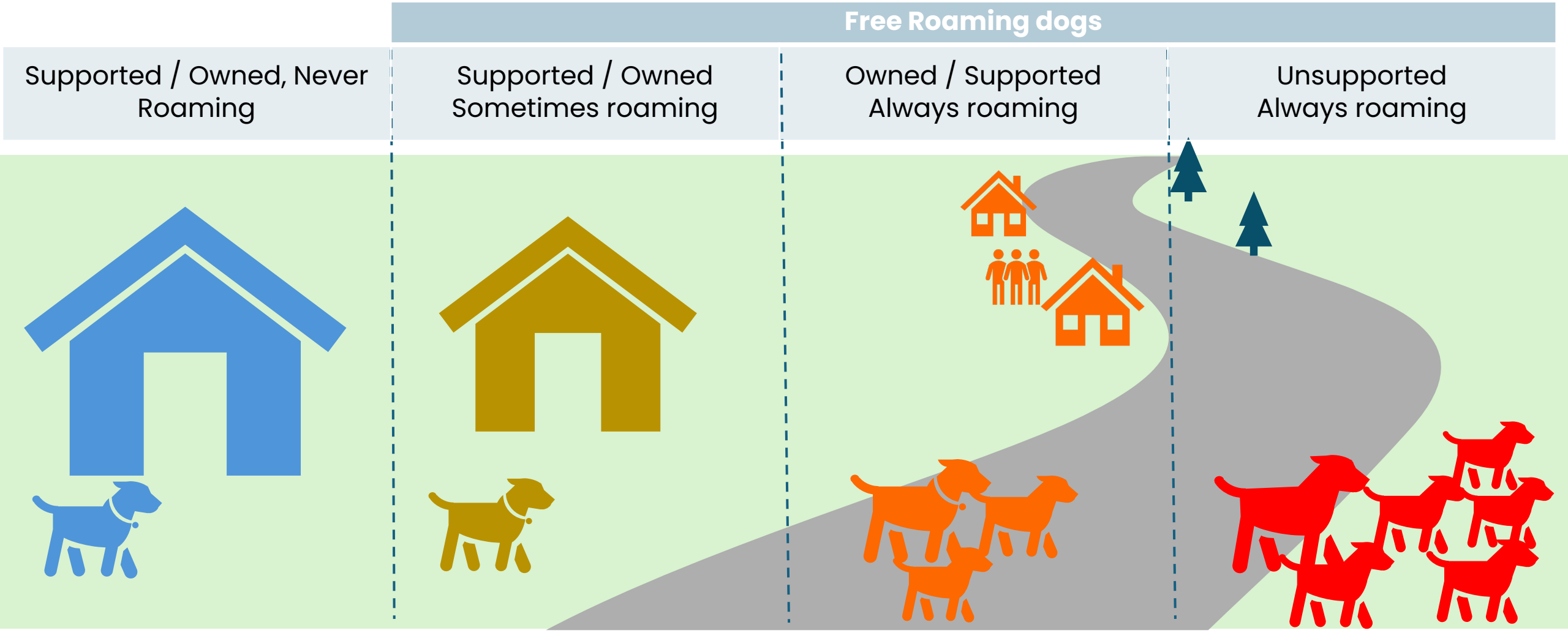
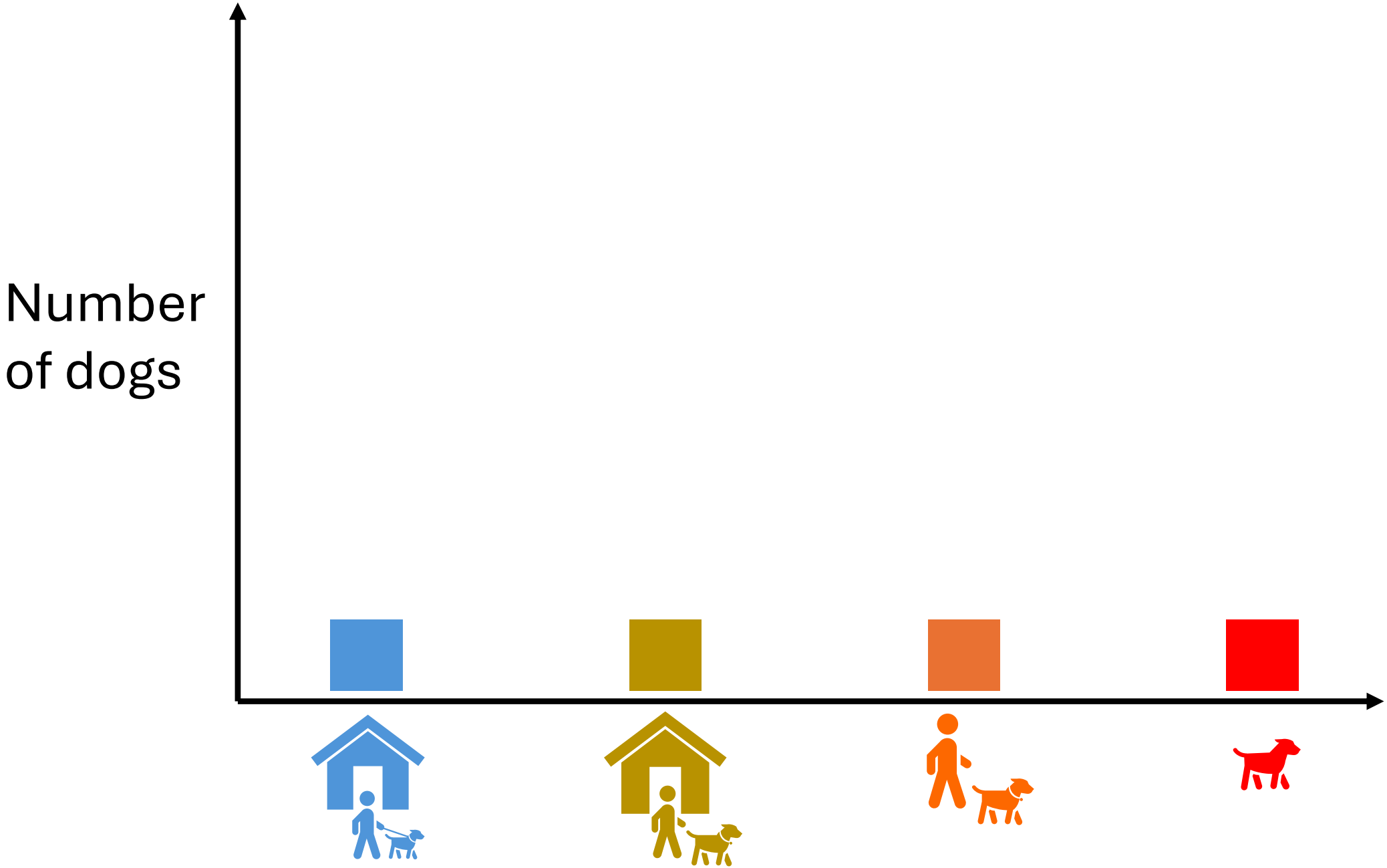
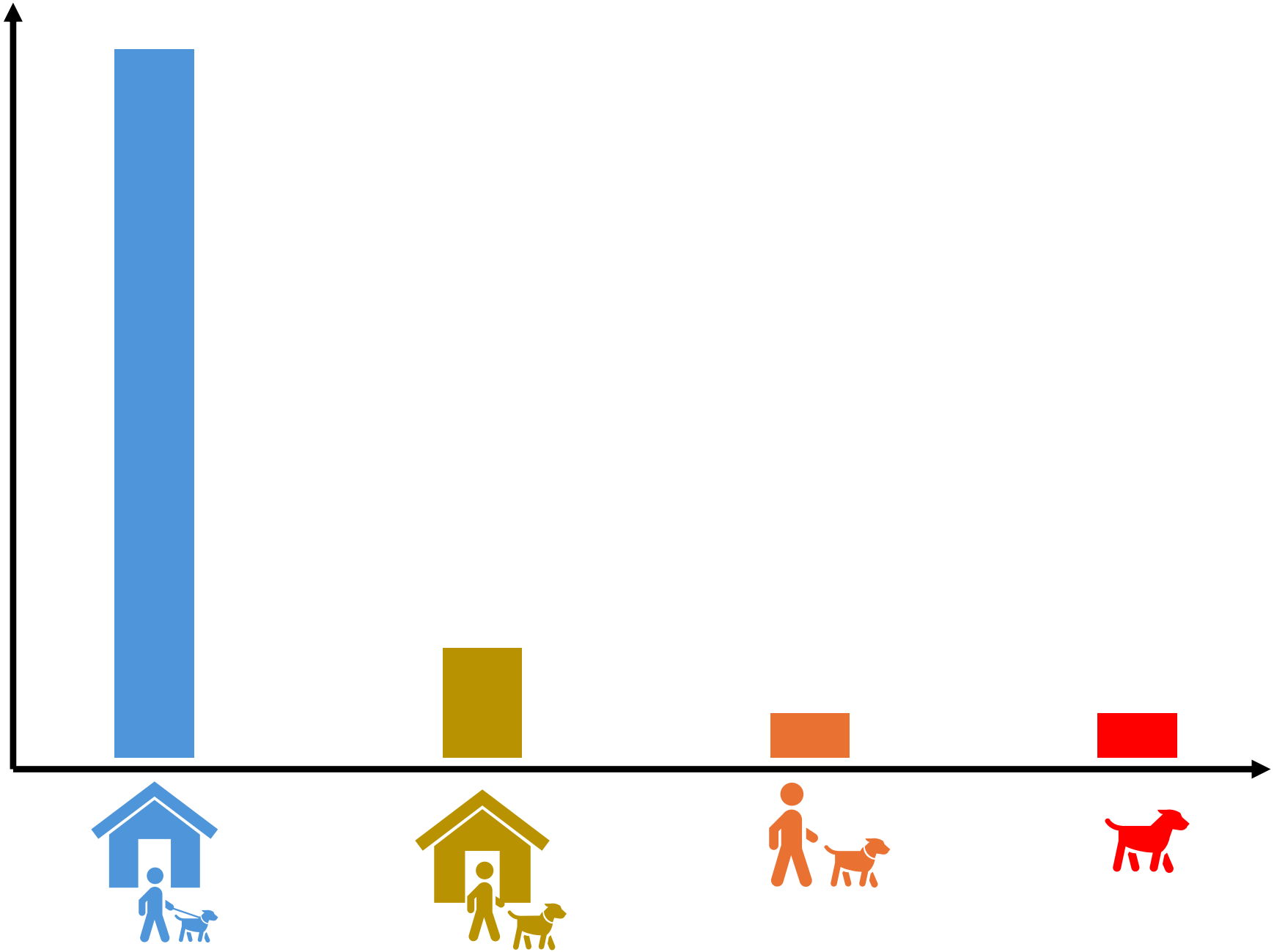


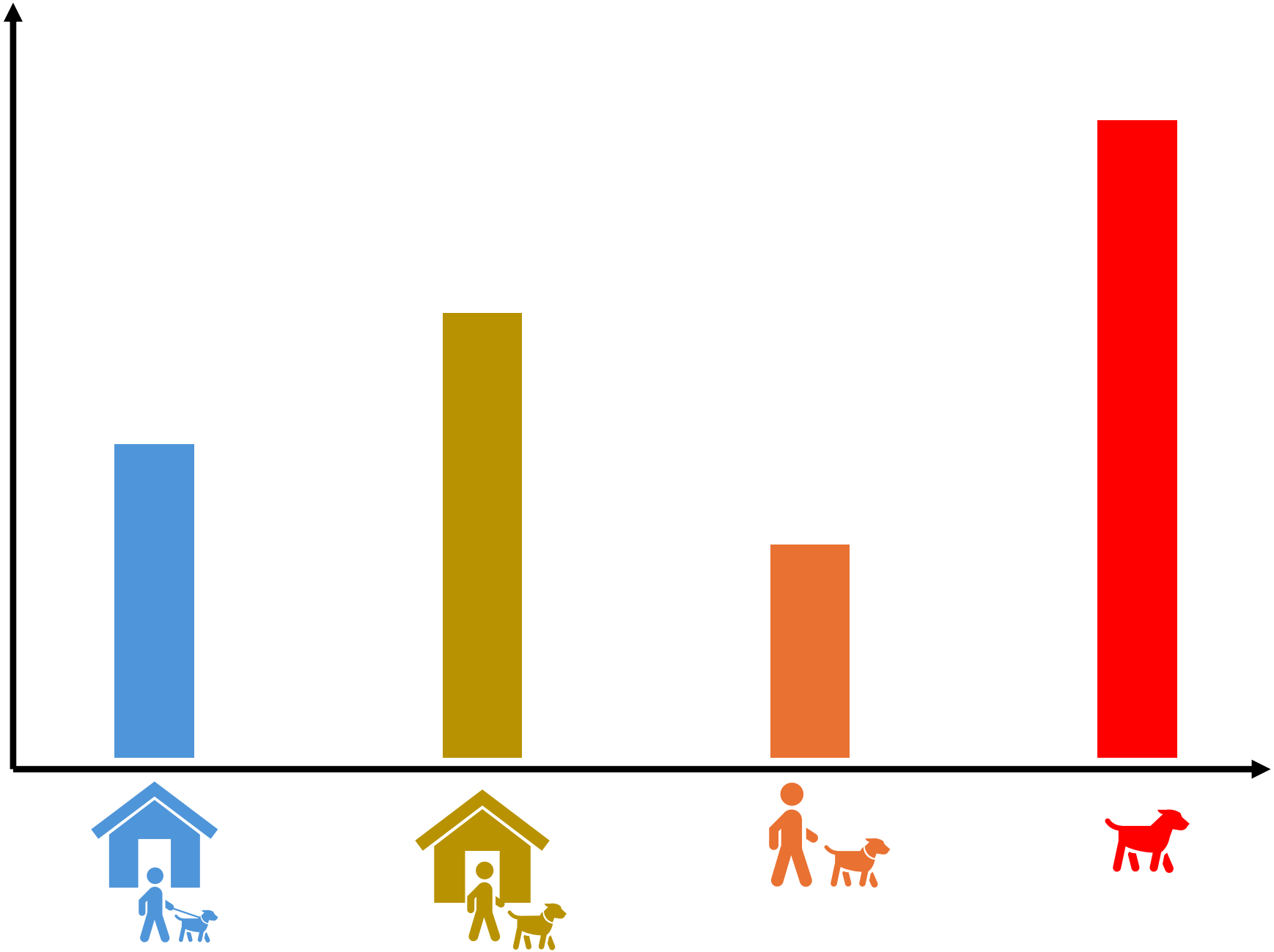

Number of dogs

Number of dogs




FC
GOA

Number of dogs



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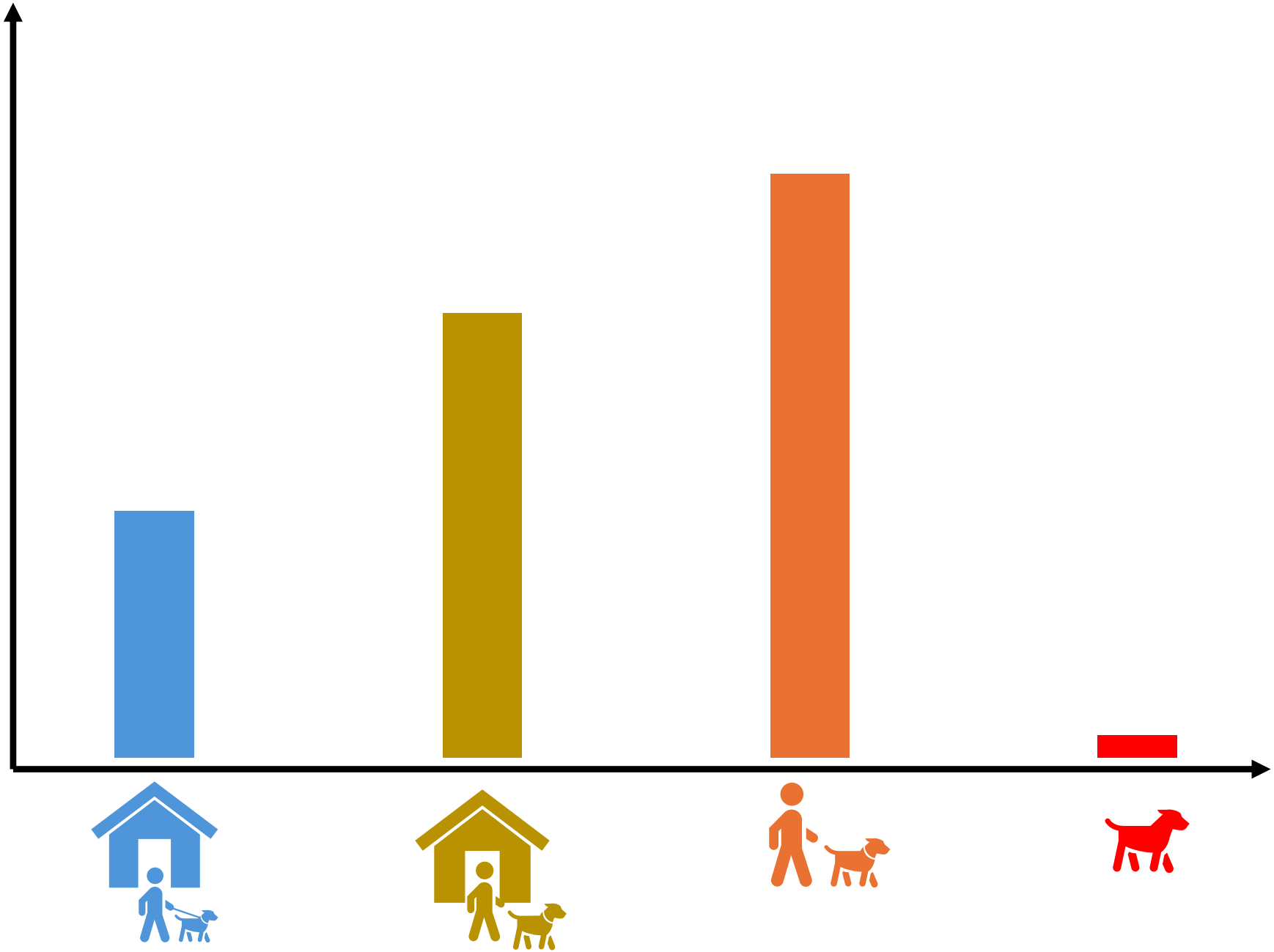


Vaccination Methods

Vaccination Methods

STATIC POINT

Vaccination Methods

STATIC POINT

DOOR-TO-DOOR

Vaccination Methods

STATIC POINT

DOOR-TO-DOOR

CAPTURE-VACCINATE-RELEASE

Vaccination Methods

STATIC POINT

DOOR-TO-DOOR

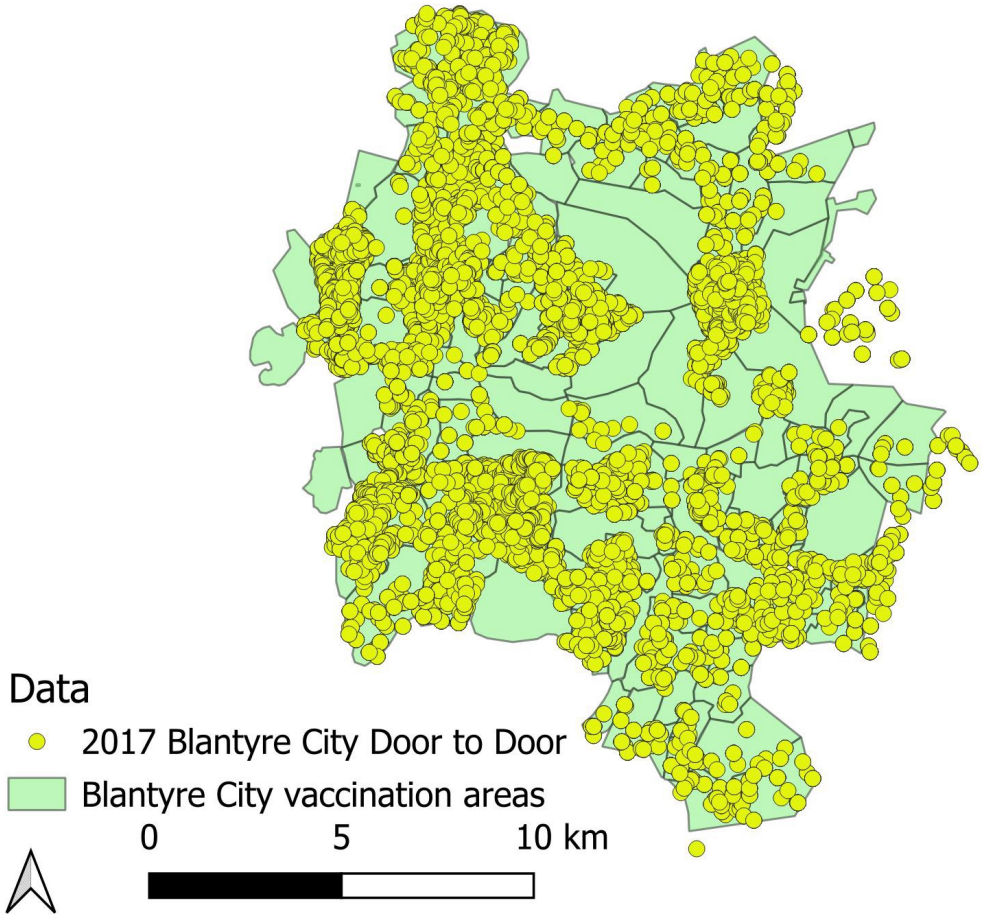
CATURE-VACCINATE-RELEASE

Complexity
Cost

LOW

HIGH

Vaccination Methods



- Original method door to door
- Effective vaccination coverage

BUT

- Longer campaign time
- Higher cost

Vaccination Methods

PLOS | NEGLECTED TROPICAL DISEASES

Mass Dog Vaccination for Rabies Control in Blantyre

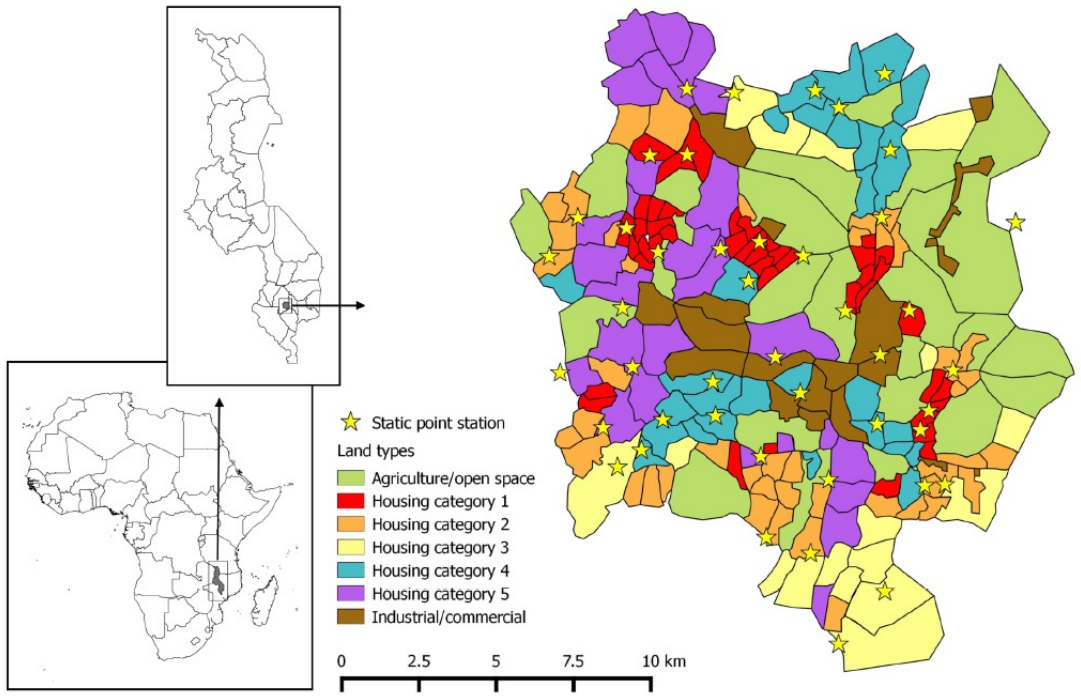


Fig 1. Map of the study site. Inset map of Africa showing location of Malawi and inset of Malawi showing location of the city of Balantyre. Main map showing Blantyre city and distribution of different housing categories and static point vaccination locations.

doi:10.1371/journal.pntd.0004824.g001

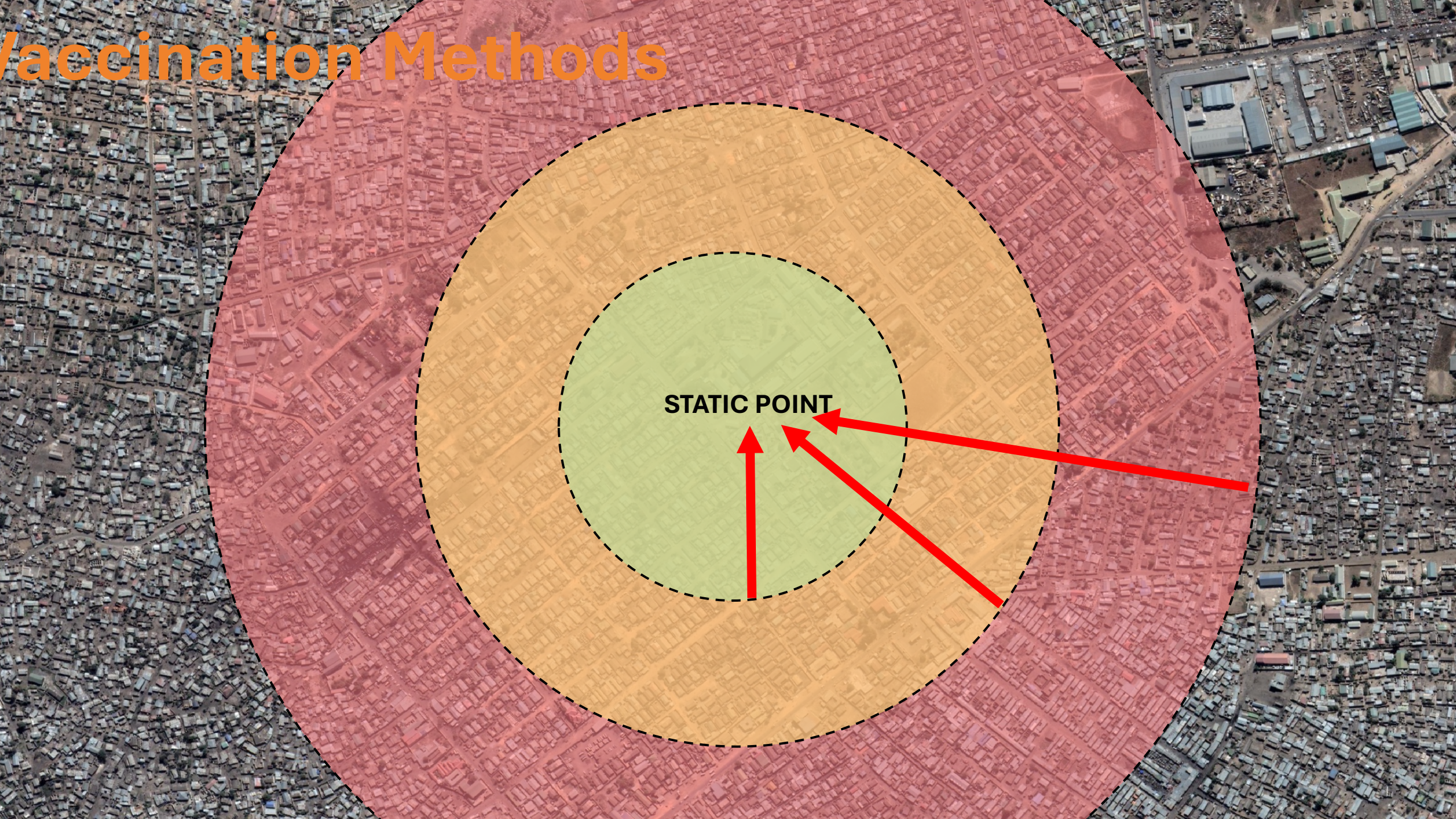
RESEARCH ARTICLE

The Vaccination of 35,000 Dogs in 20 Working Days Using Combined Static Point and Door-to-Door Methods in Blantyre, Malawi

Andrew D Gibson[1], Ian G Handel[2], Kate Shervell[1], Tarryn Roux[3], Dagmar Mayer[1], Stanford Muyila[4], Golden B Maruwo[5], Edwin M. S Nkhulungo[6], Rachel A Foster[7], Patrick Chikungwa[8], Bernard Chimera[8], Barend M.deC Bronsvoort[2], Richard J Mellanby[9]*, Luke Gamble[1]*

- Combined static point and door to door method
- 35,000 dogs vaccinated in 20 days
- 44 static point sites
- >70% vaccination coverage

Vaccination Methods



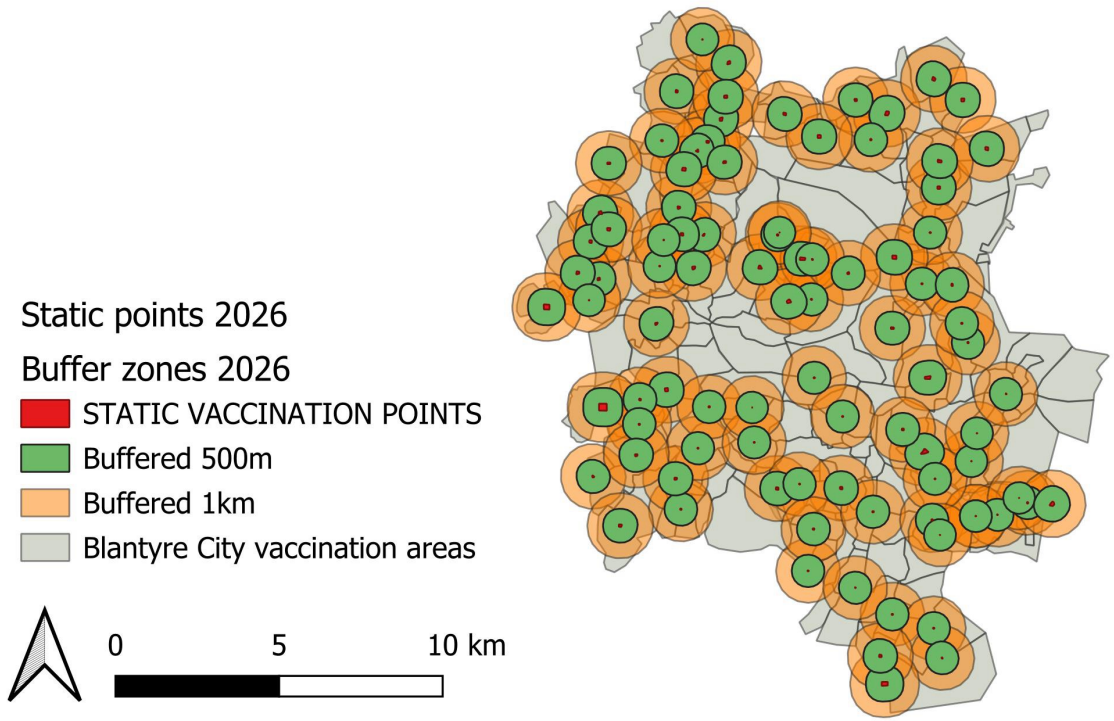
Vaccination Methods

- Strategic planning of Static Point vaccinations based on research
- Most people do not want to walk more than 1.5km to reach a static point (0.8km straight line distance)
- For effective coverage and attendance, distance to static points should be considered

RESEARCH ARTICLE

Barriers of attendance to dog rabies static point vaccination clinics in Blantyre, Malawi

Stella Mazeri[1,2], Andrew D. Gibson[1,3], Natascha Meunier[1,2], Barend M.deC Bronsvoort[1,2], Ian G. Handel[1,2], Richard J. Mellanby[4]*, Luke Gamble[3]*

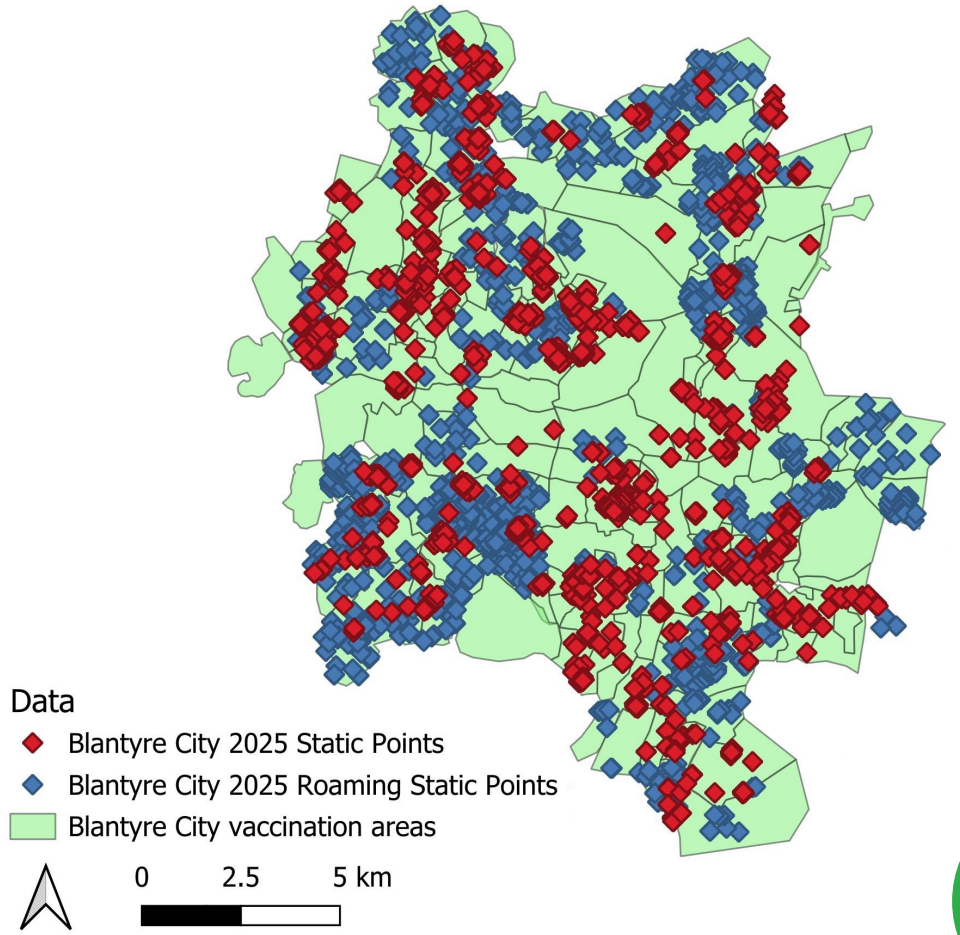


Vaccination Methods-
Malawi City approach

- Static point approach for high density areas
- Cost effective
- Time efficient city-wide coverage
- Need to consider specific sensitisation and awareness methods

Vaccination Methods-
Malawi City approach

- Always analyse collected data and refine methods if indicated
- Current approach 92 static points
- 10 days city-wide campaign
- Include RSP for areas outside of planned SP buffer zone



Vaccination Methods - Malawi City approach

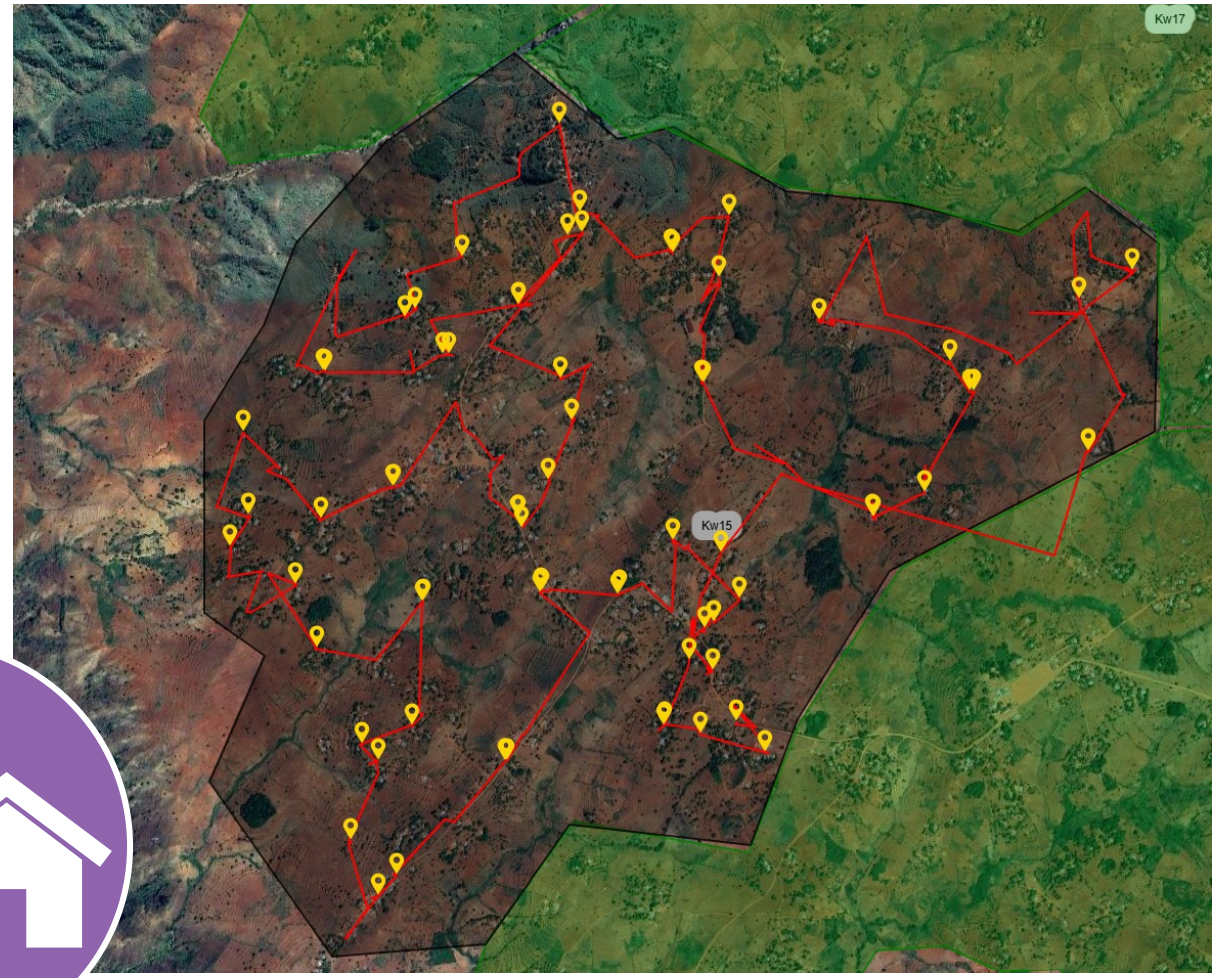
- Suitable for dogs that can be handled and walked to the vaccination point
- Plan appropriately for high volume
- Plan appropriate static point walking distances
- Consider safe dog handling

Vaccination Methods-

Malawi Rural approach

Vaccination Methods-
Malawi Rural approach

- District polygons have been created using STARC prioritisation model
- Can manage and direct high numbers of teams simultaneously to specific daily polygons
- Can monitor coverage and feedback in real time



Vaccination Methods- Malawi Rural approach

- Lower density settlements
- Travel through community using a door-to-door method
- Uses existing government staff travelling by motorcycle
- Door to door method is required to achieve the required vaccination coverage

MISSION RABIES

INTERNATIONAL RABIES TASKFORCE

WVS MALAWI

MISSIONRABIES.COM

BUILDING THE DOG POPULATION:
From Bricks to Vaccination Strategy

A participatory activity in campaign planning

PART 1

Build your Dog Population Profile

Dog Population Profile

Supported
Never roaming

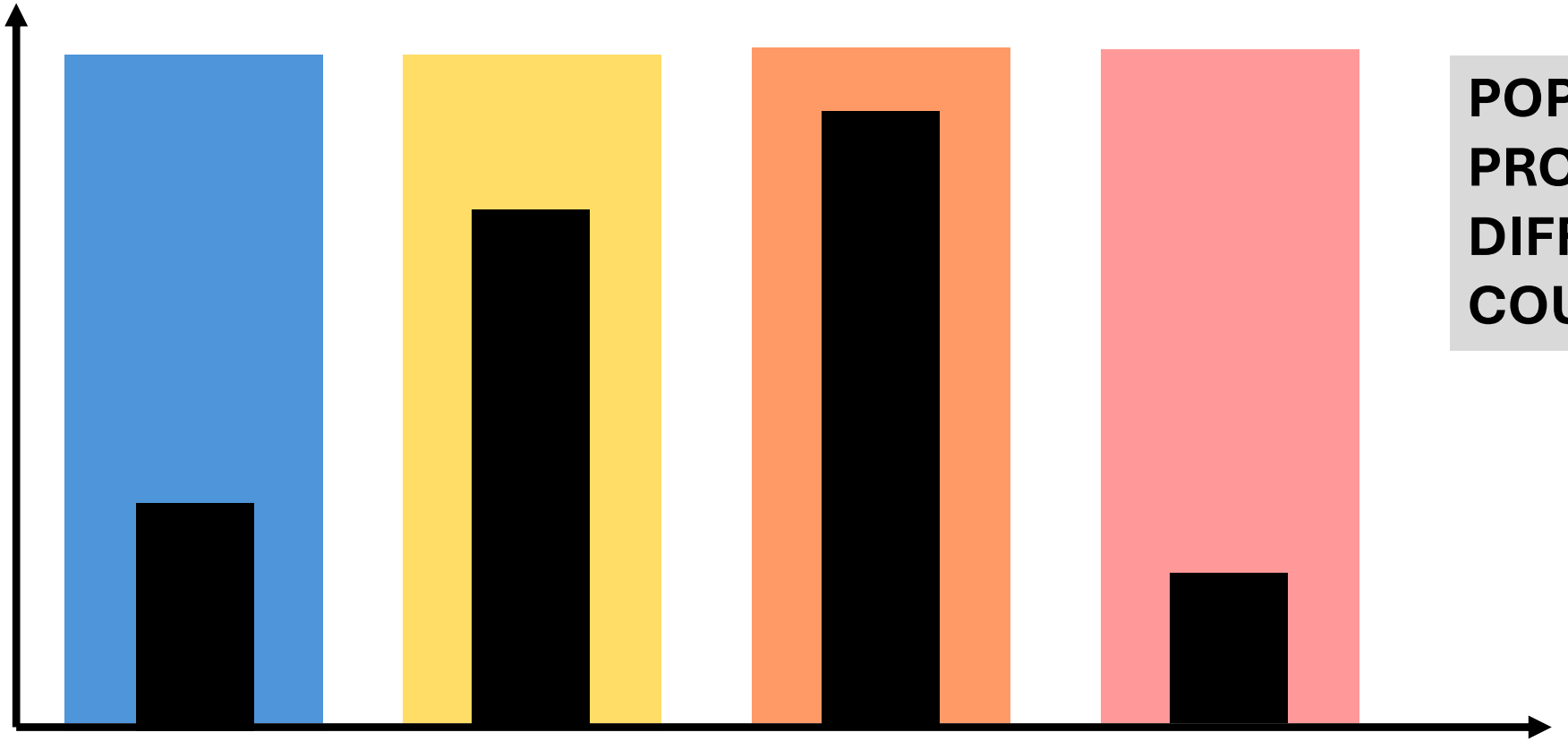
Supported
Sometimes roaming

Supported
Always roaming

Unsupported
Always roaming

Dog Population Profile

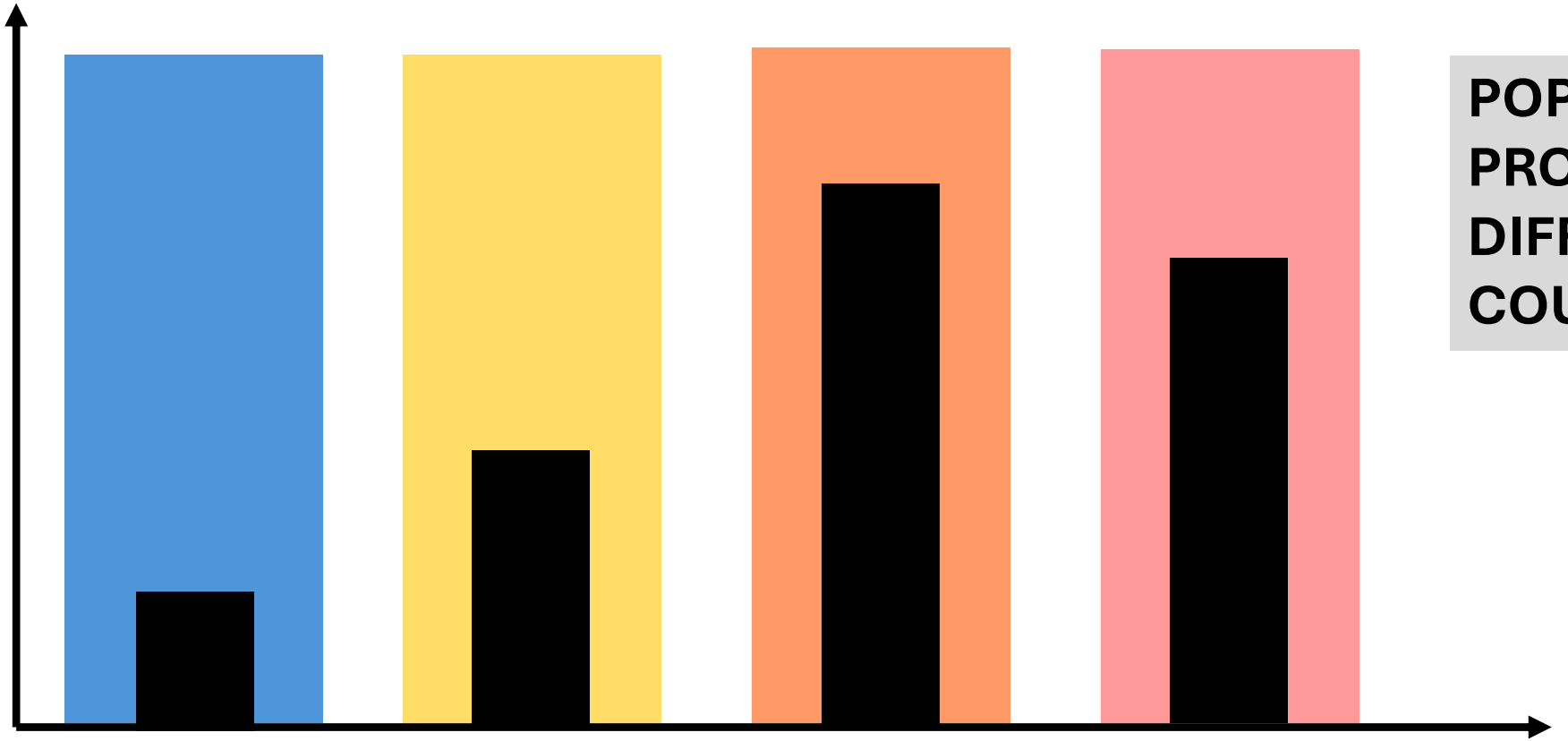
Number of dogs



POPULATION PROFILES DIFFER BY COUNTRY

Dog Population Profile

Number of dogs



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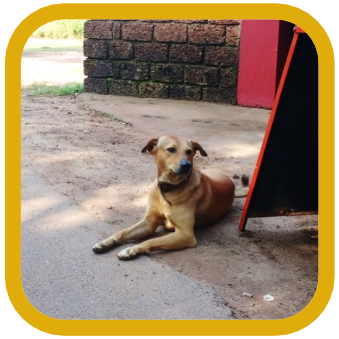
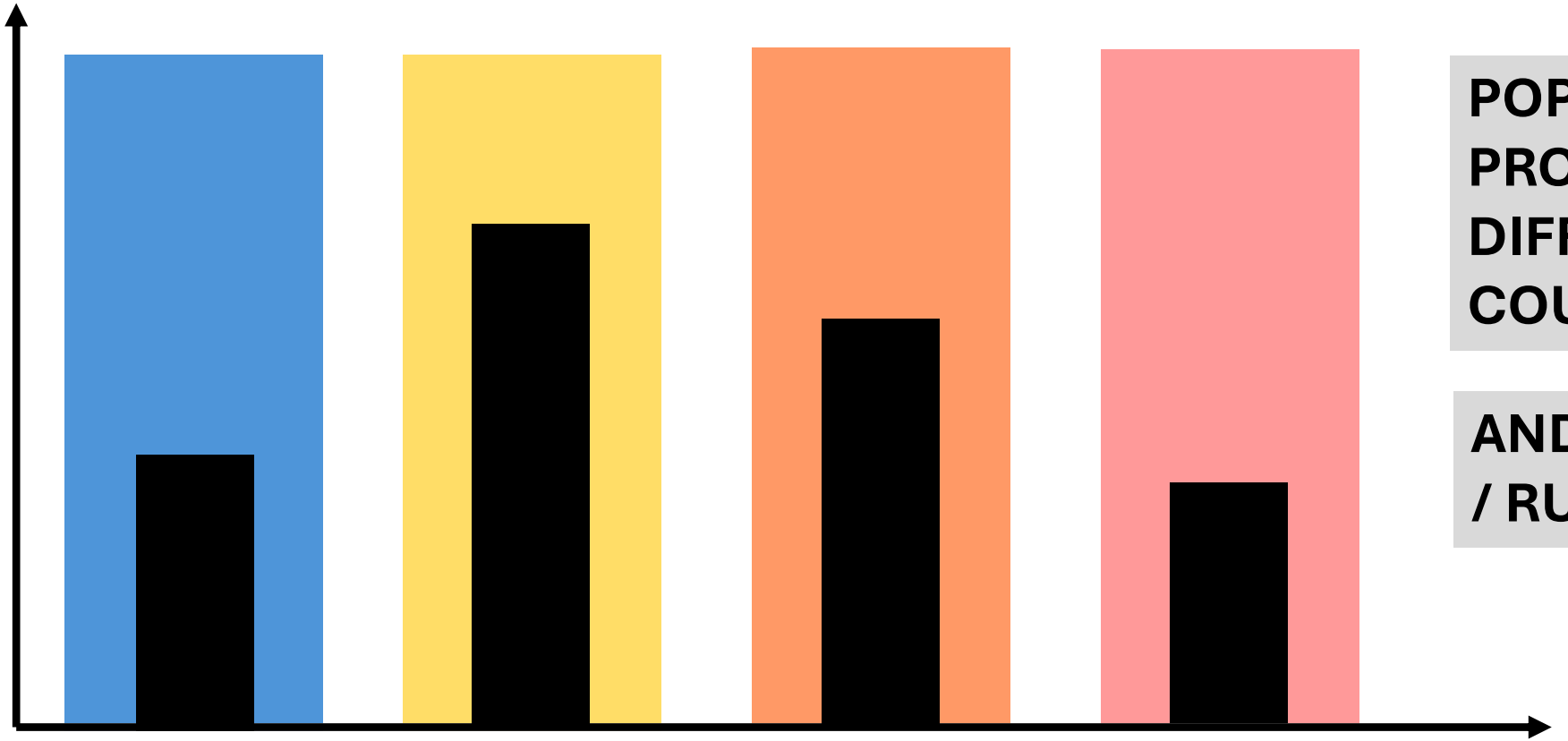


Dog Population Profile

Number of dogs



POPULATION PROFILES DIFFER BY COUNTRY

AND BY URBAN / RURAL

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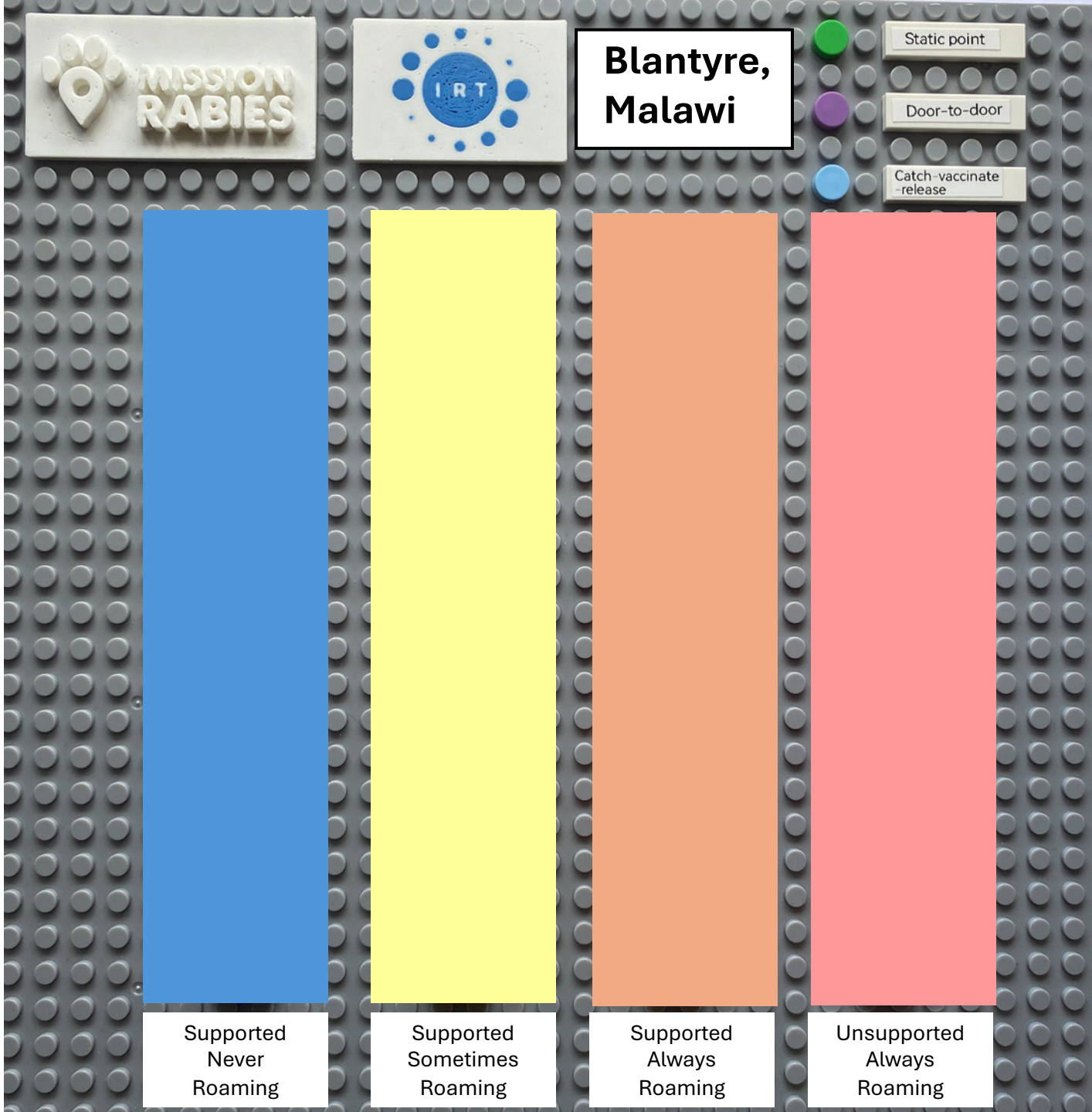

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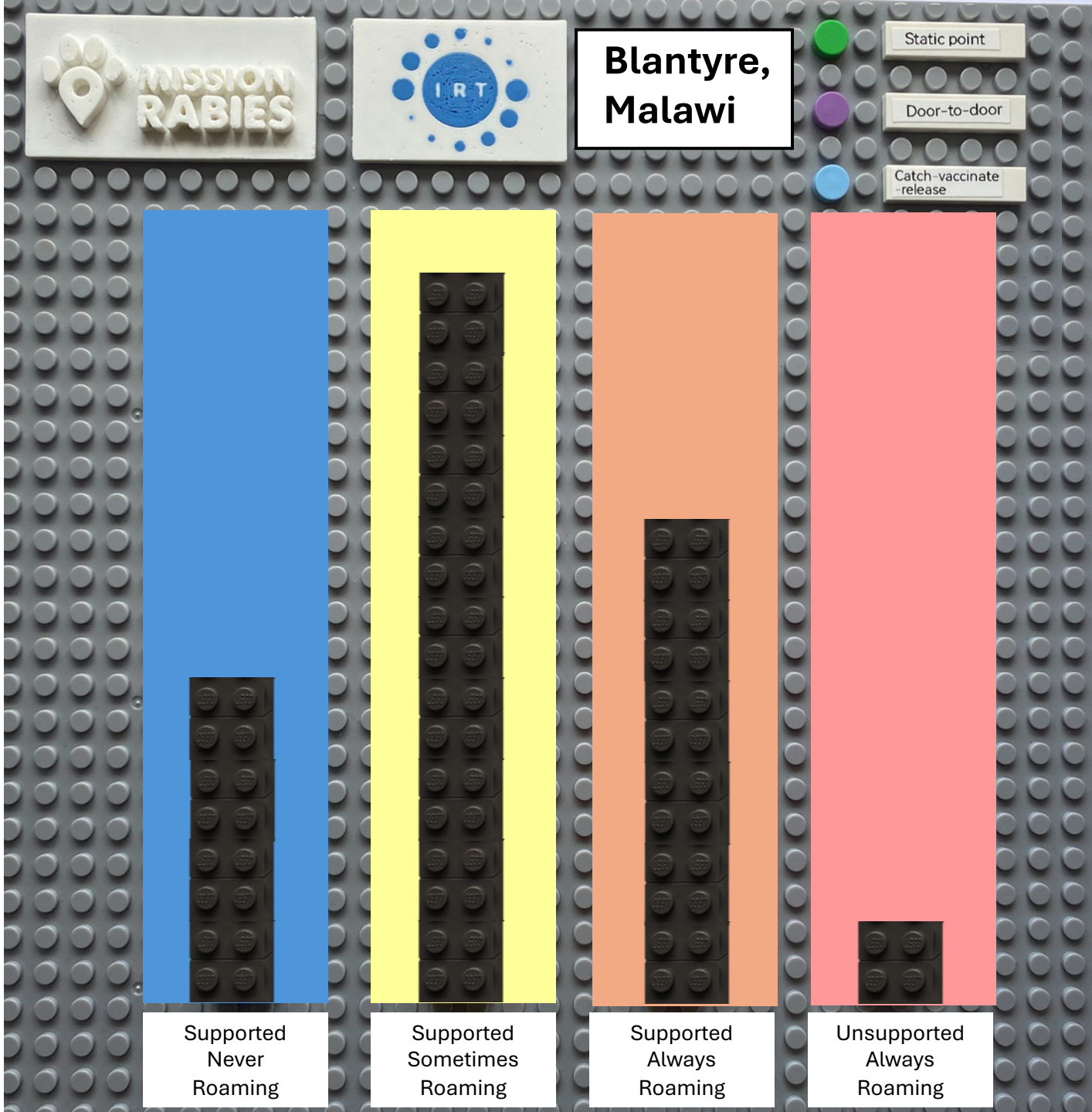
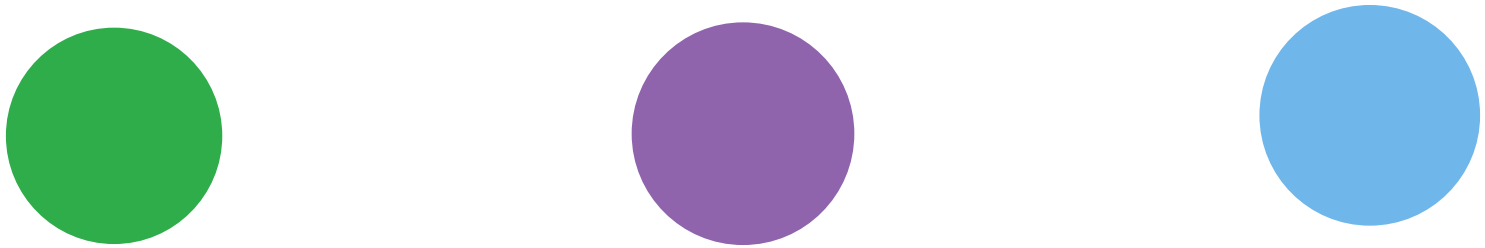
2. Stack your blocks in each column to show the distribution of dogs in the population based on human support (ownership) and degree to which they can roam.
3. Discuss why you have chosen this distribution. Please volunteer if you would like to present your thinking to the group.

PARTICIPANT POPULATION PROFILE PRESENTATIONS & DISCUSSION

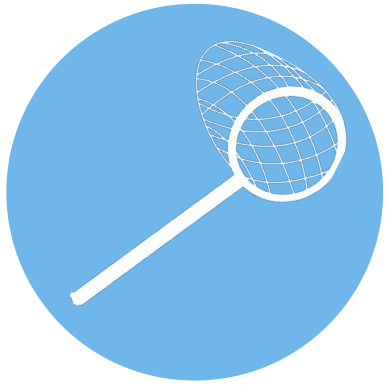


PART 2

Consider Vaccination Methods



Matching methods to populations



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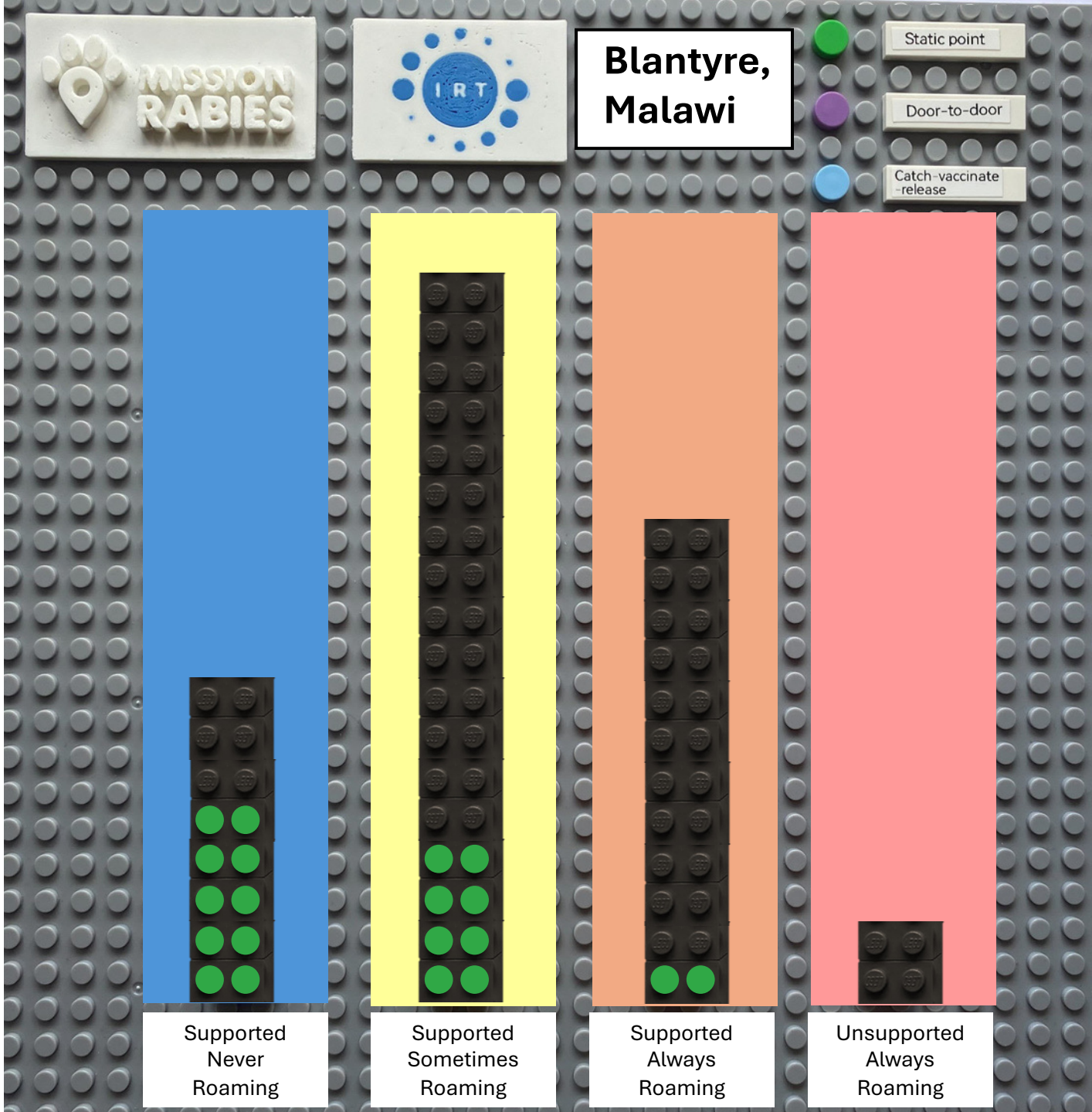
4. Add the GREEN Static Point pins on the proportion of dogs in each group that you think will be brought for vaccination by this method. ●

STATIC POINT



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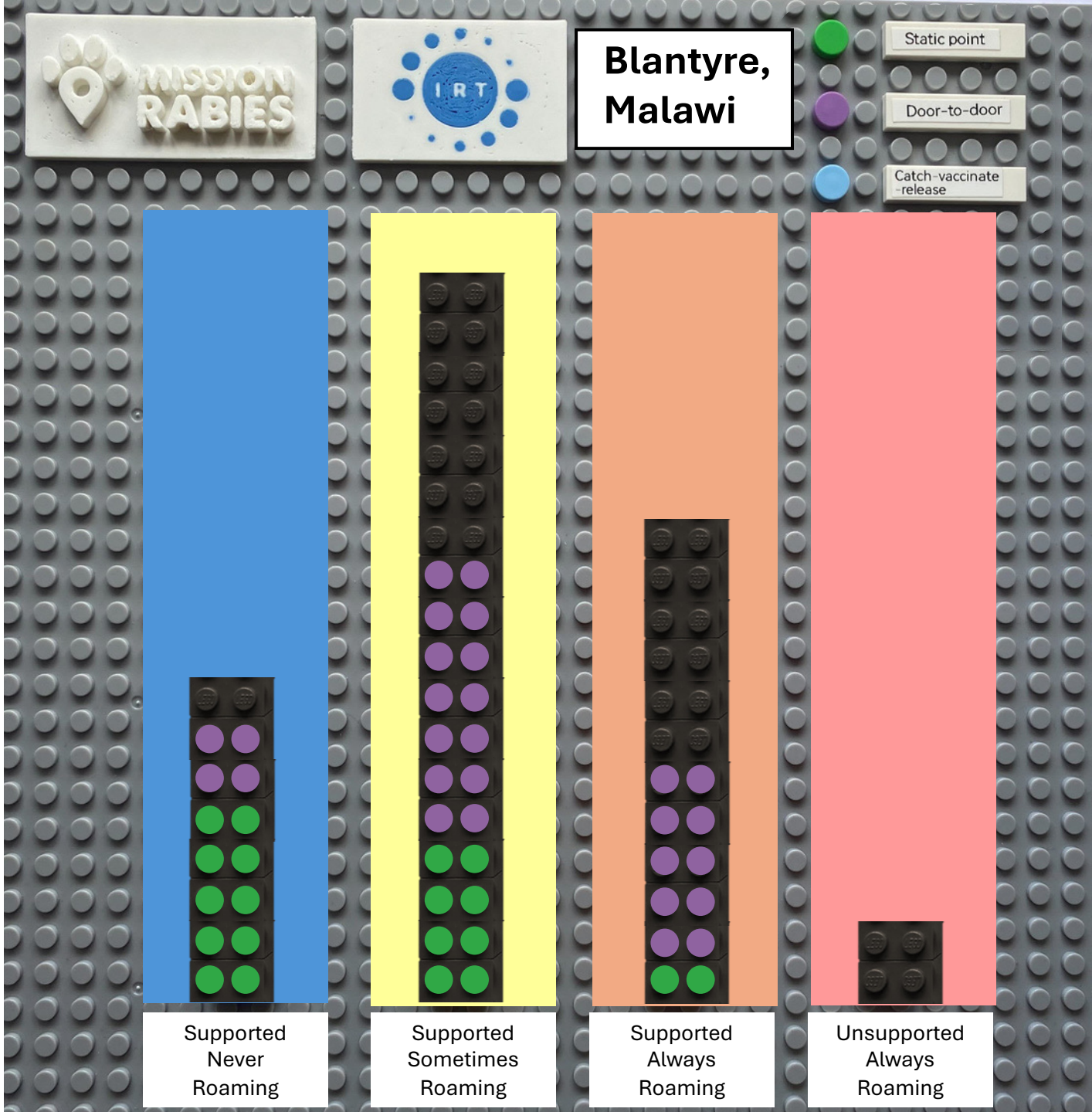
DOOR-TO-DOOR



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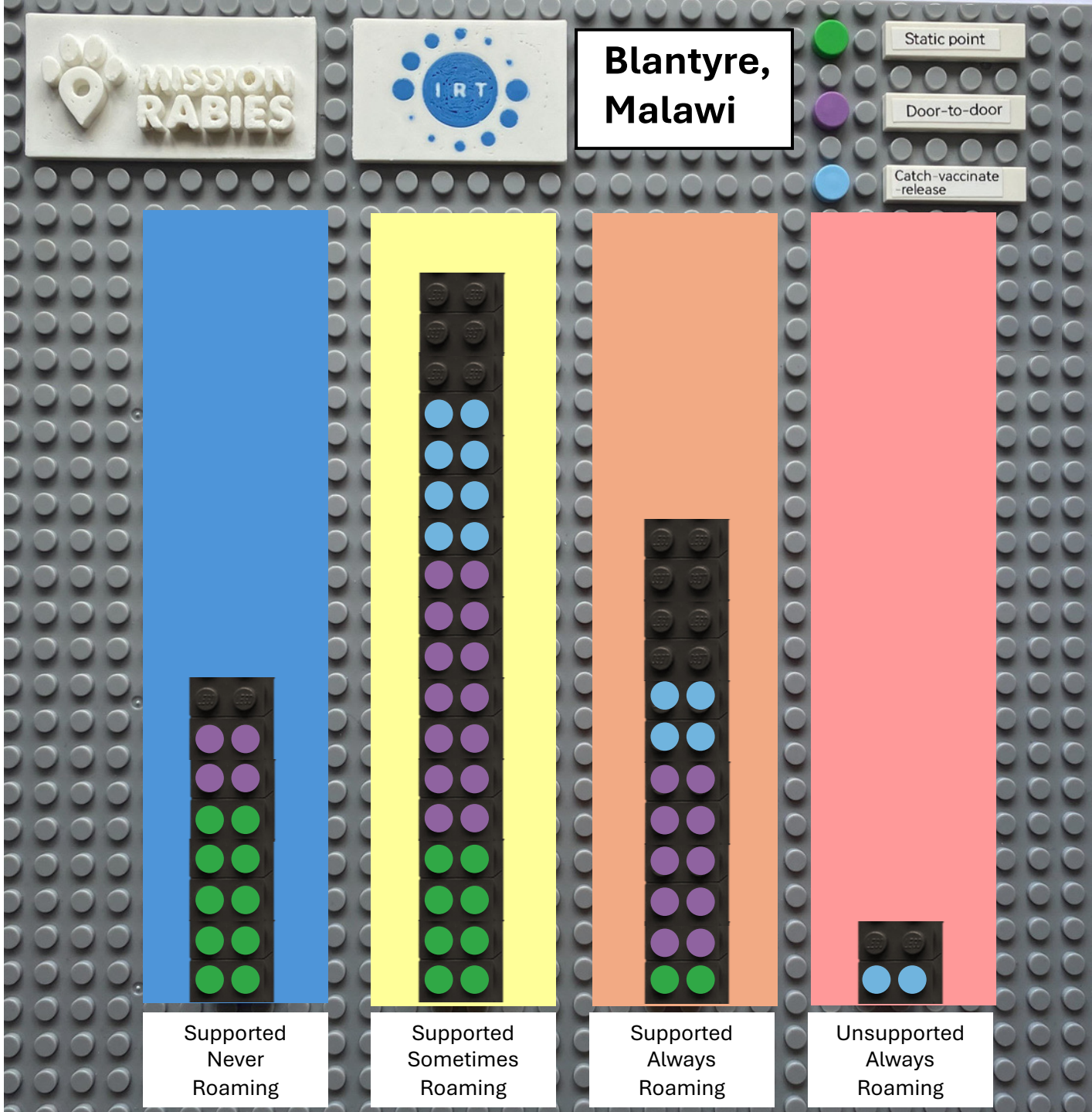
6. Add LIGHT BLUE Catch-Vaccinate-Release pins on dogs in each group you think would be vaccinated by teams catching dogs in nets.

CATURE-VACCINATE-RELEASE



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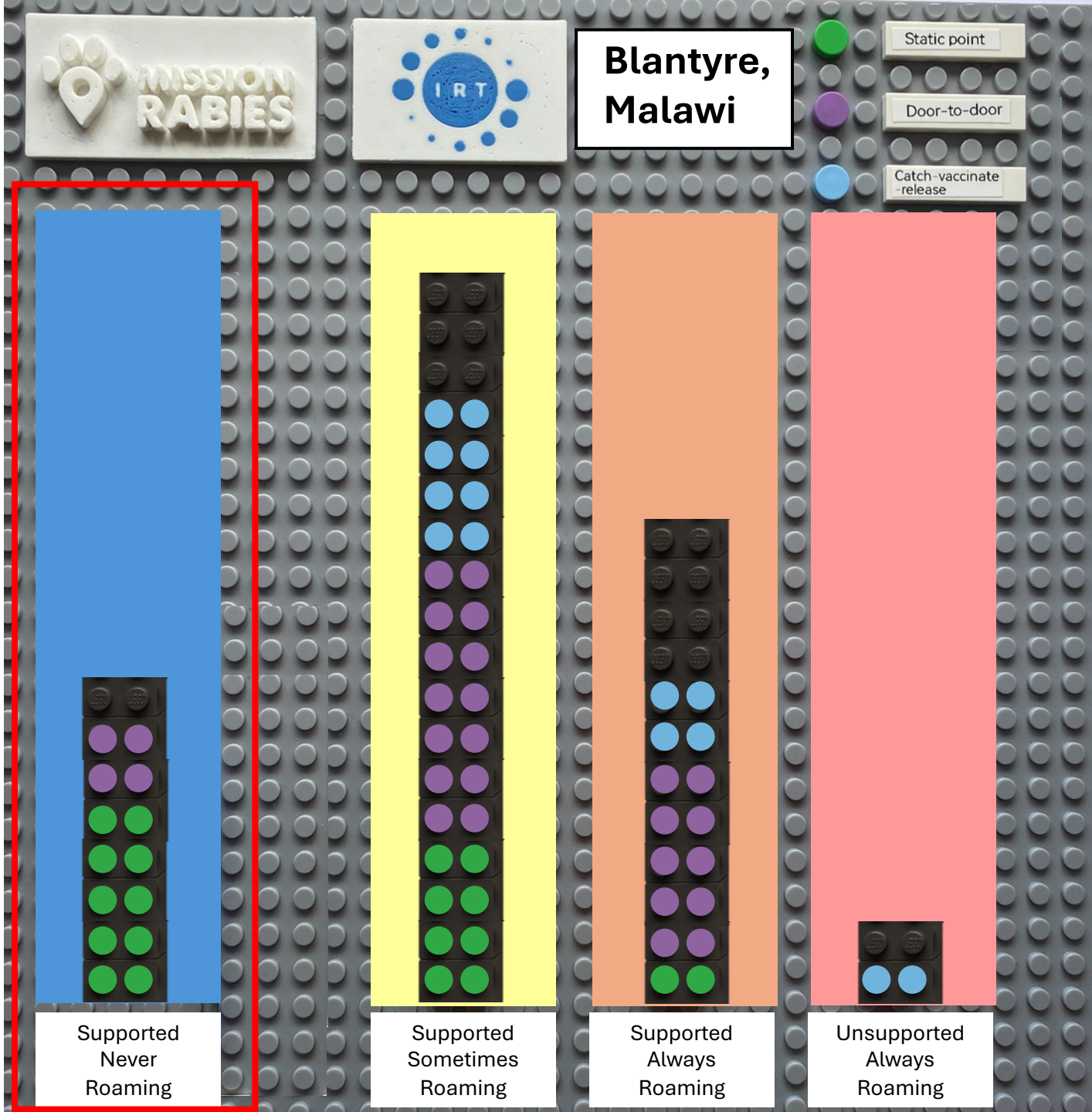
7. Dogs in the BLUE column (Never roaming dogs), will not considerably contribute to rabies transmission in the roaming population, but do pose a considerable risk to human rabies transmission if they get rabies. Should these dogs be prioritized in government mass vaccination efforts to control rabies?



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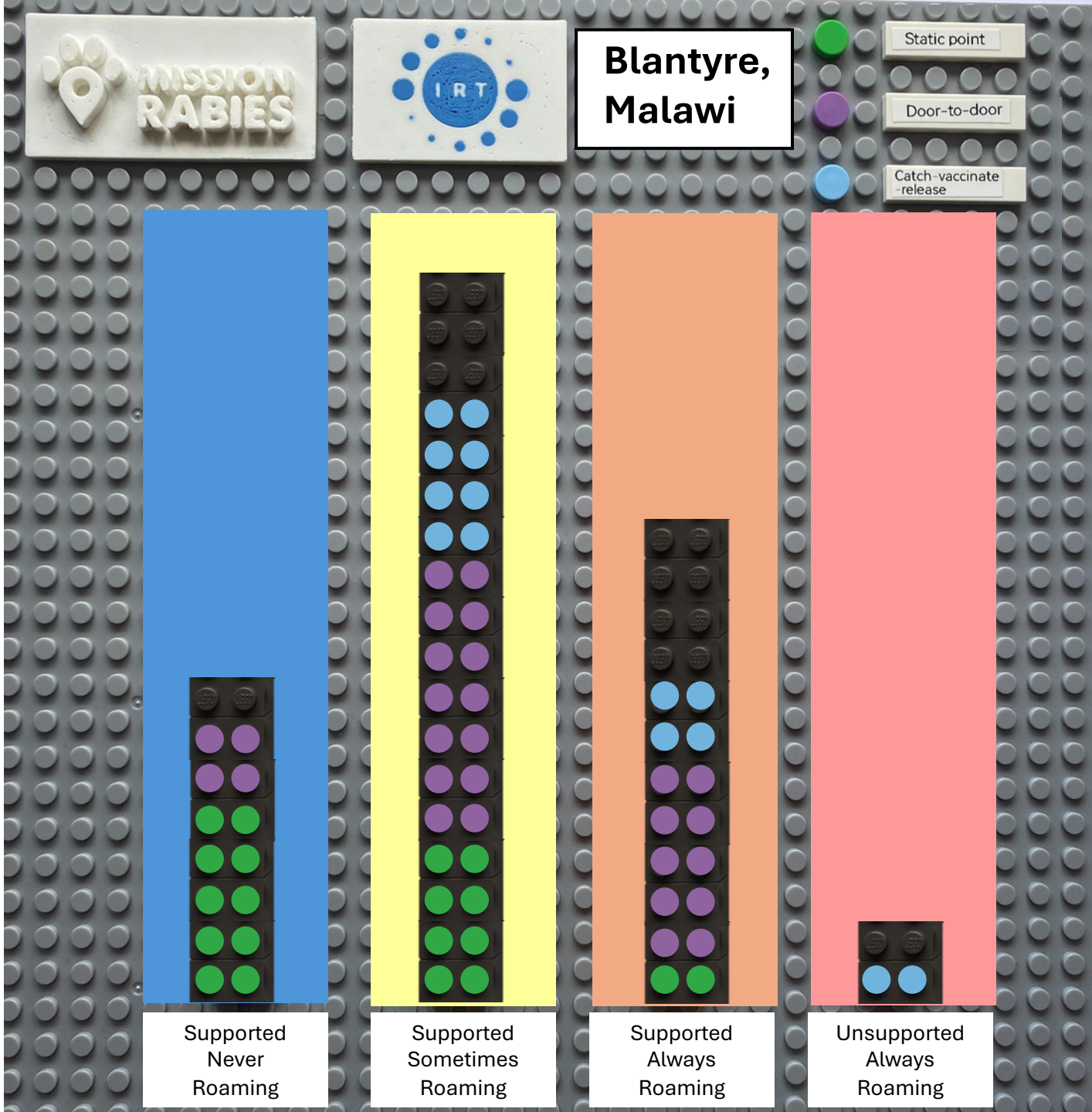
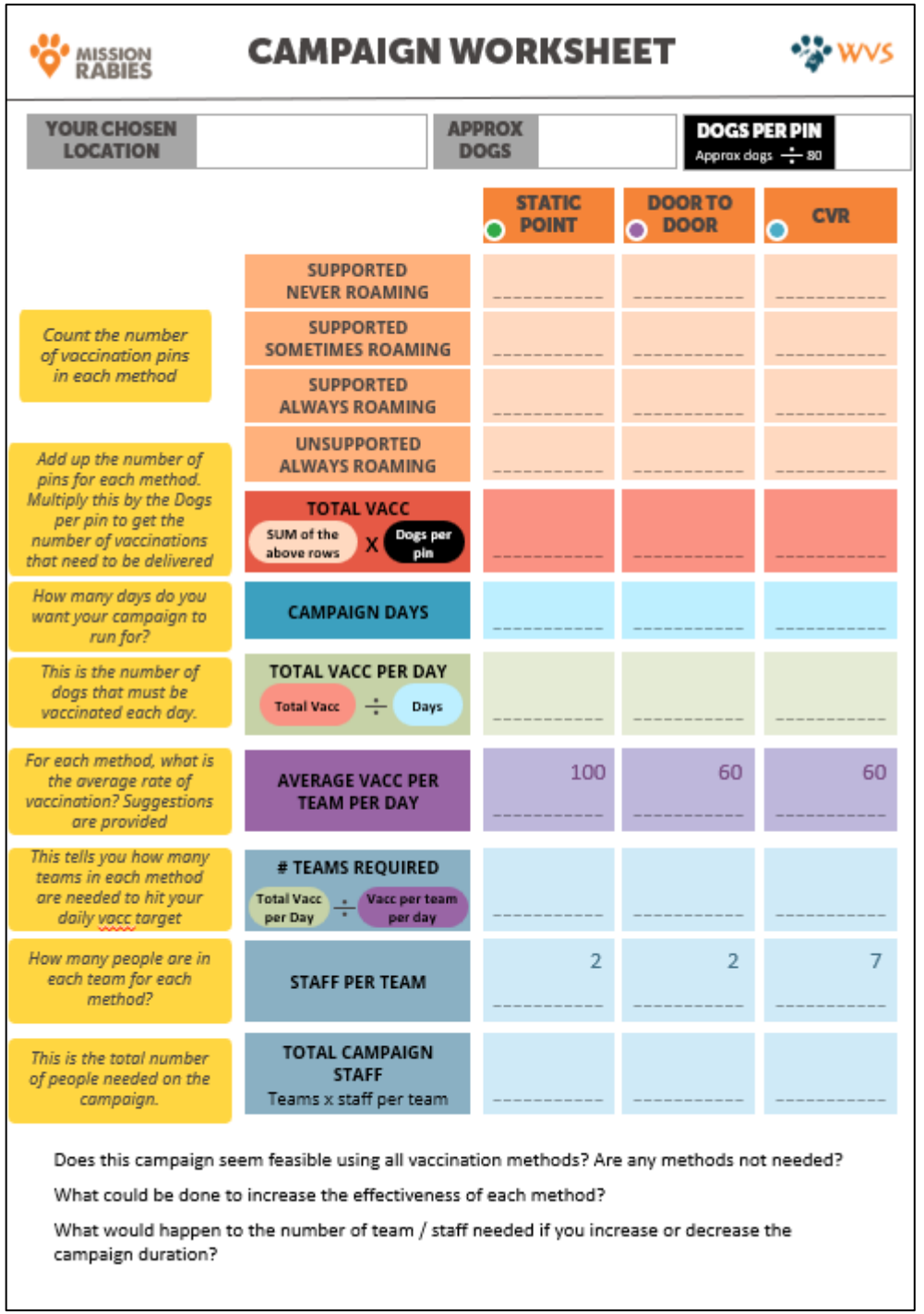
8. Consider the vaccination coverage achieved with Static Point vaccination alone – is this coverage enough to eliminate rabies in roaming dogs?
9. Discuss your perspectives with the group on the best approach to mass dog vaccination in this setting



PART 3

Building your campaign

Work your way through the exercise sheet to play with the relationships between methods, campaign duration and numbers of teams needed to deliver a campaign.



MISSION RABIES

CAMPAIGN WORKSHEET

WVS

YOUR CHOSEN LOCATION		APPROX DOGS		DOGS PER PIN (Approx dogs ÷ 80)	

		STATIC POINT	DOOR TO DOOR	CVR
Count the number of vaccination pins in each method	SUPPORTED NEVER ROAMING			
	SUPPORTED SOMETIMES ROAMING			
	SUPPORTED ALWAYS ROAMING			
Add up the number of pins for each method. Multiply this by the Dogs per pin to get the number of vaccinations that need to be delivered	UNSUPPORTED ALWAYS ROAMING			
	TOTAL VACC (SUM of the above rows X Dogs per pin)			
How many days do you want your campaign to run for?	CAMPAIGN DAYS			
This is the number of dogs that must be vaccinated each day.	TOTAL VACC PER DAY (Total Vacc ÷ Days)			
For each method, what is the average rate of vaccination? Suggestions are provided	AVERAGE VACC PER TEAM PER DAY	100	60	60
This tells you how many teams in each method are needed to hit your daily vacc target	# TEAMS REQUIRED (Total Vacc per Day ÷ Vacc per team per day)			
How many people are in each team for each method?	STAFF PER TEAM	2	2	7
This is the total number of people needed on the campaign.	TOTAL CAMPAIGN STAFF (Teams x staff per team)			

Does this campaign seem feasible using all vaccination methods? Are any methods not needed?

What could be done to increase the effectiveness of each method?

What would happen to the number of team / staff needed if you increase or decrease the campaign duration?

Thank You

Any questions?