

# The Yale Undergraduate Research Journal

---

Volume 2  
Issue 1 *Spring 2021*

Article 27

---

2021

## Canines and Commons: An Institutional Analysis

Andy Xie  
*Yale University*

Follow this and additional works at: <https://elischolar.library.yale.edu/yurj>



Part of the [Social and Behavioral Sciences Commons](#)

---

### Recommended Citation

Xie, Andy (2021) "Canines and Commons: An Institutional Analysis," *The Yale Undergraduate Research Journal*: Vol. 2 : Iss. 1 , Article 27.

Available at: <https://elischolar.library.yale.edu/yurj/vol2/iss1/27>

This Article is brought to you for free and open access by EliScholar – A Digital Platform for Scholarly Publishing at Yale. It has been accepted for inclusion in The Yale Undergraduate Research Journal by an authorized editor of EliScholar – A Digital Platform for Scholarly Publishing at Yale. For more information, please contact [elischolar@yale.edu](mailto:elischolar@yale.edu).

# Canines and Commons: An Institutional Analysis

By Andy Xie<sup>1</sup>

<sup>1</sup>Yale University

## ABSTRACT

This paper applies Elinor Ostrom's Institutional Analysis and Development Framework to explain how a local dog park – the Montrose – is able to overcome communal degradation in the absence of a centralized power. In the first half of this piece, I elucidate the rules, participants, and systems that characterize this specific social-ecological system. In the second half, through a combination of park-goer interviews and analyses of online reviews, I find that the existence of high degrees of social capital between participants, repeated interactions, entwined utilities, and the institutional diversity of a polycentric system serve to explain the effective maintenance, monitoring, and self-governance systems at the Montrose.

## SECTION I: BIG QUESTIONS

To be an off-leash dog owner in the late 20<sup>th</sup> century was a frustrating condition. With the lack of open-spaces and the proliferation of leash laws across the United States, many pet owners became increasingly agitated at what they viewed to be state-sponsored restrictions on their otherwise unfettered right to roam. Thus, when the city of Berkeley, California reserved a plot of open land for the creation of an underground subway line, the air was ripe for rebellion: activists occupied the area and urged the local government to quash the subway project and instead sanction the land as a public space for off-leash canine enterprises (Krohe, 2005). The result was the creation of the Ohlone Dog Park in 1979 – the world's first public commons for dogs and their owners. Around two decades later, in the summer of 2000, a group of individuals living in Chicago, Illinois took the pursuits of the Ohlone activists one step further: motivated by a love for long walks on the shore, they founded the Montrose – Chicago's first off-leash dog beach.

Nestled along the Eastern coast of Chicago, Illinois, the Montrose Dog Beach is one of the most acclaimed dog “parks” in America. With hundreds of near-perfect ratings on Yelp, the beach serves as a paradigm for collective, public canine recreation. But how – and under what conditions – is Montrose able to overcome the “tragedy of the commons” in the absence of the market's “invisible-hand”

or the sanctioning power of a centralized state? Why do individual participants in this social-ecological system (SES) undertake costly measures (such as obtaining the requisite shots for or cleaning up after their pets), when they bear the brunt of the costs associated with such activities, with the resulting benefits being diffused throughout the entire community? How, specifically, are positive outcomes – i.e., effective maintenance, monitoring, and self-governance – pre-figured in the overarching design principles of the SES at Montrose?

## SECTION II: A USEFUL FRAMEWORK

The framework for institutional analysis that Elinor Ostrom developed in her seminal book *Understanding Institutional Diversity* deconstructs these questions piecemeal. Complex systems, Ostrom posits, can be distilled systematically and universally into several fundamental building blocks: exogenous variables, action situations, action arenas, interactions, and outcomes (Ostrom, 2009). These exogenous factors – i.e. rules, biophysical conditions, and community attributes – structure the patterns of interaction in an action arena, which in turn produce outcomes evaluated along various criteria (Ostrom, 2009). An undesired outcome may then circle back to affect the strategies, conditions, or rules governing the system (Ostrom, 2009).

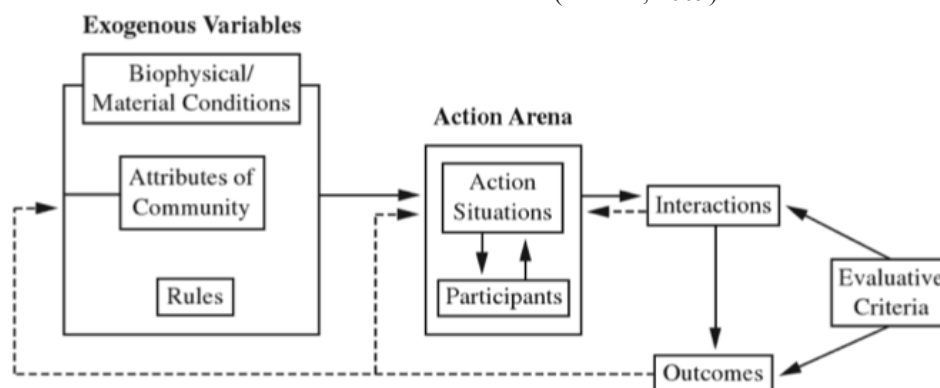


Figure 1. A framework for institutional analysis, adapted from *Understanding Institutional Diversity* (Ostrom 2005).

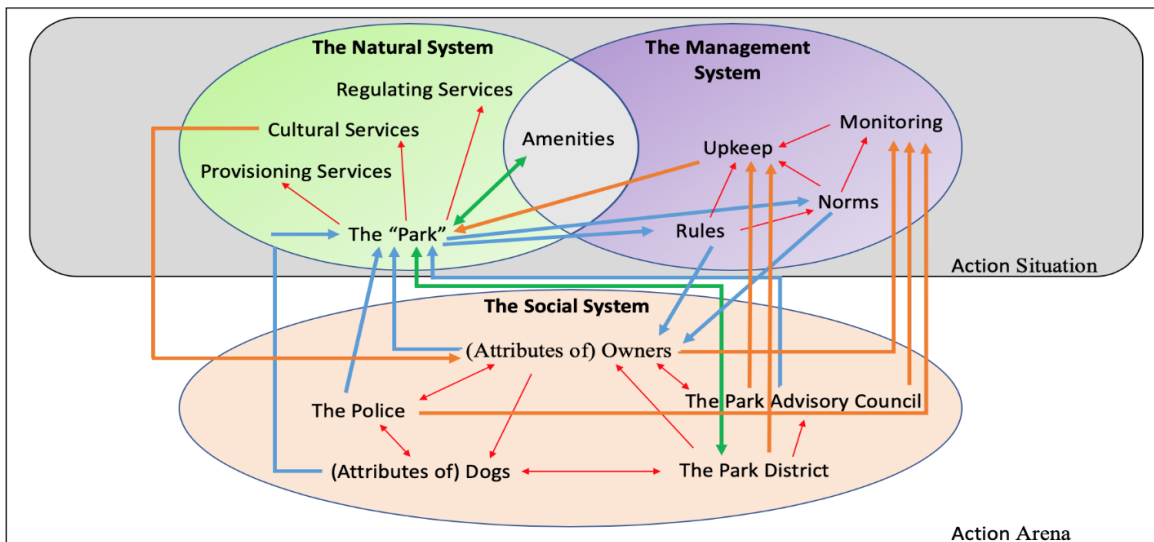


Figure 2. A visualization of the SES at Montrose.

Figure 2 visualizes Ostrom’s framework as mapped onto the SES at Montrose. In this specific scenario, the action situation comprises two main systems: natural and management. The natural system is the “park,” which provides the resources, boundaries, amenities, and landscape in which the participants operate. The management system encompasses the norms, rules-in-use, upkeep strategies, and monitoring techniques that govern the park. In this sense, the natural and management systems, taken together, represent the invariant backdrop of the SES at Montrose. On the other hand, the action arena – which consists of the action situation plus an additional social element – is constantly in flux: no two days at the beach are precisely the same. In other words, when participants enter the action arena, Montrose transforms from a passive beach to a dynamic system.

As such, throughout this SES, Ostrom’s universal building blocks – exogenous variables, action arenas, and outcomes – are salient and useful for distilling this complex system into highly digestible pixels that can be outlined, rearranged, and repackaged into novel theories of human behavior – a process that begins with a meticulous analysis of rules.

### SECTION III: THE RULES OF THE GAME

Rules, Ostrom states, are “shared understandings by participants about enforced prescriptions concerning what actions (or outcomes) are required, prohibited, or permitted” (Ostrom, 2005). In other words, rules influence, constrain, and regulate the elements of an action arena, as outlined in the following schematic (Ostrom, 2005):

Figure 4 details the rules as they apply to the SES at Montrose (MonDog, n.d.). In this case, the position rules are not stated explicitly, but they are implied through the various other guidelines. For instance, rule #2 – that owners are responsible for the monitoring and safety of their dogs – establishes dogs and their owners as two key participants in this system. Rule #4 introduces a third participant into the arena: the Chicago police officer. Rule #8 – which introduces both the Park District and Park Advisory Council MonDog, comprising local volunteers – further formulates a fourth

and fifth participant in the SES. Rules 13 and 15 indicate that age is an important factor in determining the nature of participants at Montrose, codifying the child (i.e. a human under 12 years of age) and puppy (a dog under four months of age) as a sixth and seventh participant in the system.

How, though, do individuals become valid participants in this space? Rules 7 and 11 maintain that only dogs with a DFA (Dog Friendly Area) tag – the possession of which signals good health and proper vaccinations – are permitted within the beach; though there is no fee to enter the beach itself, the tag costs \$10. Rule #10 further qualifies this stipulation: a tag without its accompanying paperwork, issued at the time of application, is insufficient. Rules 6 and 7 continue in this vein: dogs must be immunized, vaccinated, and dewormed before entering the beach. The issue of health, it seems, is paramount at Montrose.

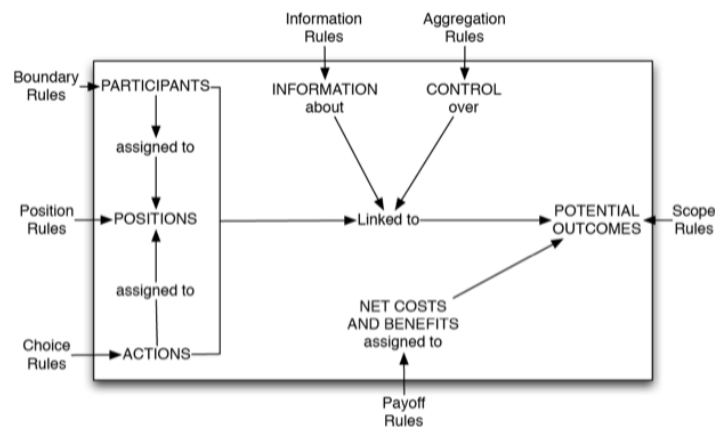


Figure 3. A classification of the various types of rules affecting an action arena, sourced from *Understanding Institutional Diversity* (Ostrom 2005). Boundary rules specify how individuals become valid participants in the SES, position rules delimit the various roles participants occupy, choice rules outline the actions that a participant may undertake, aggregation rules clarify who has the authority to craft rules in the first place, information rules affect how and what information is disseminated, payoff rules assign costs and benefits to participants, and scope rules delimit how actions lead to outcomes.

1. OWNERS ARE LEGALLY RESPONSIBLE FOR THEIR DOGS AND ANY INJURIES CAUSED BY THEIR DOGS.
2. OWNERS MUST REMAIN WITH AND WATCH THEIR DOGS AT ALL TIMES.
3. DOGS MUST BE LEASHED PRIOR TO AND UPON LEAVING THE DFA.
4. OWNERS MUST IMMEDIATELY CLEAN UP AFTER THEIR DOGS.
5. DOGS WITH A KNOWN HISTORY OF, OR WHO EXHIBIT, DANGEROUS BEHAVIOR ARE PROHIBITED.
6. DOGS MUST BE HEALTHY, FULLY IMMUNIZED, DEWORMED, AND LICENSED.
7. NO DOG WILL BE ALLOWED IN A DFA UNLESS IT HAS A CURRENT RABIES VACCINATION.
8. DOG OWNERS ARE RESPONSIBLE FOR THE MONITORING AND MAINTENANCE OF THE DFA.
9. NO FOOD (HUMAN OR DOG FOOD) IS ALLOWED INSIDE THE DFA.
10. OWNERS OR OTHER RESPONSIBLE PERSONS MUST HAVE A DFA PERMIT WITH THEM FOR EACH DOG VISITING THE DFA.
11. EACH DOG VISITING A DFA MUST DISPLAY A CURRENT CHICAGO PARK DISTRICT DFA TAG.
12. DFA PERMITS EXPIRE ON DECEMBER 31 OF THE YEAR THAT IT IS ISSUED.
13. CHILDREN UNDER 12 MUST BE ACCOMPANIED BY AN ADULT; YOUNGER CHILDREN MUST BE CLOSELY SUPERVISED.
14. ONLY THREE DOGS PER PERSON ALLOWED.
15. PUPPIES UNDER FOUR MONTHS OLD AND FEMALE DOGS IN HEAT ARE PROHIBITED.

**Figure 4.** *The rules of Montrose, sourced from their official website.*

Once participants successfully enter the beach, their actions are constrained by several *choice rules*. For one, rule #2 holds that owners must always have their dogs in eyesight to ensure their and others' safety; watching from outside the fence or dropping a dog off unaccompanied is not permitted. Moreover, rule #4 states that owners have the authority – and more than that, the obligation – to clean up after their dogs “every time, no matter where, no matter when;” it also gives on-duty Chicago police officers the ability to levy fines up to \$500 on owners who fail to do so (in accordance with City of Chicago Ordinance 7-12-420). Rule #8 – which introduces the volunteer Park Advisory Council MonDog (the Montrose Dog Owners Group) – further establishes that MonDog has the authority to oversee the maintenance (i.e. cleanliness) of the park, inform newcomers of the rules, and resolve internal conflicts, alerting authorities when necessary; in turn, the Chicago Park District manages the more cumbersome maintenance activities, such as sanitizing the beach with a “beach Zamboni,” reallocating sand, and emptying waste containers. Rule #13 holds that adults have full jurisdiction over their children in the beach area.

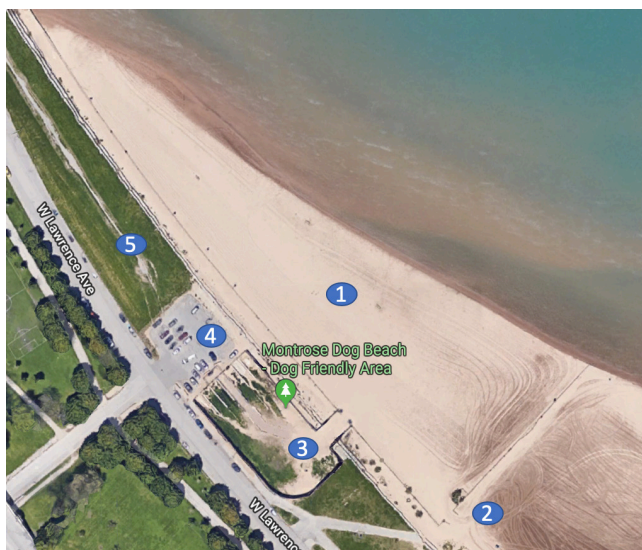
The above choice rules, though upheld by MonDog's monitoring

mechanisms, are further fortified by external rewards (payoffs) and sanctions (costs) associated with compliance and defection, respectively. For instance, rule #4 establishes a monetary fine on owners who fail to clean up after their dogs, and rule #1 emphasizes liability (both monetary and legal) for injuries inflicted upon other dogs. However, the costs of defection are not merely monetary, with rule #1 implying that the failure to properly adhere to park regulations may also result in physical risks to both parties. Thus, a key payoff of compliance is the enjoyment of a safer, friendlier environment. Moreover, rule #14 implies that caring for more than 3 dogs at once would be stressful and unmanageable for a single owner, thereby establishing the cons of defection and the pros of compliance from the lens of owner experience and morale, as well.

#### SECTION IV: THE MONTROSE AND THE MUTT

The existence of rules would be meaningless in the absence of a space upon which the rules apply. Thus, the story of Montrose now turns to Uptown, Chicago (US – Illinois) on the northeast end of the city. Located along the southern end of Lake Michigan, the beach is large (around 0.7 miles long and 0.3 miles wide) and entirely fenced in on two sides, with the water serving as the third border. Depending on the level of the lake (Montrose receives all four seasons and a moderate amount of rain throughout the year), there may be a small gap between the end of the fence and the water-front – a physical inevitability that reinforces the importance of owners maintaining constant vigilance over their pets. The water is shallow, which makes it conducive for wading (and doggy paddle). The beach itself (Point 1 on Figure 5) consists of sand, which the Chicago Park District regularly sweeps with the “beach Zamboni,” a machine that sifts through and removes particulates and other refuse (MonDog, n.d.).

As indicated by Point 2, there is a single, double-gated entrance to the beach. A few hundred feet beyond, owners may enter the Mutt Jackson cleaning facility through Point 3 (at the time this photo was taken, the facility had not yet been constructed). Next to the Mutt Jackson is a small parking lot (Point 4) and a grassy area (Point 5), where people can escape the beach for a leisurely stroll. With these



**Figure 5.** *A bird's-eye view of Montrose, as captured by Google Satellite.*



**Figure 6.** *A more level view of Montrose, as taken from Yelp.*

sentiments in mind, the key questions shift from the “what” and the “where” to the “why” and the “how” – the subjects of the second half of this analysis.

## SECTION V: THE ENTWINEMENT THEORY

### Old Ideas

In 1836, John Stuart Mill – a British political economist – penned “On the Definition of Political Economy and the Method of Investigation Proper to it,” a seminal work which introduced the idea of an “economic man.” The theory of Homo Economicus, as it came to be known, characterized an individual’s behavior as “rational” only if it advanced their own self-interest and accumulation of wealth, luxury, and leisure (Mill, 1836). Under this view, it is assumed that participants within an SES will as follows:

$$Utility_1 = Benefits_1 * [Compliance] - Costs_1 * [Compliance]$$

... where [Compliance] is a dummy variable that equals 1 if participants comply with existing rules, “Benefits<sub>1</sub>” is a variable describing the utility a participant derives from complying with existing rules, and “Costs<sub>1</sub>” is a variable describing the costs a participant faces when complying with existing rules; in this case,  $Costs_1 > Benefits_1$ . In other words, when a rational being is assumed to “maximize his gain,” given that the benefits of complying are dispersed amongst all participants within a system while the associated costs flow directly to that individual, Hardin predicts that “freedom . . . will bring ruin to all” (Hardin, 1968).

In contrast, participants within the SES at Montrose do not appear to behave in a manner that comports with Mill and Hardin’s ideas of self-regarding economic preferences, whereby individuals possess incentives to free-ride on the contributions of other participants within the system. For one, members of MonDog – Montrose’s park advisory council – *volunteer* their time to oversee, maintain, and clean the beach (on a daily basis); remind participants of park etiquette; resolve conflicts within the SES; correspond with the broader Chicago Park District; coordinate community events; organize fundraisers; and attend 6 board meetings per year. In fact, there even exists a suggested donation of \$50 to become a “member” of MonDog and support its day-to-day operating expenses. Thus, this tranche of participants at Montrose receives no monetary compensation for their services and may even lose money in the process – a far cry from the actions expected under traditional theories of individual behavior, which posit that the direct input costs of volunteering outweigh the dispersed benefits volunteers receive from a clean, functioning park and given that dues-paying volunteers maintain the option to enjoy recreation for their dogs at no charge as standard park frequenters.

Moreover, a review written on August 10, 2019 highlights the altruistic nature of owners as participants within this SES, with Robert M. stating that his dog jumped the fence surrounding the park only to be stopped a half mile down the beach by a fellow participant (Yelp, 2019). At Montrose, participants are eager to take actions on behalf of other parties that accord no immediate benefit to themselves – another feature of this system that falls outside traditional

theories of collective behavior.

**“The natural system is the ‘park,’ which provides the resources, boundaries, amenities, and landscape in which the participants operate.”**

### A New Theory

On June 25, 2019, Kayla M. took to Yelp to emphatically declare that “we LOVE this beach” (Yelp, 2019). On February 16, 2018, Summer R. incredulously expressed that she “can’t believe something like a dog beach exists, but we are so glad it does” (Yelp, 2018). On August 7, 2014, Marjorie F. stated approvingly that “Maggie and I come here as often as we can weather-permitting” (Yelp, 2014). The illuminative pattern across these narratives, one that clarifies the collective and ostensibly altruistic nature of the interactions the occur within this system, is the consistent use of the pronoun “we.” In this sense, the SES at Montrose demands a nuanced interpretation of Ostrom’s framework: though traditionally treated as distinct entities with their own unique set of incentives and aims, participants in this system – namely, dogs and owners – appear to view themselves as conclusively entwined. In other words, participants at Montrose tend to describe their affairs and values in terms that connote shared, rather than discrete, experiences.

To explain this phenomenon in theoretical terms, dogs and owners in this SES are said to possess a large degree of “bridging social capital:” the trust, cohesion, connectedness, and bonds that tie together separate groups of individuals (or participants) (Pretty, 2003). In this vein, the theoretical literature is rife; in his piece “Are Dogs Children, Companions, or Just Animals?” David Blouin finds that “pet owners often think of their dogs as either their children or close friends,” and in “Why Do People Love Their Pets,” John Archer traces these parental tendencies to certain evolutionary traits that have rendered dogs particularly well-suited to manipulating human responses (Blouin, 2013; Archer, 1997). Thus, just as parents willingly accept the exorbitant costs of child-rearing, many dog-owners are similarly inclined to undertake costly activities for the benefit of their pets. With this dynamic in mind, the story of Montrose becomes one of patronage, which alters the aforementioned utility equation in the following ways . . .

$$Utility_2 = (Benefits_1 + E_2) * [Compliance] - Costs_1 * [Compliance]$$

... where the additional factor  $E_2$ , which I term the “entwined factor,” accounts for the fact that the interests of owners and dogs within this SES are entwined, with the presence of a happy dog granting an owner with an additional unit of utility: the interests of the pet are themselves in the interest of the focal individual. Under this condition, an individual will comply with the system’s rules if  $(Benefits_1 + E_2) > Costs_1$ . As stated above, one key determinant of the factor  $E_2$  is the high degree of bridging social capital between dogs and their owners – a phenomenon that explains owners’ inclinations to purchase DFA tags, schedule veterinary appointments,

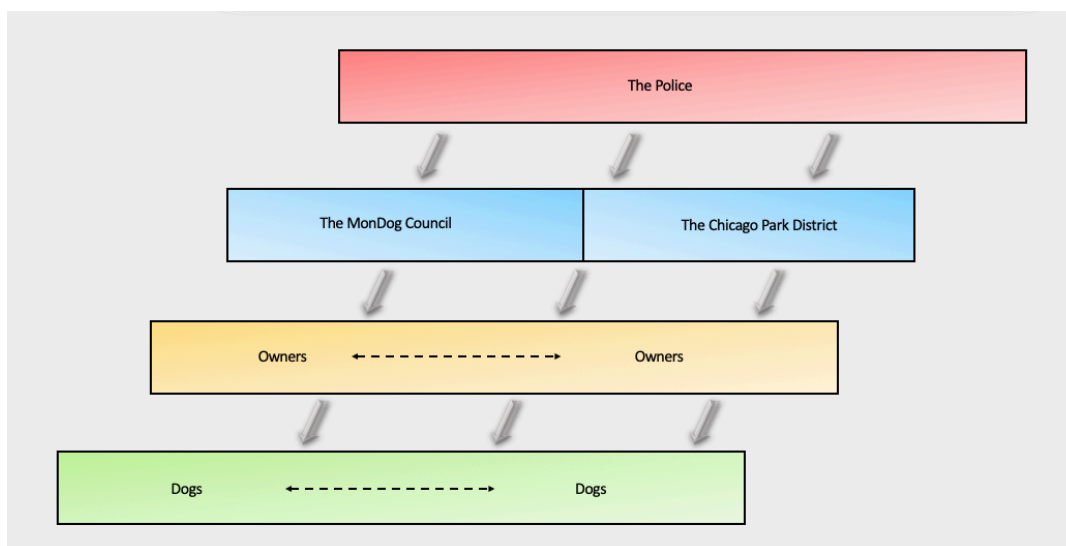


Figure 7. A visualization of polycentricity at Montrose.

and maintain constant vigilance over their pets whilst within the confines of the beach.

A second variable that flows into  $E_2$  stems less from the standpoint of patronage and more from one of self-interested gratification. In an interview via email on November 11, 2019, Shelly Burke – the social media chair of the MonDog Advisory Council – had this to say about why she joined the volunteer organization a little over nine years ago: “I enjoy being able to photograph the pups (not in a professional capacity) and sharing them on social media.” Speaking about a fellow board member, Burke said “recently, another . . . has helped because they are there all the time with their nine-year-old black lab/Anatolian Shepherd mix, Sadie.” Burke’s comments illuminate one particular channel through which the SES at Montrose manages to solve the second-order collective action problem – that is, the threat of free-riding in the creation and maintenance of the sanctioning system, which itself is a public good (Oliver, 1980). Though Burke and her colleague gain little in the way of monetary or temporal value from their involvement with MonDog, they participate anyways by virtue of the sheer joy they receive from seeing, taking pictures of, and spending time with dogs (both their own and those of others).

A third variable that impacts the entwinement factor ( $E_2$ ) is the occurrence of repeated interactions, which tends to deter behavior that falls outside of Montrose’s established norms. As Karla A. noted in her July 14, 2016 review of the beach, “if you go often, you’ll get to know the ‘regulars.’ Avoid peak hours if you don’t want to deal with the few careless owners who hang out with friends, tan, etc. and forget to watch their dogs” (Yelp, 2016). Moreover, when Jasmine T. was a “little bit nervous because of my rambunctious pup,” she “made friends with some people there and they convinced us that it was safe” (Yelp, 2015). Jennifer G. expresses a similar account of solidarity within the SES: “the one time I saw an aggressive dog there, people joined together and politely informed the owner that the dog needed to leave” (Yelp, 2015). Thus, it appears that the presence of repeated interactions within Montrose cultivates a strong sense of amicability, unity, and community amongst participants (namely owners), thereby driving owners to sustain the sanctioning and mutual monitoring practices of the system.

## SECTION VI: DOGGED MONITORING AND A POLYCENTRIC SYSTEM

Polycentricity – as defined in Vincent Ostrom, Charles Tiebout, and Robert Warren’s “The Organization of Government in Metropolitan Areas” – is the idea that the amalgamation of autonomous yet interdependent decision-making entities within an SES, though complex, need not devolve into chaos (Ostrom, Tiebout, & Warren, 1961). This principle certainly holds within the context of Montrose, where the many layers of diversity (both individual and institutional) serve to constrain, alter, and shape behavior within the SES in such a way as to maintain its effective maintenance, monitoring, and governance. Figure 7 illustrates the nature of polycentricity as it applies to Montrose.

The first tranche of self-imposed administration exists between dogs themselves. As illustrated through various accounts, large dogs frequently “play rough” and “work out their energies with each other” (Yelp, 2018). One woman went as far as to say that her Chihuahua Peanut, as a result of his participation at Montrose, “has slowly become more sociable and has even been able to walk with me along the beach without being rude to other dogs . . . [becoming] more gentlemanly in his mannerisms and able to respect the other dogs around him” (Yelp, 2017). Thus, at Montrose, dogs sanction other dogs that they perceive to be acting in an unruly and agitating manner. In this way, Montrose benefits from dogs’ evolutionary instincts for socialization and self-preservation.

A second level of authority within this system exists at the anthropomorphic scale, with owners monitoring the behavior of both their dogs and that of other owners. As illustrated above (i.e. in section IV), owners’ utility functions are linked with the well-being of their pets, which creates an incentive to “keep an eye on your dog” lest “lose him/her very fast” (Yelp, 2019). As a result, when disputes between dogs fail to resolve themselves peacefully, there remains an additional layer of human intervention to maintain order in the beach. The following statement from Rosalie C. – that in her “3 years of going there [Montrose], I know there is one dog my dog does not get along with and I just leave the park” – sheds light upon additional strategies that owners have developed over time to effec-

tively pre-empt tumultuous dog-on-dog scuffles and a subsequent disintegration of order within the SES (Yelp, 2016). In this vein, the anecdotes of solidarity expressed in Karla, Jasmin, and Jennifer's reviews (as depicted in section VI) illustrate the catalyzing effect of repeated interactions on mutual monitoring practices between owners themselves: those who fail to keep close watch on their pets are collectively and publicly confronted.

On a more institutional level, the MonDog Advisory Council and the Chicago Park District serve as two key players that preside over owners and their dogs. Of the two, MonDog interacts more directly with participants, spearheading beach cleanups, disseminating information regarding beach etiquette, providing waste bags, and organizing events to bolster community relations (MonDog, n.d.). In this sense, MonDog acts as the outward facing representative of Montrose, establishing a sense of external governance above and beyond the dogs and owners themselves. In contrast, the Park District operates as more of a behind-the-scenes, logistical body – collecting waste containers, reallocating sand, and operating the “beach Zamboni” (MonDog, n.d.). With the vast majority of its funds stemming from fundraisers and donations, MonDog alone would not be able to absorb the expenses associated with the larger maintenance activities of the beach. Similarly, the existence of a Park District in the absence of MonDog would deprive participants of critical public services. Thus, the presence of institutional diversity at Montrose provides participants with a more robust and effective governance structure.

The role of the police officer within this SES is slightly more puzzling. Of the Park's 255 reviews, only one man mentioned the police at all, and even he merely wished to gripe over their seeming lack of a presence in the park: speaking of a recent altercation, he wrote that “the police were called 10-12 times and he got away.” There are two plausible interpretations of this phenomenon. For one, it could be that the perceived threat of an overarching entity with legal and monetary sanctioning powers serves to proactively deter infractions. In game theoretic terms, this is to say that the police serve as a “credible threat” whose mere presence (or the *perception* of their presence) coerces participants into compliance. On the other hand, it is possible that the police do, in fact, maintain an active function at the beach, but affected parties are – for whatever reason – systematically under-represented in the online reviews. This distinction is important but one that is admittedly difficult to parse out. Regardless, it stands that the Chicago police force represents one layer of the self-governing, institutionally diverse SES at Montrose.

## SECTION VII: CONCLUDING THOUGHTS

Frequenters of Montrose generally agree that the park is clean, well-run, and a little crowded but an overall pleasant experience for both dogs and their owners. Though violations of the existing rules do occur, none pose an existential threat to the order, maintenance, and sustainability of the system. With high degrees of social capital between participants, the reality of repeated interactions, the existence of entwined utilities, and the institutional diversity of a polycentric system, Montrose Dog Beach is a positively complex, dynamic, and ultimately self-sustaining SES – as one patron put it, a bustling space of “beautiful chaos” (Yelp, 2018).

<https://elischolar.library.yale.edu/yurj/vol2/iss1/27>

## WORKS CITED

- Amanda, I. *Yelp*, “Montrose Dog Beach,” [https://www.yelp.com/biz/montrose-dog-beach-chicago?start=60&sort\\_by=date\\_desc](https://www.yelp.com/biz/montrose-dog-beach-chicago?start=60&sort_by=date_desc). July 10, 2015.
- Archer, J. “Why do people love their pets?” *Evolution and Human behavior* 18.4 (1997): 237-259.
- Bay, L. *Yelp*, “Montrose Dog Beach,” <https://www.yelp.com/biz/montrose-dog-beach-chicago?q=chaos>.
- Blouin, D. “Are dogs children, companions, or just animals? Understanding variations in people's orientations toward animals.” *Anthrozoös* 26.2 (2013): 279-294.
- Burke, S. Personal interview (via email). November 12, 2019.
- Catherine, S. *Yelp*, “Montrose Dog Beach,” [https://www.yelp.com/biz/montrose-dog-beach-chicago?start=120&sort\\_by=date\\_asc](https://www.yelp.com/biz/montrose-dog-beach-chicago?start=120&sort_by=date_asc). July 16, 2012.
- Chicago Metropolitan Agency for Planning, “Community Data Snapshot,” <https://www.cmap.illinois.gov/documents/10180/126764/Up-town.pdf>. June 2019.
- DNAinfo Staff, *DNAinfo*, <https://www.dnainfo.com/chicago/20140114/chicago/north-siders-register-dogs-more-than-rest-of-city-but-rates-low-everywhere/>. January 14, 2014.
- Google Satellite, “Montrose Dog Beach,” <https://www.google.com/maps/place/Montrose+Dog+Beach/@41.9690636,-87.6440079,18z/data=!3m1!4b1!4m5!3m4!1s0x880fd3dc0e038305:0x9a5f20403f937cd7!8m2!3d41.9691277!4d-87.6428513>.
- Hardin, G. “The tragedy of the commons.” *Science* (1968): 1243-1248.
- Jasmin, T. *Yelp*, “Montrose Dog Beach,” [https://www.yelp.com/biz/montrose-dog-beach-chicago?start=60&sort\\_by=date\\_desc](https://www.yelp.com/biz/montrose-dog-beach-chicago?start=60&sort_by=date_desc).
- Jennifer, G. *Yelp*, “Montrose Dog Beach,” [https://www.yelp.com/biz/montrose-dog-beach-chicago?start=60&sort\\_by=date\\_desc](https://www.yelp.com/biz/montrose-dog-beach-chicago?start=60&sort_by=date_desc).
- Karla, A. *Yelp*, “Montrose Dog Beach,” [https://www.yelp.com/biz/montrose-dog-beach-chicago?start=40&sort\\_by=date\\_desc](https://www.yelp.com/biz/montrose-dog-beach-chicago?start=40&sort_by=date_desc).
- Kayla, M. *Yelp*, “Montrose Dog Beach,” [https://www.yelp.com/biz/montrose-dog-beach-chicago?sort\\_by=date\\_desc](https://www.yelp.com/biz/montrose-dog-beach-chicago?sort_by=date_desc). June 25, 2019.
- Krohe, J. “Who let the dogs out.” *Planning* 71.2 (2005): 24-27.
- Rita, P. Montrose Dog Beach, *Yelp*, [https://www.yelp.com/biz\\_photos/montrose-dog-beach-chicago?select=LT7Gj3Ecna0GseAa0Z8Hxg](https://www.yelp.com/biz_photos/montrose-dog-beach-chicago?select=LT7Gj3Ecna0GseAa0Z8Hxg). March 20, 2016.
- Rosalie, C. *Yelp*, “Montrose Dog Beach,” <https://www.yelp.com/biz/montrose-dog-beach-chicago?q=I%20know%20there%20is%20one%20dog%20my%20dog%20does%20not%20get%20along%20>

with%20and%20I%20just%20. October 14, 2016.

Tracy, W. *Yelp*, “Montrose Dog Beach,” <https://www.yelp.com/biz/montrose-dog-beach-chicago>. October 5, 2019.

Marjorie, F. *Yelp*, “Montrose Dog Beach,” <https://www.yelp.com/biz/montrose-dog-beach-chicago?start=40>. August 7, 2014.

Mill, J.S. “On the Definition of Political Economy and the Method of Investigation Proper to it, 1836.” *Collected Works of John Stuart Mill*.

Mon, G. *Yelp*, “Montrose Dog Beach,” <https://www.yelp.com/biz/montrose-dog-beach-chicago>. August 23, 2018.

MonDog, “DFA Rules,” <https://www.mondog.org/dfa-rules.html>.

MonDog, “MonDog Board,” <https://www.mondog.org/mon-dog-board.html>.

MonDog, “MonDog History,” <https://www.mondog.org/mon-dog-history.html>.

Montrose Dog Beach, *Facebook Page*, <https://www.facebook.com/MonDogBeach/photos/a.745139662184444/1864419866923079/?-type=3&theater>. March 19, 2018.

Mutt Jackson, “Montrose Dog Beach,” <https://www.muttjackson.com/montrose-dog-beach/>.

Oliver, P. “Rewards and punishments as selective incentives for collective action: theoretical investigations.” *American Journal of Sociology* 85.6 (1980): 1356-1375.

Ostrom, E. *Understanding institutional diversity*. Princeton University Press, 2009.

Ostrom, V, Tiebout M, & Warren R. “The organization of government in metropolitan areas: a theoretical inquiry.” *American Political Science Review* 55.4 (1961): 831-842.

Patrick M, *Yelp*, “Montrose Dog Beach,” [https://www.yelp.com/biz/montrose-dog-beach-chicago?start=120&sort\\_by=date\\_asc](https://www.yelp.com/biz/montrose-dog-beach-chicago?start=120&sort_by=date_asc). March 20, 2012.

Polski, M.M., & Ostrom E. “An institutional framework for policy analysis and design.” *Workshop in political theory and policy analysis working paper W98-27*. Indiana University,

Robert, M. *Yelp*, “Montrose Dog Beach,” <https://www.yelp.com/biz/montrose-dog-beach-chicago>. August 10, 2019.

Sara, N. *Yelp*, “Montrose Dog Beach,” <https://www.yelp.com/biz/montrose-dog-beach-chicago?start=20>. April 11, 2017.

Summer, R. *Yelp*, “Montrose Dog Beach,” <https://www.yelp.com/biz/montrose-dog-beach-chicago?start=20>. February 16, 2018.

Tanner, I. *Yelp*, “Montrose Dog Beach,” <https://www.yelp.com/biz/montrose-dog-beach-chicago?q=lose%20him%20Fher%20very%20fast>