Important Considerations for Implementing Oral Rabies Vaccination of Free-roaming Dogs in Thailand Urban Communities

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Abstract

This article challenges scientific research lacking social perspective and the conventional assumption that only humans have emotions and can think. Sixty free-roaming dogs from three Thailand provinces including Phitsanulok, Phetchabun, and Prachuap Khiri Khan were investigated by integrating human and animal studies and ethological framework. Three types of free-roaming dogs identified were dogs with owners, community dogs, and free-ranging dogs. The study found that dogs with owners mostly received vaccination whereas only half of the community dogs did receive them, and free-ranging dogs had neither vaccination nor sterilization. Offering Oral Rabies Vaccine (ORVs) via baits was possible only for community dogs if taste and type of baits were similar to existing local food. Nonetheless, the dogs only accepted baits from familiar voluntary feeders with specific characteristics and conditions, including the middle-aged to elderly woman, speaking in low-pitched voice, keeping distance 1-2 meters apart while placing baits, having no eye contact, and dominant or aggressive behavior during handing out baits. The mutual obligation between dogs and feeders is based on trust and emotional connectivity. Nonetheless, applying ORVs to community dogs was time consuming and required sufficient volunteers to observe their eating behaviors. Social stratification in the group allows alphas dogs to overtake ORVs resulting young female dogs few opportunities to reach the baits.

Keywords: Oral Rabies Vaccines (ORVs), Community Dogs, Free-roaming Dogs

Introduction

The crucial reason for the current interest in free-roaming dogs in urban communities is because the growth and expansion of urbanization spurs a unique set of massive impacts to human and urban development. The World Health Organization (WHO) estimates that there are more than 200 million free-roaming dogs worldwide, and at least 55,000 people die from rabies every year. To overcome this health hazard, The Tripartite (Food and Agriculture Organization (FAO), World Organization for Animal Health (OIE), World Health Organization (WHO) set 2030 as a global target. To achieve the target, the New 2021-2030 Road Map was announced. The Global Alliance for Rabies Control (GARC) suggested the coordination of involved parties to make zero human rabies deaths possible (Wallace et al., 2017). However, this strategic global plan faces a great challenge since the numbers of free-roaming dogs living in urban communities are multiplying, especially in developing countries.

In the 1980s, European Union countries found a solution to the problem of wildlife rabies. Especially the group of foxes that cause the epidemic of rabies. Solving that epidemic by producing oral rabies vaccine, technique of aerial distribution of vaccine from the airplane. This technique has been proven to be successful and used both inside and outside the European Union (Robardet et al., 2019). There is also an expansion of the group of experimental animals to the small Indian mongoose of the Caribbean islands. The results showed that the SPBN GASGAS oral rabies vaccine was convenient to use, safe for other animals, and helped to reduce the epidemic of

rabies (Ortmann et al., 2018). However, this article study from the Thai oral rabies vaccine trial project. It uses a strain SPBN GASGAS that has been tested to be the safest for dogs and has been recognized internationally (Bobe et al., 2023).

There are at least 750 million free-roaming dogs living in cities. To overcome problems of urban free-roaming dogs, Oral Rabies Vaccine (ORVs) has become the latest innovative scientific solution. After the achievement of effective rabies control in terrestrial wild carnivore and feral dog reservoirs, the integration of ORVs into prevention and control strategies was considered a socio-economically acceptable method that might apply to canine rabies. Although using ORVs is yet to be implemented on the scale needed in the development countries, there is a strong belief that ORVs will be the most challenging method for urban free-roaming dog management worldwide. Studies suggested that more adaptive methods for enhanced effective rabies control programs require a broader range of research such as ORVs-related dog research; community dynamics, ecological and management perspective (Slate et al., 2009). Although there are many different types of baits that have been researched and evaluated successfully, no universal characteristic of volunteer feeders nor interaction between the feeders and dogs has been identified to date (Cliquet et al., 2018; Leelahapongsathon et al., 2020; Sirasoonthorn et al., 2020). The most crucial root causes of the free-roaming dogs are abandonment behavior of their owners related to socio-cultural factors including family tragedies, intolerable characteristics of the dogs, facing economic crisis, sickness, and unwillingness to continue nurturing (World Health Organization, 2021).

Some studies showed these dogs offered psychological support to poor urban residents (Wisudthiluck, 2017; Sirasoonthorn et al., 2020); however, free-roaming dogs are often considered as the major cause of serious human health problems, socio-cultural, environmental, and political impacts to urban residents and organizations. Human health impacts are identified as crucial public issues. These include zoonotic diseases and notably rabies. Socio-cultural impacts are also identified such as nuisance, traffic accidents, and socio-cultural conflicts among urban residents. Political impacts include problems of public management, lack of management budget, and conflicts among involved agencies. Environmental impacts include hazards to the environment such as feral dogs in public parks, noise pollution, and feces garbage (Lyu, 2015; World Health Organization, 2021).

There are difficulties in administering the program because of the required skills of dog-catching teams, the large proportion of the free-roaming dogs, population density in urban communities; and the problems of financial, operational, and logistical limitations in relation to ORVs. Most research highlights the potential and need for the use of ORVs to control free-roaming dogs rather than explaining how to make it possible in the developing world where rabies continues to be widespread (Fooks & Jackson, 2020; Kasemsuwan et al., 2018; Yale et al., 2022).

Much has been presented to argue using the experience of one's species to understand and evaluate other species. Although the anthropomorphic approach has long been a crucial tool for animal biologists (Schaller, 1973, p. 196), it's based on a human centric perspective and simple assumptions about animal studies.

Of many studies about the rally's vaccines, only a few have focused on the aspects of a dog's life and the dog's social interaction with humans, especially the voluntary dogs' feeders who happened to be poor and generous. Limitations in the application of human and animal studies have included ignorance and lack of effective animal study tools as well as a huge gap of knowledge concerning integration of socio-anthropological perspectives concerning managerial aspects of free-roaming dogs. Until now, publications about socio-cultural perspectives and perspectives about dogs and the implementation of oral vaccines have not been available (Thomas, 1993; Chanachai et al., 2021; Sirasoonthorn et al., 2020).

According to Benston (2009), human-animal studies should highlight diversity of identity and complex characteristics of animals. Instead of focusing on the study of problems facing animals, this article thus highlighted the study of the life of free-roaming dogs and their complex behaviors when facing human innovation.

An obligation to treat urban free-roaming dogs with dignity and respect should be lessons of how humans can learn to live together with other species in ethical ways. By applying socio-anthropological perspective to the implementing of vaccination, this research offers an affordable strategy for urban free-roaming dogs management policy framework.

Research Objectives

The objectives of the study were 1) to analyze the social life of free-roaming community dogs under the condition of oral rabies vaccination program, and 2) to suggest an appropriate approach for oral rabies vaccination in urban areas of Thailand.

Methods and Materials

The constructive grounded theory was applied to investigate 60 free-roaming dogs and 12 voluntary dog feeders from urban communities within three provinces of Thailand including Phitsanulok, Phetchabun, and Prachuap Khiri Khan. These areas were chosen because of the significant increase in free-roaming dogs and of regular complaints. Moreover, they were chosen because of the previous findings which revealed notable characteristics of free-roaming dogs, and forms of social interactions with the voluntary local dog feeders (Sirasoonthorn et al., 2020).

The selection criteria for free-roaming dogs included all dogs who are freely living in the same spot in the target urban community. The voluntary dog feeders included all feeders who have regularly and voluntarily provided free food for the dogs longer than one month. Data was gathered during 2019-2021. Firstly, participant observations were adopted to gather three types of major information about the dogs: 1) lifestyle, 2) four demeanors: custom, weighing alternatives, playing, and coping with problems, and 3) consumer behavior and types of favorable baits. Secondly, in-depth interview guidelines and participant observation checklists were adopted to identify the dogs' social interactions with local dog feeders. Each case was regularly observed, and spot checked. To ensure anonymity, pseudonyms were assigned to all key informants. Each dog was given a code name. The interview recordings were transcribed in verbatim style. Coding categories were derived and formulated from text data. The data was analyzed using thematic analysis.

Incidentally, this article is joint research with a team of veterinarians. The behavioral observations are under the consultation of a veterinarian. The period of time was determined in 1 area, a total of 3 times: Phase 1, the first day, Phase 2 after 30 days of vaccination, and Phase 3 after 90 days of vaccination.

Results

1. General Characteristics

There were 38 female and 22 male free-roaming dogs living in urban communities of the three target areas. Among them, six alphas, fifteen mothers with twenty-two puppies, and fourteen young dogs were observed

with only thirteen dogs sterilized (Table 1). The organizations actively involved in the sterilization were municipality, provincial livestock, non-government animal care organizations and local feeders respectively.

Table 1 Characteristic of Target Urban Free-roaming Dogs (N = 60)

Provinces	Social Status and Characteristics						
	Alpha	Old	Mother	Young	Puppy	Male	Female
Phitsanulok	1	0	2	4	10	7	10
Phetchabun	3	2	6	7	8	10	16
Prachuap Khiri Khan	2	1	7	3	4	5	12
Total	**6**	**3**	**15**	**14**	**22**	**22**	**38**
						60	

Sources: Field Data, 2019-2021

1.1 Lifestyle

Three types of urban dogs were identified: 1) dogs with human owners, 2) free-roaming dogs, and 3) free-ranging dogs. The dogs with human owners had three forms of captivity including full captivity inside the house, free-range husbandry during daytime and nighttime captivity inside the house or a cage, and fully living outside the house or other public spaces nearby. This type of dog sometimes became an urban free-roaming dog. The dogs with human owners mostly had a vaccination from local veterinary clinics, usually paid for by their owners. Some dogs received free of charge vaccination from local administrative government or from the office of the provincial livestock. Most of them had been sterilized and been given regular food and a home. Types of food included commercial dry dog foods, canned dog food and leftover common human foods. The dogs tended to have an over consumption of salty food, sweets, and bakery items. Although they looked healthy with shiny clean coats and odor-free ears, most of them were overweight.

The second type of dog were urban free-roaming dogs of 3-8 dogs living together at the same spot for more than a month. Their choice of settlement habitats included being close to sources of food such as local marketplaces, litter, garbage dumps, or small ditches. All observed urban free-roaming dogs had a home which was usually in the form of a small earth pit under a tree, under eaves, in an abandoned shelter, or a small space in a big building such as a school, university, government office, temple, or parking lots. They marked their home by urinating normally or a little spraying on upright objects. They were recognized by residents as the community dogs.

The third type of dog, free-ranging dogs, had no home. They lived alone in the city and normally quietly stayed at the same spot for only a few hours up to one day before moving to the next one. These dogs had a life of their own. They lived and died throughout their natural lives as nomads. They were free and acted naturally. They roamed, reached maturity, bred, gave birth, and traveled urban streets. They were mostly in bad condition, skinny, itching and with hair loss. Some had eyelid disease, tumor cancer, and ear mites. Many had heartworm disease because of mosquitoes. Some of them were tormented, poisoned, or killed.

They were truly homeless dogs, alone in hostile settings, and mostly living under terrible stress for all their lifespan. These free-ranging dogs distrusted human beings and did not receive food directly from local feeders nor strangers. They had sad eyes, always kept their tails in between their legs, kept their heads low, kept their distance from humans, and looked frightened. They had trouble finding food and shelter. These dogs did not eat commercial dog food nor accepted baits.

In Prachuap Khiri Khan Outskirts, there were hundreds of free-ranging dogs living in two districts, Pran Buri and Hua Hin. The first habitats were remote groves at the coordinates of 12.3918771, 99.904206 (Khao Noi Temple); 12.3779052, 99.893828 (Nong Ta Taem Sub-District); 12.3896938, 99.9066325 (near Thai Pineapple Canning Industry Company Limited); 12.4071274,99882015 (near Thammawari Sirattanaram Temple); and 12.407386, 99.9196758 (Thanarat Infantry Camp). The second habitats were in suburban forests at the coordinates of 12.5699116, 99.9557267 (Sa Song Road); 12.5867176, 99.9382177 (near Khao Mahakassapa Temple); and 12.5749595, 99.9555423 (Hua Hin 53 Road) (Figure 1).

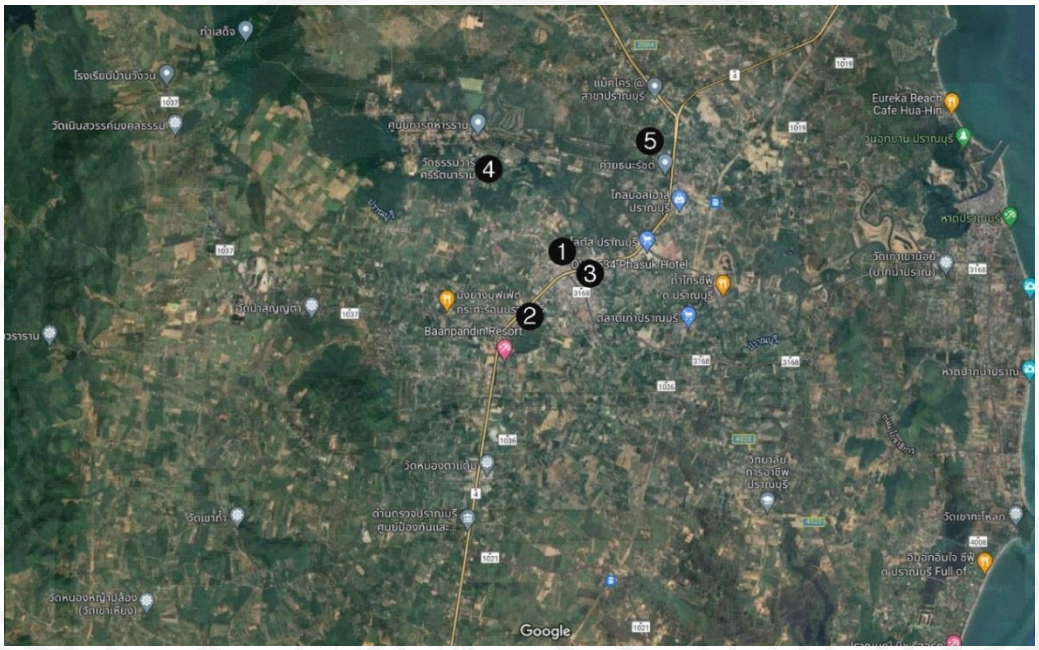

Figure 1 Map of Free-roaming Dogs' Zone in Pran Buri District.

In Phetchabun, hundreds of free-ranging dogs were living in the municipality garbage dump located outside the city at the coordinates of 16.361024, 101.198018 (Na Pa Sub-District). Another place was a small ditch near a big shopping mall at the coordinates of 16.4251768, 101.1540203 (Phet-Plaza). Among the three target areas, Phitsanulok seemed to be the only province that had no living habitats for free-ranging dogs. The free-ranging dogs in Prachuap Khiri Khan and Phetchabun provinces fully turned themselves into wild animals. All of them came out from their habitats from time to time merely in search for food. They had no history of sterilization nor vaccination. They lived on left garbage or wild animals such as rats, birds, squirrels, and snakes. Their current population was unknown.

2. Demeanors of Free-roaming Community Dogs (FCDs)

Four major demeanors of FCDs were identified: custom, playing, weighing alternatives, and coping with problems. This information provided in-depth information about the FCDs' lifestyle and eating behavior. Although each individual FCDs had unique lifestyles, they had similar basic needs. The common mannerisms included settled down, building a home, patronized, or subordinate to the others, unreasonably demanding, and showing respect for the feeding spaces of the other dogs. They searched for a cozy home, looked for food to eat, played, protected their home territory, found mates, and tried to stay safe. Each FCDs developed unique demeanors and identity by copying the older dogs. The young ones took cues from non-verbal communication such as sound, smell, and

body language of the senior dogs. They watched and learned to develop their social identity such as pack order, making territorial boundaries, staying in a pack, and making ways to recognize their social status from an early age. However, they adapted their demeanors after residing in an urban habitat for longer than one year. They had more flexible boundaries with their neighborhood dogs and could identify friendly pheromones from dog feeders and communicated with them by wagging their tails and being in a relaxed posture.

2.1 Dog's Custom

Customs here refer to eating, social interactions, setting a home, breeding, and playing. These included the specific identity of eating, decision making in choosing their most favorite spot, searching for favorite food, and selecting a place to stay. The dogs learn to wait, weighing alternatives, taking turns, and making second thoughts before responding to the external stimulation. Although each dog had learned to develop their personal demeanors, their thoughts were influenced by atmosphere and social status. Similar demeanors, like alertness, to being excited, tail held high, nose to earth and rushing around were common behaviors when confronting unfamiliar or untrusted situations.

This study found that the FCDs usually took their cues from the alpha individual. To keep order in the group, each dog's pack had hierarchy. Rookies learned who the alpha was from the time they were young. All alphas in this study were between two to five years old and all were big and strong males. They directed the actions of the other members in their pack. In times of crisis such as fighting for food or escaping from dog hunting officers, the group members took their cues from the alpha's movement and followed them.

2.2 Eating

Most of the FCDs looked excited when mealtime came, which was usually between 4–5 o'clock in the afternoon after having learned about waiting to eat. However, when the regular feeder was absent and the sky was getting dark, they started howling before quietly returning to their home. Everyone ate differently based on their social status. While eating, the alpha dogs first chose a bowl. Their eating demeanors were flexible. They may stand or lie down while eating their food. Some got up and moved around and staring at the other dog's bowl was common behavior. They often licked out one another dogs' bowls. During food scarcity, the alpha might take all the food for himself. Younger female dogs had the lowest status. They copied the old dog's eating habits. The young ones and females would lie down and wait near each other. While eating, young dogs normally kept a bowl between their forelegs, chest touching the ground and hocks down. They quickly and quietly ate. When sharing their food, the FCDs ate simultaneously glancing, and keeping up with the feeding pace of the others. They occasionally glanced at the familiar feeder and other dogs from the corners of their eyes. This eating custom allowed controlled and orderly demeanors in the pack.

Figure 2 Example of Community Dog Food.

Most FCDs had daily habits of eating leftover human foods. Their major sources of food were from local dog feeders and sometimes from mobile food vendors. However, they also searched for their own food from marketplaces, garbage dumping, and from nature. Their favorite types of foods included cooked rice mixed with soup, fish, pork, or chicken. However, these dogs did not always accept all kinds of food from local feeders. They investigated foods before eating them by smelling and testing small parts before taking a big bite. They rejected some food that did not meet their expectations. The dogs' most favorite foods varied from one pack to the other. The FCDs in Prachuap Khiri Khan liked strong fishy smelling food such as boiled piece of rice with tuna fish (CHANGE TO: boiled rice with a piece of tuna). The dogs in urban Phetchabun liked grilled chicken, pork balls, and rice. Those in urban Phitsanulok liked mixed rice with noodle soup, biscuits, and commercial dry dog food with local sausages. This study found that size of food does matter to their eating behaviors. Big sized food around five inches in length was often buried into the nearby secret place instead of being eaten instantly. Nonetheless, type, scent, and taste of food were less important than trust and familiarity with the feeders.

Figure 3 Example of Favorite Feeders in Pran Buri District.

2.3 Social Interactions

In an FCDs pack, the hierarchy system was very dominant. Most of the dogs had learned to acknowledge the high status of others since their early puppyhood. The strongest and most able to stand up to the physical challenge of other pack members or intruders had the highest-ranking of individuals or later often became

an alpha. In this study all six alphas were males and the strongest and biggest in their pack. These alphas showed their highest social order by leading the fight for food, marking territories, and saving their pack members from intruders. Beneath the alpha individual were other high-ranking members including mature males, females, and young dogs, respectively.

The common demeanors of the lower status included tail tight between his/her legs, acting serene and pleased, and submissive waiting. Membership in a group meant life. The FCDs lived and travelled as a pack, in a cohesive and orderly group. Each pack included 5-15 members with one male alpha. Their unity was expressed in the form of the howl, co-defending their habitat, traveling, sharing food or a den, and playing together. The young ones copied older dogs or their mothers. To stay in the pack, dogs policed themselves until the end of their lives. Most fights of the FCDs were caused by disagreement over status or ranking. The most common warning signals were showing their teeth, up-righting fur, and the swelling-up of their bodies.

Social interaction between mother and puppies was unique. For example, the FCDs in Prachuap Khiri Khan where their territories were close to highway, when accompanying with her little pups, mothers tended to move slower, avoid crossing highways, no venturing outside her pack, or going into other dogs' territory. When the little puppies went out of the way, biting the babies was merely nibbling with teeth for disciplinary action rather than seriously harming them.

Apart from social interactions with their pack members, the FCDs had social interactions with regular local dog feeders. They have built a bond of trust and mutual obligations with feeders. Their trust was demonstrated in forms of waiting patiently, accepting food, and allowing the feeders to come close or sometimes touching their bodies.

2.4 Setting Up a Home

FCDs demonstrate flexible but complex decision making when they set up a home. Location, type of home, source of food, sex, social status within the pack, and their physical condition were the most crucial individual factors. However, alpha dogs seemed to play the most important role in the pack. The rest of the pack, especially the young ones followed their leader. These FCDs were well adapted to human habitat. They see the world through scent and signs. Before setting up their home territory, alpha dogs frequently visited their marking spot. They interacted with the surrounding environment, sniffed trees, the ground, objects, flowers, and almost everything to detect scents varying between their pack and the others. Then, they left their scents in the urine deposits as a way of marking home territory. Nonetheless, the physical territory seemed to be overlapped with psycho-social territory. All dogs recognized their home even if it was just a spot on the empty land or a small corner of an old shelter. Once, the scent remained established, home existed. The most competitive location for a home was the one that was located close to their source of food, with enough shelter for sun protection, and not too much exposure to human habitat.

2.5 Playing with Different Status

Playing demeanors differed by social status, sex, and age of the FCDs. Old dogs seemed to tolerate less amusement of any kind. They spent most of the day sleeping and being inactive until mealtime. Young male FCDs played a lot with other young dogs in and outside their pack. It was interesting to find that FCDs had a very flexible physical territory. They shared their playground with their neighbors, both dogs and humans. Playing included running around in circles. They may roll over to reveal their bellies submissively with their pack members. While playing, they were excited, alert, had noses to earth, tail held high wagging and barked freely. All observed FCDs smiled during play with their face relaxed with ears low, lips parted and chins high.

2.6 Breeding and Taste

Breeding among the FCDs started with the scent. A full-grown adult possessed specific odors. The high-ranking females tended to start the process. A male showed that he was willing to be their mate by staring at the subordinate female to make her sit down. Breeding between the FCDs was very moving. The most popular and good looks of FCDs were based on scent not beautiful fur nor size.

3. Types of Favorite Feeders

Local dogs' feeders observe that all FCDs are not free-roaming dogs but could be dogs in the community living in the same neighborhood and therefore are defined as community members. This combination plus the relationship between the dog feeders and the people community is very complicated and is commonly tied to socio-economic and political values of other residents and involved organizations. When conflicts between the dogs' feeders and residents increase, the feeders often change the time, place, and type of food. During the election season, this serves as a distraction and FCDs seem to be the issue that is left untouched, and more food is found in the feeding spots.

Nonetheless, FCDs did not eat food from suspicious looking strangers like livestock officers for instance, who are usually males and came with a dog's catcher net, and anesthesia gun. This study found characteristics of the FCDs most preferable personality of the voluntary dogs' feeders. These included a middle age to elderly woman, speaking with a low voice, keeping 1-2 meters distance while feeding, having no eye contact, and showing no dominant manners. The dogs paid special attention to the feeders' behavior from the knees down. The feeder's brief absence from regularly giving food resulted in changes in their interactions. The dogs tended to keep a longer physical distance of 2-5 yards, quietly surrounding the feeders, and took longer times to investigate the scent of both feeders and food. They would smell her mantle, pants, legs, feet, and butt. All dogs from three target sites remembered mealtimes. They would be sitting together quietly in the feeding spot and watching for signs of feeders coming. They remembered the sound of the approaching feeder's motorcycle. When the feeders arrived, they waited and always looked uncertainly at the beginning. Then, they observed the feeders' behaviors, waiting, smelling her odors, slowly approaching by rank, smelling food, eating, and glancing at the surrounding environment before leaving quietly.

4. Possibility of Implementing ORVs

Placing oral vaccine baits by voluntary dogs' feeders was possible in all three target areas with some conditions. Although the experimental study could identify the most favorable vaccine baits which were chicken and pork, eating oral vaccine baits was more dependent upon on trust and familiarity with the regular voluntary dogs' feeders than the taste of the baits. There was no guarantee that all FCDs would get proper oral vaccine baits if feeders were changed. Moreover, the social status of FCDs is another obstacle. The alphas seem to over consume the baits more than the smaller dogs or lower rank dogs such as young female or dogs with handicaps. When the alpha dog was nearby, he often took all oral vaccine baits for himself. Several FCDs buried the vaccine baited food for the next meal and forgot about it. However, other dogs may find and consume the hidden bait. Some urban areas where living habitats of FCDs are close to children's playgrounds, markets and schools could provide opportunities for young residents to mistakenly consume the baits.

To make sure that all baits went to the target FCDs, each oral vaccine bait consumption needed to be observed closely which was impossible in Thailand. Furthermore, limitations include the geographical characteristic of the FCDs' living habitat which makes baiting challenging. For example, in Prachuap Khiri Khan's outskirts, in

Pran Buri and Hua Hin where hundreds of the dogs were living in remote forest groves and those thousands of FCDs living in 40 acres of garbage dump located outside the city of Phetchabun Municipality. Establishment of a rabies management team composed of an effective coalition of multidisciplinary persons with diverse expertise from the public health-management, local administrative government, and nonstate government agencies is necessary. The lack of a strong political commitment and strategic plan of a "must do now" to enhance program sustainability is crucial to improve field performance as well as strategy refinement. Socio-economic analysis as well as ethical consideration of the FCDs well-being need to be balanced.

Conclusion and Discussion

This study argues with a simple anthropomorphic assumption that only a human being has thoughts or emotions. By adopting constructive grounded theory, the lives of FCDs were observed and behaviors involving custom, weighing two alternatives and decision making, problem solving, and adopting a human mannerism. The FCDs behaviors varied by their social status in the pack, age, sex, body strength or size, experience living with humans, past life trauma, space, and socio-environmental context. For FCDs, body awareness was a crucial key to establish their self-awareness or self-representation. They learned it from their social interaction with the outside world. They recognized their own odor and could recall memories of the regular dog feeders or intruders. Alpha dogs realized their social status in the pack from the social reaction with other dogs. So, it was not the size of their body, but the perception of their connection with others and surrounding social environment which established their consciousness and leadership.

This article highlights the crucial necessity of using social perspectives to bridge the gap of knowledge concerning human and animal studies in several ways. First, it confirmed the limitations of human language based on verbal communication. This barrier influences their perspective on the world. This ideology is supported by Thomas (1993), and Wolfe (2008, pp. 27-28). The egocentric perspective of humans on animals, especially dogs, enlarges the gap of knowledge concerning human and animal studies instead of filling the gap. This led to the ideology of replacing FCDs with human beings and sacrificing their life for a better life of urban residents (Bhabha, 1994). The authors agreed with Balibar (1991) that human's simple assumption of the survival of the fittest allows them to assume their civilization over FCDs, using them as a vaccine tester, and have righteousness to take the highest advantages from their lives. According to Deleuze & Guattari (2005); and Deleuze & Parnet (2007), human's individual identities differ from animals. Therefore, anthropomorphism nor reductionism of personification approaches should not simply be applied to the study of dogs' demeanors.

This article was supported by Derrida (2002, p. 399) as the result showed that lives of FCDs are dynamic, diverse, and have individualistic character. While human identities were in the form of arborescent tree structure, the FCDs were in rhizomic form, without center, comprised of a complex network, connectivity, dynamics, and borderless. Adopting human's perspective over the implementation of oral rabies vaccine on FCDs could obstruct the program to achieve its goal. Therefore, applying ORVs into dogs' rabies control programs could become a game-changer in countries. Understanding the diversity of identities, tastes, emotions, roles, demeanors of FCDs and the crucial role of social actors involved in providing vaccinations, is essential to achieve the goal of vaccination coverage in the dog's population.

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