COUNTY OF SAN MATEO

Parks Department

DATE: July 28, 2014
COMMISSION MEETING DATE: August 7, 2014

TO: Parks and Recreation Commission

FROM: Marlene Finley, Parks Director

SUBJECT: Dog Friendly Parks Proposal

Review and approve staff's proposal to develop a Dog Management Strategy for San Mateo County Parks, which would include the following sections:

1. **Ordinances**: Recommend updates to County Ordinances to reflect recommended changes in dog policies and codifying acceptable dog recreation opportunities.

2. **Criteria:** Establish criteria to evaluate parks best suited to allow dogs on leash.

3. **Pilot Parks**: Design a pilot program to allow dogs on leash on a limited basis and monitor and track results such as compliance, waste, complaints, and change in park use levels.

4. **Infrastructure**: Describe infrastructure needed to allow dogs in specific parks, such as waste stations and signage.

5. **Training**: Describe information and educational materials needed for park visitors bringing their dog.

6. **Enforcement**: Determine staffing needed to patrol. Determine best methods for warnings, citations and tracking repeat offenders.

7. **Budget**: Prepare a detailed budget for additional staff, training, equipment, and infrastructure.

Estimated hours of staff time to complete a draft strategy: 120 hours

Estimated costs: $12,000

Attachment: Report entitled *San Mateo County Parks-Overview of Issues Related to Dog Access*, written by Natural Resource Manager Arechiga.

San Mateo County Parks – Overview of Issues Related to Dog Access

Background

Dogs have been largely excluded in San Mateo County Park properties. The exception to this rule has been in areas where there is a regional trail that has policies allowing leashed dogs and in newly acquired lands that allow for dog walking in the deed to the property. Currently Devil's Slide Trail, the Bay Trail in Coyote Point Recreation Area, areas along the Coastal Trail (Pillar Point Bluffs, Mirada Surf West, and the Dardanelle Trail) and the Wicklow addition to Quarry Park are the only Parks' properties that allow dogs on-leash.

There is a lack of historical information documenting the rationale for excluding dogs from San Mateo County Park properties. Anecdotal information provided by long-time staff point to the idea that dogs are damaging to wildlife and ecosystems. Historical concerns identified by staff included the perception that dog urine along trails negatively impacts wildlife use, dog-wildlife conflicts, dog-other recreationist conflicts, and waste pollution. These concerns are not new and deserve attention based on the current state of literature. In the last twenty years recreation ecology has emerged as a discipline, and research examining recreation impacts (with and without dogs) to vegetation and wildlife are more commonly available. Despite the increased research, how dogs affect wildlife and wildlife response is not entirely clear since human influences cannot be separated from their canine companions.

In 2002 San Mateo County Parks Department completed a Needs Analysis and Management Options Report. In this assessment, 15% of the population listed dog access as a barrier to using County Parks. A number of comments from the surveys reflected the desire to have dog parks and hiking trails where dogs would be allowed. As the number of households continues to increase in San Mateo County, it is likely that the desire for dog access will also grow. In 2012 the estimated number of households in San Mateo County was 257,837 and of that number, 94,111 are estimated to have dogs (Bay Area Census 2014; National Veterinary Association 2014).

Recreation, Dogs, and Wildlife Resources in the Literature

Research concerning domesticated dogs and their impacts on natural resources that isolate the effect of dogs on wildlife are lacking. Most research has not been able to isolate wildlife responses to dogs without the additive response of the dog and their companion human. Through a review of the literature, a clear pattern of disturbance can be seen. Recreation activities, regardless of the presence of dogs, elicit a response from wildlife. Based on this literature review, it is unclear that a case advocating for no dogs under any circumstances can be made without careful consideration of habitat, species associations (both flora and fauna), and current human use. Alternatively, it would be equally irresponsible to advocate for unrestricted dog access to every County Park.

The literature clearly associates wildlife disturbance with human recreation. Constructive discussions will need to consider what an acceptable level of wildlife disturbance is; an additive wildlife disturbance response has been observed when dogs are with humans. This additive response or disturbance to the affected wildlife community should be considered the primary focus when discussing dog access in County Parks.

Of the literature reviewed, two papers advocated extreme positions. The first paper maintains that dogs do not produce wildlife induced disturbance (Bekoff and Meaney 1997). A second paper implies dog activity results in the loss of songbird diversity and occurrences (Banks and Bryant 2007). Both papers demonstrate methodology challenges and should be interpreted cautiously. The three main papers discussed below, which conducted experiments, carefully considered human and dog recreational activities and were more moderate in their findings and scope of inference. All reviewed papers expressed the belief that human recreation causes some level of disturbance to wildlife populations eliciting a range of responses from an alert response, to flight, or avoidance (Lenth et al. 2008; Miller et al. 2001; George and Crooks 2006; Taylor and Knight 2003; and Burger et al. 2004). The question under consideration through this review of papers is how dog-friendly recreation activities demonstrates a significant additional stress to vegetation and wildlife communities and habitat resources outside what is already deemed acceptable by San Mateo County land managers.

The main body of literature concerning dogs demonstrates disturbance by both humans and dogs and the results vary by wildlife species. Three studies will be discussed highlighting the challenges in understanding the response of wildlife to domestic dogs when participating in outdoor recreation activities in parks, open space areas, or urban preserves. Miller *et al.* (2001) studied wildlife responses in forest and grassland habitats with recreationists, with and without dogs, both on and off-trail. George and Crooks (2006) examine large mammal responses to recreation in an urban reserve. And another specific dog paper is by Lenth *et al.* (2008) examining dogs and wildlife communities in Colorado. These papers will be discussed chronologically.

Miller *et al.* (2001) examined wildlife responses in Boulder, Colorado forest systems and documented a greater response in mule deer (*Odocoileus hemionus*) flushing when both humans and their on-leash dogs were off trail. The idea behind this is that when human activity is spatially unpredictable it is more disturbing to large mammals (Miller *et al.* 2001; Schultz and Bailey 1978, MacArthur *et al.* 1982, and Hamr 1988 in Miller *et al.* 2001). American robins (*Turdus migratorius*) were also studied in forests ecosystems and showed increased disturbance response when recreation was off-trail however when dogs were alone on-trail robins flushed a shorter distance than when humans were alone on- or off-trail. Two other songbird species (vesper sparrows and meadowlarks) demonstrated similar results. Vesper sparrows (*Pooecetes gramineus*) did not flush as far when the dog was alone on the trail (Miller *et al.* 2001). Meadowlarks (*Sturnella neglecta*) flushing response was greatest for all off-trail activities. Meadowlarks are ground-nesting birds which may have played a role in their greater

sensitivity to off-trail activities. Interestingly, the on-trail activity that elicited the shortest flush distance was the dog-alone treatment (Miller *et al.* 2001).

A study which may be particularly relevant to conditions found in some of the San Mateo County parks was conducted by George and Crooks in 2006 in Orange County, California. The authors researched recreation and large mammal activity in an urban nature reserve to see if any spatial or temporal displacement occurred. To be fair this study examined various recreation categories including hikers, bikers, vehicles, and equestrians and their methods also captured data on domestic dogs. George and Crooks found that bobcats' relative activity (spatial displacement) was negatively related to all humans, bikers, and hikers with the exception of equestrians, vehicles, and dogs. Similar results were found with coyote activity, with a particularly negative trend with bikers. In this urban preserve mule deer relative activity was not correlated with any recreation group. Temporal displacement patterns (percent daytime activity) in bobcats' negative response were related to humans, bikers, hikers, and dogs but not to equestrians and vehicles. Coyote's percent daily activity was not significantly related to any recreation activity but a negative trend (not statistically significant) was noted with dogs. Deer again demonstrated no negative or positive percent daily activity with any recreation category.

A second study in Boulder, Colorado by Lenth *et al.* (2008) examined dogs' effects on wildlife communities. Carnivores, ungulates, and small mammals were considered in this research and wildlife activity indices were developed using pellet plots, track plates, remote-triggered cameras, on-trail scat transects, and mapping of prairie dogs (Lenth *et al.* 2008). Lenth *et al.* (2008) examines mule deer and rabbit pellet densities along trails with and without dogs. Regardless of dog activity mule deer pellet densities were lower within five meters of the trail. Trails with dogs showed lower pellet densities between the 50m to 100m distance group and the 150m to 200m distance group. The comparison between trails with dogs and without dogs between 50m to 100m from the trail also showed a statistically significant lower deer pellet densities (Lenth *et al.* 2008). When examining rabbit pellet densities, areas allowing dogs had lower pellet counts over the year within five meters from the trail and within the 50m to 100m distance of trails.

Lenth *et al.* (2008) also examined track plates and found that no dogs were detected in the areas prohibited to them. Areas that did allow dogs found the majority of dogs stayed within five meters of the trail but occasionally traveled up to eighty-five meters from the trail. Small mammal activity was significantly lower in areas that allowed dogs within five meters of the trail. Remotely-triggered cameras showed that trails with dogs had more activity from native carnivores with the exception of bobcats. Dog activity was positively correlated with human visits and was negatively correlated to rabbit activity. On-trail scat densities followed similar patterns to the camera traps with increased native carnivore activity along trails that allowed dogs. Lastly, prairie dog burrow densities were examined and trails without dogs showed higher burrow densities within twenty-five and ten meters but there was not statistical difference at two-hundred meters from the trail.

Sime (1999) is often used to provide a counter-argument to allowing or introducing dog-friendly recreation opportunities in natural areas. She provides additional context for the issue of domestic dogs in wildlife habitats by outlining a series of studies examining deer and their response to hunting dogs, feral dogs, and domestic dogs (Sime 1999). In Fuller (1990 in Sime 1999) deer mortality was caused by wolves 4%, other predators (not identified) 2%, other sources (also not identified) 2%, and finally dogs 1%. An additional study cited in Sime outlines a study where dogs were the fourth agent of mortality after cars, capture attempts, and coyotes. Interestingly, out of the five deer killed four had compromised heath due to necrobacillosis (Gavin et al. 1984 in Sime 1999).

These studies suggest that dogs are an additional disturbance to wildlife when human recreation is present at a given location. The overall disturbance both in terms of space and time cannot be generalized and should be described on a species-by-species basis. In the case of small mammals fewer densities of these species were active within the immediate trail corridor but red foxes and other native carnivores were found to have higher activity densities (Lenth *et al.* 2008). George and Crooks (2006) suggest that disturbance may be mitigated by implementing time restrictions or by understanding the wildlife species present and how they respond to different recreation activities. Lenth *et al.* (2008) suggest viewing these interactions in a regional context considering the relative ecological and recreational values of areas which may be considered for dog recreation activities. The type and frequency of recreation activities also need to be considered since these will play a role in rates of use and ecological impacts on the resources regardless of introducing dogs.

Policies and/or Reports from Regional Land Management Agencies in the Bay Area

The East Bay Regional Parks District (EBRPD) Fisheries Department investigated disturbance and water quality of Redwood Creek and they specifically examined dog impacts on water quality parameters including dissolved oxygen, turbidity, temperature, and trout density. Dissolved oxygen levels were only slightly affected by dogs in the creek. Fisheries Department found that temperature was not affected by dog activity in the creek and the total number of trout was not affected.

A second study by EBRPD Fisheries Department examined trail user compliance to signage and fences, trailside erosion, fish population and habitat conditions in Wildcat Creek in 2004. The Fisheries Department did see a decrease in the number of dogs entering the areas with split-rail fences from 46% to 33% immediately following the fence installation. However, once the public was accustomed to the fence dogs observed in the study area increased 11%, almost back to pre-fence use. The researchers observing the study area overheard park visitors both attempting to police each other and actively encouraging poor behavior. It appears that a multipronged approach will be necessary. The installation of a fence (passive deterrent) worked for approximately a year. Additional enforcement actions in the form of citations during specific times of the year may have been more successful.

Golden Gate National Recreation Area (GGNRA) has experienced an array of public pressure concerning ongoing access for both visitors and their dogs in what is now GGNRA land initially established by Congress in 1972. A formal dog policy was established in 1979 that is in conflict with National Park Service (NPS) Policy. NPS policy does not allow any off-leash dog access to any other National Park. The Draft Dog Management Plan/ Supplemental Environmental Impact Statement was reviewed for this paper.

Of the range of impacts to the vegetation communities ranged from ” Negligible” to “Long-term” and “minor, adverse, impacts” to “moderate, adverse, impacts” which could be cumulative or negligible. Upon examining which vegetation and wildlife communities would likely be affected by dog activity it appears that the strongest impact to vegetation communities or wildlife communities has the potential to occur in areas with special sensitivities such as dune communities and riparian areas. The report specifies that the majority of adverse impact can be defined as minor to moderate (between minor and major) where the impact would be measurable but localized. The exceptions to this include the Ocean Beach Snowy Plover Protected Area Coastal Community and Coastal Community (vegetation, soils, and wildlife) where long-term moderate to major adverse impacts are expected due to the lack of compliance by dog-owners in keeping dogs on-leash and free from harassing wildlife. These areas are occupied by the particularly fragile dune communities with understated vegetation that can be easily trampled. The report outlines that in most locations the adverse impacts to vegetation (including soil) and wildlife are minor with the occasional moderate adverse impact.

Dogs, Water Quality, and Human Health

Companion animal waste has been linked to various diseases in humans and is increasingly showing up in our streams, lakes, storm drains, and in our ocean waters. This paper will outline the primary human health concerns related to dog waste both on land and in our water resources.

Human Health Risks from Unmanaged Waste in Parks

Dogs and other pets have the potential to infect humans with a variety of diseases. Most of the diseases are easily managed but some diseases can pose more serious health risks to certain segments of our population, particularly the very young and the elderly. With the steady increase in pet ownership in the United States and other countries more research has been undertaken on disease transfer between dogs and humans. Unmanaged dog waste (feces left in parks and backyards) pose the greatest risk to humans. This type of waste can contaminate soil and water and is increasingly being considered a health risk. In San Mateo County the San Pedro Creek watershed is currently experiencing a high incidence of bacteria loads due to warm-blooded animal (human, dog, avian, and horse) waste in the streams and contaminating Pacifica State beach. This section will discuss diseases that can be transferred between dog and human and how to minimize the health risks associated with dog waste.

Diseases that can be transferred to humans from dogs include:

- Campylobacteriosis – This is a bacterium that can be carried by both dogs and cats. It is a spiral-shaped bacterium and is a common cause of diarrhea in the United States. In the U.S. about 14 out of 100,000 persons a year are diagnosed. Additional symptoms include nausea and vomiting and the illness can last up to a week; some infected individuals do not show symptoms. This bacterial infection is more common in infants and young adults than in other age groups and more commonly in males than females (CDC 2014).
- Cryptosporidiosis – This is a microscopic parasite that causes diarrhea. Infected persons and animals shed these parasites in their stool. Soil, food, water, or surfaces that have been contaminated with feces all pose risk for exposure. These parasites are found throughout the U.S. and the world; in fact most Peace Corps volunteers suffer from this at some point during their service. The most common outbreaks have been linked with contaminated drinking water. There are 748,000 cases annually (CDC 2011).
- Giardiasis – This is a protozoan infection of the small intestines that causes diarrhea. Other symptoms include gas, nausea, and vomiting. Infected persons and animals shed these parasites in their stool. Soil, food, water, or surfaces that have been contaminated with feces all pose risk for exposure. It is the most common intestinal parasitic disease affecting humans in the U.S. Infections are more common in late summer and are commonly associated with contaminated drinking water (CDC 2012).
- Salmonellosis – This is the most common bacterial infection transmitted to humans by other animals. It causes an infection resulting in diarrhea, fever, muscle aches, headache, vomiting, and abdominal cramps. Most infections usually resolve within a week and do not require treatment. (RIDH 2004)
- Toxocariasis – Commonly known as roundworms. Roundworms can cause a rash, fever, cough, and in extreme cases vision loss. This is more common in humid areas and world-wide in less developed tropics or sub-tropics. (RIDH 2004; Macpherson 2013)
- E. coli – This is a large and diverse group of bacterium which can cause diarrhea and various other illnesses. Different strains of *E. coli* cause different symptoms. Transmission is usually associated with ingesting contaminated food or water. Proper hygiene is after coming in contact with animals and animal feces will aid in prevention (CDC 2013).

A common misnomer is that fresh dog waste poses the most risk to humans. Increasing research shows that pathogens from dog waste can contaminate soil and remain active in the soil for weeks or months. When dog waste mixes with water run-off (rain or hosing down) it can run into storm drains or creeks causing contamination. Often stagnant areas of water can act as bacteria incubators and have the potential to increase bacteria loads in creek water or where storm drains run into the ocean. In fact a study of bacterial loading in high density areas with urban streams identified higher

levels of *E. coli* bacteria in sewered basins in Tennessee than in non-sewered basins both during winter and summer months.

A key in minimizing the risk of disease transfer is proper disposal of dog waste both at home and in public places that allow dogs. The most effective method of managing dog waste involves using a plastic “dog” bag to picking up the waste, tying a knot, and disposing of it in a garbage can. This method is recommended by virtually all levels of government from the EPA to local municipalities and is reflected in the countless brochures produced on this topic. These same brochures advocate for daily dog waste clean-up and disposal in private yards and in public locations. Pathogens from dog waste can exist in contaminated water or soil up to weeks after deposited. These residual pathogens pose potential health risks for humans particularly in children playing in soiled vegetation, soil, and water resources.

Dog owners should understand the risks to them, their dogs, and others and pick up their dog’s waste and dispose of it using appropriate methods. Waste allowed to be washed into streams or storm drains has been attributed to high bacteria counts in watersheds across the country. The elevated bacteria loads pose health risks to children and the elderly at public beaches and in public parks allowing dogs. Currently the San Pedro Creek Watershed is experiencing compromised bacteria loads in certain tributaries of San Pedro Creek leading to contaminated ocean water at Pacifica State Beach. In 2013 the Bay Area Regional Water Quality Board imposed a new Basin Plan Amendment upon the City of Pacifica and San Mateo County requiring infrastructure fixes and an education campaign. These efforts are aimed at reducing bacteria loads in San Pedro Creek and at Pacifica State Beach within the next five years or sooner. Dogs that receive regular veterinary care are often likely to carry and transmit fewer worms, viral infections, and parasites. Additionally, healthy dogs may be at risk without proper vaccines when in natural areas where native wildlife exist. Transmission of any of the above pathogens is possible between wildlife and dogs. Rabies and distemper in wildlife such as raccoons, coyotes, or skunks can put family pets at risks if dogs were to come into contact.

Responsible Dog-owner Behaviors

There have been some recent studies examining leash use and dog-owner behavior in the UK. One study by Lowe *et al.* 2014 specifically was interested in if walking dogs on-leash improved dog waste pick up behavior in dog-owners. This study identified a key factor influencing dog owners was the knowledge of dog waste as a health risk as well as the sense that it is the “right thing” to do. However, the location and frequency of waste bins, length of trail, trail morphology and likely vegetation composition all influence dog-owner waste clean-up behavior. Another study in England identified that owners with dogs on-leash are more likely to pick up their dog waste (Wells 2006). In some of these studies the socio economic standing and gender played a role in the attitudes of dog owners and whether or not they picked up their dog waste.

Clearly education concerning the human health risks has the potential to improve dog owner behavior. This coupled with well stationed dog waste disposal stations will go a long way in encouraging responsible dog waste habits in dog owners. Reduction of dog

waste left in back yards and in public parks will improve the local environment for all recreation users from children to elderly and reduce the potential for bacteria loading in our watersheds.

Dogs Posing Physical Threats to Park Patrons

Dogs can pose a physical threat to park patrons through bite or other attacks and through rambunctious play. Children and elderly again are at highest risk of being victims of physical dog threats. Children playing, running and yelling erratically are likely to draw dogs' attention often mimicking prey species. The elderly may not be able to get out of dogs way while fetching or running off-leash or out of control. In the Golden Gate National Recreation Area (GGNRA) there were a total of over 2,000 dog-related incidents from dog bites to dogs roaming off-leash; ninety-five dog bites/ or dog attacks occurred between 2008 to 2011 in GGNRA. Additional staffing will be required if dog friendly recreation is approved in San Mateo County parks to ensure both human safety and environmental health and protection policies are followed.

Strategies such as on-leash regulations and separating children play areas from dog recreation will help with human safety concerns. City of Portland, OR does this through designated "off-leash" areas and with time restrictions. Cities such as Minneapolis have implemented dog access fees for off-leash dog parks ensuring dogs in these areas have current vaccines. As a secondary benefit the program's fees help defray expenses for education programs, dog waste stations, and staff time. Another preventative action that encourages responsible dog owner behavior is the presence of dog waste stations and garbage bins. Having easy access where dog owners do not have to carry dog waste long distances improves the likelihood of properly disposed of waste as opposed to bagged waste left along trails.

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