



OREGON DEPARTMENT OF FISH AND WILDLIFE

Date: March 2, 2011  
TO: Dog and Raptor Training Rules Revision ADVISORY GROUP  
SUBJ: Literature on Wildlife Disturbance from Humans/Pets

1. Abraham, K. 2001. Interactions between dogs and wildlife in parks on the Berkeley Marina. Unpublished Report, submitted to Berkeley Parks and Recreation. Online at: <http://ist-socrates.berkeley.edu/~es196/projects/2001final/Abraham.pdf>

**Abstract:** As pressure to develop open space in the Bay Area intensifies, it is increasingly important to understand the effects that people and their pets have on the wildlife populations utilizing the few remaining open space habitats. This study evaluates the interactions between off-leash domestic dogs and wildlife in adjacent regional parks (one developed, the other undeveloped) on the Berkeley Marina. Observations were made from two sites on opposite sides of the undeveloped Berkeley Meadow, and from a third site on the border between an off-leash dog zone and a protected wildlife area in the developed César Chávez Park. From each site, data was collected on the numbers of passing people and dogs, on- or off-leash status of dogs, dogs' deviation from the trails, and whether the dogs' activities caused wildlife flushes. Raptor and egret counts were also recorded at each site to approximate the comparative uses of the areas by wildlife. Results showed that César Chávez Park supports fewer raptors and egrets, but hosts more people and dogs, than the Berkeley Meadow. Total dog-induced wildlife flushes per observation period were statistically equivalent in both parks, but there were more flushes per dog in the Meadow and more flushes per unit wildlife in Chávez. Within the Meadow, there were no significant differences in raptor / egret or human / dog activities on the East and West sides. In Chávez, dogs deviated to the protected habitat side of the trail twice as often as to the off-leash dog zone side of the trail. These findings suggest that the Protected Natural Area in Chávez Park is not a viable habitat for wildlife, and that the Berkeley Meadow is better suited to serve as a wildlife refuge prohibited to off-leash dogs.

2. Banks, P. B. and J. V. Bryant. 2007. Four-legged friend or foe? Dog walking displaces native birds from natural areas. *Biology Letters*, DOI: [10.1098/rsbl.2007.0374](https://doi.org/10.1098/rsbl.2007.0374)

**Abstract:** Dog walking is among the world's most popular recreational activities, attracting millions of people to natural areas each year with diverse benefits to human and canine health. But conservation managers often ban dog walking from natural areas fearing that wildlife will see dogs as potential predators and abandon their natural habitats, resulting in outcry at the restricted access to public land. Arguments are



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passionate on both sides and debate has remained subjective and unresolved because experimental evidence of the ecological impacts of dog walking has been lacking. Here we show that dog walking in woodland leads to a 35% reduction in bird diversity and 41% reduction in abundance, both in areas where dog walking is common and where dogs are prohibited. These results argue against access by dog walkers to sensitive conservation areas.

3. Chiasson, R., Dietz, S., & Milroy, G. 2001. The Cape Sable Important Bird Area. Conservation Concerns and Measures. Can. Nature Fed., Bird Studies Can., NB Federation of Naturalists, Natural History Soc. of PEI, Federation of NS Naturalists, 18 pp.

“Human disturbance from recreational use of the beaches is one of the main causes for the decline of Piping Plovers (Flemming et al. 1988 & Burger 1991). During nesting, and while the chicks are still young, they are extremely vulnerable to disturbance. People, or their uncontrolled pets can cause nests to be abandoned or young birds to be injured and killed. Young have to feed constantly to increase the energy reserves needed for their fall southward migration. Too much disturbance greatly reduces their chances of survival (Burger 1987, Shaffer and Laporte 1992).”

4. Gosser, Allen L. & Michael R. Conover . 2000. Does Climate or Habitat Affect the Frequency of Cooperative Brood Rearing in Canada Geese? *Ethology*. Volume 106 Issue 3 Page 235 - March 2000. doi:10.1046/j.1439-0310.2000.00520.x

[Note: Paper has details how domestic dogs affect gosling survival.]

Abstract: Canada geese (*Branta canadensis*) are unusual because individuals use either of two different brood-rearing behaviors: cooperative broods (two or more merged broods attended by more than three parents) or two-parent families. We tested whether cooperative broods form in response to habitat or climatic conditions by examining variation in cooperative brood frequencies among Canada geese nesting in Connecticut from 1982 to 1996. Percent of goslings raised in cooperative broods ranged from 0 to 100% at a given site in different years, but the pattern of annual variation was different at each site. The sites were in close proximity to each other and had similar climates; thus, the differences in annual variation among sites were not likely to be a response to climatic conditions. Cooperative brood frequencies also varied among sites in each individual year, but sites with the most gang brooding in one year often had the least the next. Such would not be expected if gang brooding occurred in response to non-ephemeral habitat characteristics. Sites where gang brooding occurred and where it did not have similar food resources and predation risks. These findings failed to support the hypotheses that gang broods form in response to food competition or predation. Sites



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where gang broods occurred had more parent geese and more goslings than sites where they did not occur. Furthermore, the proportion of goslings raised in gang broods was correlated with the number of goslings and parents at the site. Our results support the hypothesis that gang broods form from the inadvertent mixing of goslings. This single factor, however, was not sufficient to account for all of the observed variation in gang brooding frequencies.

5. Ittner, Ruth and others, eds. *Recreational Impact on Wildlands*. Conf. Proc., Oct. 27-29, 1978. USDA For. Serv., R-6, Portland, Ore. 1979.

### HUMAN-WILDLIFE CONFLICTS IN BACKCOUNTRY: POSSIBLE SOLUTIONS

“Dogs can be damaging to ground nesting birds, young ungulates, and ungulates on winter range (Neil et al. 1975). To prevent wildlife harassment, dogs must be under control at all times. Dogs can have positive effects in backcountry situations, too: they provide companionship, increase man's perception of the natural environment through their reactions to sounds and smells, and may be used as work animals in terrain inaccessible to horses. They may also serve as mobile "early warning system" or occupy an aggressive bear while the owner retreats or takes counteraction (Jonkel pers. comm.).”

Neil, P. H., R. W. Hoffman, and R. B. Gill. 1975. Effects of harassment on wild animals - an annotated bibliography of selected references. *Colo. Div. Wildl. Spec. Rep. 37*, 21 p.

6. Lafferty K.D. 2001. Disturbance to wintering western snowy plovers. *Biological Conservation*. 101: 315-325.

**Abstract:** In order to better understand the nature of disturbances to wintering snowy plovers, I observed snowy plovers and activities that might disturb them at a beach near Devereux Slough in Santa Barbara, California, USA. Disturbance (activity that caused plovers to move or fly) to wintering populations of threatened western snowy plovers was 16 times higher at a public beach than at protected beaches. Wintering plovers reacted to disturbance at half the distance ( $\sim 40$  m) as has been reported for breeding snowy plovers ( $\sim 80$  m). Humans, dogs, crows and other birds were the main sources of disturbance on the public beach, and each snowy plover was disturbed, on average, once every 27 weekend min and once every 43 weekday min. Dogs off leash were a disproportionate source of disturbance. Plovers were more likely to fly from dogs, horses and crows than from humans and other shorebirds. Plovers were less abundant near trail heads. Over short time scales, plovers did not acclimate to or successfully find refuge from disturbance. Feeding rates declined with increased human activity. I used data from these observations to parameterize a model that predicted rates of disturbance given various



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management actions. The model found that prohibiting dogs and a 30 m buffer zone surrounding a 400 m stretch of beach provided the most protection for plovers for the least amount of impact to beach recreation.

7. Lafferty, K.D. 2001. Birds at a southern California beach: seasonality, habitat and disturbance by human activity. *Biodiversity and Conservation*. 10: 1949-1962.

Abstract. Use of a Santa Barbara beach by people and birds varied in both time and space. There were 100 birds, 18 people and 2 dogs per kilometer. Bird density varied primarily with the season and tide while human activity varied most between weekend and weekday. Bird distributions along the beach were determined mainly by habitat type (particularly a lagoon and exposed rocky intertidal areas). For crows and western gulls, there was some evidence that access to urban refuse increased abundance. Interactions between birds and people often caused birds to move or fly away, particularly when people were within 20 m. During a short observation period, 10% of humans and 39% of dogs disturbed birds. More than 70% of birds flew when disturbed. Bird species varied in the frequency that they were disturbed, partially because a few bird species foraged on the upper beach where contact with people was less frequent. Most disturbances occurred low on the beach. Although disturbances caused birds to move away from humans, most displacement was short enough that variation in human activity did not alter large-scale patterns of beach use by the birds. Birds were less reactive to humans (but not dogs) when beach activity was low.

8. Lenth, Benjamin, Mark Brennan, and Richard L. Knight. 2006. The Effects of Dogs on Wildlife Communities. Final research report submitted to: City of Boulder Open Space and Mountain Parks

Abstract: Domestic dogs (*Canis familiaris*) are frequent visitors to open space areas, but little is known about their ecological impacts. We studied the effects of dogs on wildlife by comparing the activity levels of wildlife in areas that prohibit dogs, with areas that allow dogs off-leash under "voice and sight" control. To measure wildlife activity both on trail and up to 200 m off-trail, we used four methods: pellet surveys, scented tracking plates, remote triggered cameras, and on-trail scat surveys. Additionally, in prairie dog (*Cynomys ludocivianus*) colonies we measured the distances of prairie dog burrows to the nearest trail, and compared the density of prairie dog burrows between areas with and without dogs. The presence of dogs along recreational trails correlated with altered patterns of habitat utilization by several wildlife species. Mule deer (*Odocoileus hemionus*) activity was significantly lower in proximity to trails in areas that allow dogs, and this effect extended at least 100 m off-trail. Small mammals, including squirrels



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(*Sciurus spp.*), rabbits (*Sylvilagus spp.*), chipmunks (*Eutamias spp.*), and mice (*Peromyscus spp.*, *Reithrodontomys spp.*, *Onychomys spp.*, *Zapus spp.*), also exhibited reduced levels of activity in proximity to trails in areas with dogs, and this effect extended at least 50 m offtrail. Furthermore, the density of prairie dog burrows was lower within 25 m of trails in areas that allow dogs. The presence of dogs also affected carnivore activity, although in varying ways. Red fox (*Vulpes vulpes*) detections were higher in areas that allowed dogs, and bobcat (*Felis rufus*) detections were lower. These findings have implications for the management of natural areas regarding dog policies, particularly those that allow dogs offleash.

9. Lowry, Dwain A. and Katherine L. McArthur. 1978. Domestic Dogs as Predators on Deer. *Wildlife Society Bulletin* 6:38-39

“In the Coeur d'Alene River drainage of northern Idaho, communities and residences are interspersed throughout the deer winter range, and harassment of deer by dogs has increased as homes are built in forested areas where deer formerly had little disturbance. In 1975, 39 incidents of dogs chasing deer were witnessed by an Idaho Fish and Game Department conservation officer or were re-ported to him by concerned citizens or the sheriffs department; these chases directly resulted in the deaths of 12 white-tailed and mule deer (Table 1).”

Following is the Literature Cited from the above short paper.

BOWERS, R. R. 1953. The free-running dog menace. *Virginia Wildl.* 14(10):5-7.

BRAZDA, A. R. 1957. Dogs vs. deer. *North Dakota Outdoors* 19(7): 17.

CARAS, R. 1973. Meet wildlife enemy no. 2. *Natl. Wildl.* 11(2):30-31.

COCHRAN, B. 1967. Delinquent dogs and dead deer. *Outdoor Oklahoma* 23(11):12-13, 20.

CORBETT, R. L., R. L. MARCHINTON, AND C. E. HILL. 1971. Preliminary study of the effects of dogs on radio-equipped deer in mountainous habitat. *Proc. Annu. Conf. Southeastern Assoc. State Game and Fish Commissioners* 25:69-77.

DENNEY, R. N. 1974. Impact of uncontrolled dogs on wildlife and livestock. *Trans. N. Am. Wildl. Nat. Resour. Conf.* 39:257-291.

GAVITT, J. D., R. L. DOWNING, AND B. S. MCGIN-NES. 1974. Effects of dogs on deer reproduction in Virginia. *Proc. Annu. Conf. Southeastern Assoc. State Game and Fish Commissioners* 28:532-539.



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GILES, R. H., JR. 1960. The free-running dog. *Virginia Wildl.* 21(6):6-7. HOUSTON, J. 1968. Dogs vs. deer. *Colorado Out-doors* 17(1):22-23.

MORRISON, J. 1968. Hounds of hell. *Georgia Game and Fish* 3(12):13-19.

NESBITT, W. H. 1975. Ecology of a feral dog pack on a wildlife refuge. Pages 391-395 in M. W. Fox, ed. *The wild canids: their systematics, behavioral ecology and evolution.* Van Nostrand Reinhold Co., New York.

OLSON, J. C. 1974. Movement of deer as influenced by dogs. *Indiana Dept. Nat. Resour. Job Prog. Rep., Proj. W-26-R-5, Job III-B-4.* 36pp.

PROGULSKE, D. R., AND T. S. BASKETT. 1958. Mobility of Missouri deer and their harassment by dogs. *J. Wildl. Manage.* 22(2):184-192.

SCOTT, M. D., AND K. CAUSEY. 1973. Ecology of feral dogs in Alabama. *J. Wildl. Manage.* 37(3):253-265.

SWEENEY, J. R., R. L. MARCHINTON, AND J. M. SWEENEY. 1971. Responses of radio-monitored white-tailed deer chased by hunting dogs. *J. Wildl. Manage.* 35(4):707-716.

WARD, L. 1954. What's it going to be, deer or dogs in southern West Virginia? *West Virginia Conserv.* 18(6):3-5.

10. MacArthur, Robert A., Valerius Geist and Ronald H. Johnston. 1982. Cardiac and Behavioral Responses of Mountain Sheep to Human Disturbance *The Journal of Wildlife Management* 46:351-358.

Abstract: Telemetered heart rates (HR) and behavioral responses of mountain sheep (*Ovis canadensis canadensis*) reacting to human disturbance in the Sheep River Wildlife Sanctuary, southwestern Alberta, were recorded. Cardiac and behavioral responses of sheep (4 ewes, 1 ram) to an approaching human were greatest when the person was accompanied by a dog or approached sheep from over a ridge. Reactions to road traffic were minimal as only 8.8% of vehicle passes elicited HR responses. No reactions to helicopters or fixed-wing aircraft were observed at distances exceeding 400 m from sheep. Responses to disturbance were detected using HR telemetry that were not evident from behavioral cues alone. However, mean duration of the HR response (138.6 sec) was not greater ( $P > 0.05$ ) than mean period of the behavioral reaction when sheep were alert or withdrawing from harassing stimuli (112.4 sec). Use of HR telemetry in harassment research is discussed.



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11. MacWhirter, R. B. and K. L. Bildstein. 1996. Northern harrier (*Circus cyaneus*). In *The Birds of North America, No. 210*, edited by A. Poole and F. Gill. Philadelphia: The Birds of North America, Inc.

“Known predators of eggs and nestlings include feral dogs (*Canis familiaris*), coyotes (*C. latrans*), raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), red foxes (*Vulpes fulva*), and Common Ravens (*Corvus corax*).”

12. Miller, James R., N. Thompson Hobbs. 2000. Recreational trails, human activity, and nest predation in lowland riparian areas. *Landscape and Urban Planning* Volume 50, Issue 4, 30 August 2000, Pages 227-236.

Abstract : In areas of human settlement, greenways and open-space land are often intended to serve recreational purposes as well as provide wildlife habitat, but the compatibility of these goals is uncertain. We examined the effect of recreational trails on the risk of nest predation and nest predator activity at four lowland riparian sites along the Front Range of Colorado. At one site on each of two streams, we placed a transect of artificial nests near a recreational trail and another transect on the opposite side of the stream. We also placed another transect of nests at a second site on each stream that was not associated with a recreational trail. In 1995, nests were baited with quail eggs; in 1996 a clay egg was also added to nests to aid us in nest predator identification. Artificial nests are not perfect surrogates for natural nests, but are useful in generating hypotheses about causes of nest failure and for detecting changes in predator assemblages. Overall, predation rates were high (94%). There were significant differences in vulnerability to predation on the different transect types, with a tendency for predation rates to increase with distance from trails. There was a significant effect of time with a greater risk of predation in 1996. In 1996, 83% of the clay eggs that were recovered showed signs of predation. House Wrens destroyed 11 % of the clay eggs; impressions from Black-billed Magpies, Blue Jays, and Common Grackles were found on 69%; mice preyed on 25%; and squirrels on 12% of the eggs. Birds attacked more nests near trails than away from trails, whereas mammals appeared to avoid nests near trails to some extent. These results support the contention that recreational trails and human activity may affect nesting success for some species, and suggest that patterns of nest predation reflect the unique, and sometimes, counter-intuitive responses of individual predator species. Rather than relying on simplistic assumptions about the compatibility of recreation and wildlife, it is important to consider how individual species respond to the habitat alteration and human activity associated with trails when deciding where trails should be located and in developing overall conservation strategies in human-dominated areas. Keywords: Birds; Trail; Predation



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13. Miller, Scott G., Richard L. Knight and Clinton K. Miller. 2001. Wildlife Responses to Pedestrians and Dogs. *Wildlife Society Bulletin* Vol. 29:124-132.

Abstract: As participation in outdoor recreational activities escalates, land managers struggle to develop management policies that ensure coexistence of wildlife and recreation. However, this requires an understanding of how wildlife responds to various forms of recreational activities and the spatial context in which the activities occur. Therefore, we measured responses of 2 species of grassland songbirds, one species of forest songbird, and mule deer (*Odocoileus hemionus*) exposed to a pedestrian, a pedestrian accompanied by a dog on leash, and a dog alone (only for grassland birds), on and away from recreational trails. We assessed the "area of influence" for each treatment by determining the probability that an animal would flush or become alert (for mule deer only) given its perpendicular distance to a trail or a line of movement in areas without trails. When animals were disturbed, we measured flush distance (the distance between the disturbance and the animal when flushed), distance moved, and, for mule deer, alert distance (the distance between the disturbance and the deer when it became alert). For all species, area of influence, flush distance, distance moved, and alert distance (for mule deer) was greater when activities occurred off-trail versus on-trail. Generally, among on-trail and off-trail treatments in grasslands for vesper sparrows (*Poocetes gramineus*) and western meadowlarks (*Sturnella neglecta*), the smallest area of influence and shortest flush distance and distance moved resulted from the dog-alone treatment, and these responses were greater for the pedestrian-alone and dog-on-leash treatments. In forests, for American robins (*Turdus migratorius*), the area of influence, flush distance, and distance moved did not generally differ between the pedestrian-alone and dog-on-leash treatments. For mule deer, presence of a dog resulted in a greater area of influence, alert and flush distance, and distance moved than when a pedestrian was alone. Natural lands managers can implement spatial and behavioral restrictions in visitor management to reduce disturbance by recreational activities on wildlife. Restrictions on types of activities allowed in some areas such as prohibiting dogs or restricting use to trails will aid in minimizing disturbance. Additionally, managers can restrict the number and spatial arrangement of trails so that sensitive areas or habitats are avoided.

14. Rasmussen, D. I., and W. L. McKean. 1945. The pheasant in the Intermountain irrigated region. Pages 234-253 in W. L. McAtee, editor, *The ring-necked pheasant and its management in North America*. The American Wildlife Institute, Washington, D.C., USA.

“Additionally, populations of domestic dogs (*Canis familiaris*) and cats (*Felis domesticus*) have increased with human populations, and can pose a serious threat to



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ground-nesting birds (Rasmussen and McKean 1945).” [As cited in Frey, S. N. 2001. EFFECT OF PREDATOR REMOVAL ON RING-NECKED PHEASANT POPULATIONS IN UTAH. M.S. Thesis. Utah State University.]

15. Sime, C. A. 1999. Domestic Dogs in Wildlife Habitats. Pages 8.1-8.17 in G. Joslin and H. Youmans, coordinators. Effects of recreation on Rocky Mountain wildlife: A Review for Montana. Committee on Effects of Recreation on Wildlife, Montana Chapter of The Wildlife Society. 307pp

### ABSTRACT

It is difficult to segregate human demographic trends from trends in rural development and outdoor recreational participation in settings like the West where they appear to be interrelated. One extension of human recreation in wildlife habitats is the effect of disturbance, harassment, displacement, or direct mortality of wildlife attributable to domestic dogs that accompany recreationists. At some level, domestic dogs still maintain instincts to hunt and/or chase. Given the appropriate stimulus, those instincts can be triggered in many different settings. Even if the chase instinct is not triggered, dog presence in and of itself has been shown to disrupt many wildlife species. Authors of many wildlife disturbance studies concluded that dogs with people, dogs on-leash, or loose dogs provoked the most pronounced disturbance reactions from their study animals. During winter, concerns are primarily related to human activity on ungulate winter ranges. Dogs extend the zone of human influence when off-leash. Many ungulate species demonstrated more pronounced reactions to unanticipated disturbances, as a dog off-leash would be until within very close range. In addition, dogs can force movement by ungulates (avoidance or evasion during pursuit), which is in direct conflict with overwinter survival strategies which promote energy conservation. During summer, concerns are primarily related to the birth and rearing of young for all wildlife species. Dogs are noted predators for various wildlife species in all seasons. Domestic dogs can potentially introduce diseases (distemper, parvovirus, and rabies) and transport parasites into wildlife habitats. While dog impacts to wildlife likely occur at the individual scale, the results may still have important implications for wildlife populations. For most wildlife species, if a “red flag” is raised by pedestrian-based recreational disturbance, there could also be problems associated with the presence of domestic dogs. Managers may consider the following when evaluating recreational impacts of dogs in wildlife habitats: species biology, reproductive potential, abundance, density, distribution, degree of habitat specificity or reliance on certain habitat components, and predisposition and sensitivity to disturbance by other agents. This information is intended to increase awareness among natural resource professionals and the public about the potential implications of uncontrolled domestic dogs in wildlife habitats and to encourage responsible outdoor recreation ethics.

<http://www.montanatws.org/chapters/mt/PDF%20Files/8dogs.pdf>



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16. Western Snowy Plover – Sharing the Beach. California State Parks Brochure.  
<http://www.parks.ca.gov/pages/23071/files/ploverpdf.pdf>

### “HOW ARE THEY THREATENED?”

Snowy plovers are threatened due to disturbance, predation and habitat loss. Because the birds and eggs are camouflaged, beach visitors can disturb resting birds or wander right through a nesting area, never knowing the damage they have caused. Visitor use of the beach close to nests causes adult birds to stay off the nest, exposing eggs to predators and the elements. Beach fires and fireworks disturb the nesting birds, and kites flown above look like predators. During the winter, continual disturbance uses up their stored reserves and may lower their breeding success.

Predators on the beach are also threats. Dogs chase and may catch birds or destroy nests, cats prey on birds and chicks, and even leashed dogs may appear as a danger. Native predators such as skunks, crows, ravens, and shrikes are joined by exotic predators such as the non-native red fox to further pressure the birds.”

17. Wildlife Report. For Immediate Release. News from the Colorado Division of Wildlife. **Release Date:** 06/05/1998

### FREE-ROAMING DOGS POSE A THREAT TO WILDLIFE

The problem of dogs chasing and killing the state’s wildlife has increased due to more people moving to Colorado, and existing residents disobeying leash and voice command laws, according to Division of Wildlife field officers.

Newcomers to the state are often unaware of the impact dogs have on the wildlife. Tonya Sharp, district wildlife manager for Teller County, said people frequently say that they move to Teller County to let their dogs run. “They think that if they buy five acres than they can let their dogs run loose.”

Glen Eyre, district wildlife manager for Archuleta County, said that people honestly believe that their dogs are under control and do not believe that their dog would chase the wildlife.

“When they turn their dogs loose though, they naturally chase the wildlife,” Eyre said. “ It’s devastating what a dog can do to an animal, especially when they kill it.”

But dogs don’t always kill the animals. Dogs, in their domestication, have lost many of their instincts for making quick kills, and instead chase and harass terrorized wildlife until the chased animal collapses in exhaustion. Particularly in the winter, once the food supply disappears, the animals can’t produce enough energy to maintain their body heat and must begin burning fat and muscle tissue to survive, Adams said.

As a result, the animals become weaker and more susceptible to stress. “Just the site of a dog running loose stresses the animal,” Adams said.



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For example, if a dog chases a deer they often don't know what to do with it once they catch it, said Patt Dorsey, youth program hunting specialist and former district wildlife manager of the Boulder area. "Coyotes are efficient killers, but dogs will bite the nose off and chew ears," she said. "The animal really suffers when the dog is just playing around."

Rick Adams, district wildlife manager in Basalt, said that between Glenwood Springs, Aspen and Vail, his department receives reports of dogs chasing big game almost daily.

During the spring, fawns and elk calves are particularly vulnerable. Recently, Adams was called to the scene of a gruesome dog attack on a young fawn in a subdivision near Glenwood Springs.

"A fellow was walking his dog. It got loose, chased the fawn and literally tore it to pieces," he said. The deer had more than 30 tears and punctures and ultimately died of stress and a collapsed lung. The owner didn't feel that he should have received a \$200 fine for his dog chasing wildlife, so the case will go to court, Adams said.

Colorado considers deer and elk state property valued at \$700 for an elk and \$500 for a deer respectively. That means pet owners could be billed and charged for the civil offense for any mangled deer or elk injured or killed by dogs.

Dave Croonquist, assistant chief of law enforcement for the Division, said that any peace officer has the option of capturing or killing a dog that is caught chasing wildlife. However, Croonquist said that killing dogs to save livestock or wildlife doesn't occur often.

Sharp said that only after all efforts to contact a dog owner have failed will the dog will be shot and killed. "I hate to do it, I love dogs," she said. "I issue a citation to the owner first."

Patt Dorsey, youth program hunting specialist and former district manager of the Boulder area, said that dogs don't normally kill for food and their attacks can usually lead to indiscriminate mutilation of prey.

A rapidly expanding human population, more dogs, and the building of new mountain subdivisions on critical winter game ranges has affected deer and elk herds across the state. During the early winter months, when the deer and elk move down from the higher elevations, they share land with local canines. "Years ago, one winter we had two dogs kill 12 elk in one day," Eyre said. "This is indicative of what happens when dogs chase wildlife."

Dogs have also been known to affect nesting ground birds, Sharp said. "Riparian areas where mallards are on the ground can be disturbed by dogs running free," she said. "People hiking in the forest must keep their dogs on a leash or under voice control."

Glen Cook, technician for the Boulder districts of Arapaho and Roosevelt National Forests, said that 25 percent of the people who hike in Indian Peaks wilderness bring their dog. Of those people, only 65 percent comply with the leash laws.

"People don't like to put their dogs on a leash and will risk getting a (\$50) ticket so that their dogs can have the same freedom as the people have when their away from the



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city,” Cook said.

“People have to take responsibility to care for their forest,” said Lynn Young, public information officer for the U.S. National Forest Service. “People who participate in recreational activities in the wilderness are visitors. Even domestic dogs are visitors.”

Although most people have their dogs under control in the forest, the people who do not control their pets, or obey leash laws in specific areas, are the problem, Young said. “The goal of keeping dogs under control is to protect wildlife so everyone can enjoy the natural resource,” Young said. The Division prohibits dogs to run at large on state wildlife areas except dogs lawfully used while hunting, or while training dogs for hunting.

“When owners allow their dogs to chase the wildlife, owners are only hurting themselves and their resource,” Sharp said. “It’s the public’s wildlife--we’re just the managers.”

Attached is a list of National Forest areas where leash and voice command laws are enforced in wilderness areas. Rocky Mountain Region Wilderness Areas

Arapaho/Roosevelt, Cache La Poudre-leash Comanche Peak-leash, Indian Peaks-leash Neota-leash Never Summer-voice command Rawah-leash Vasquez Peak-voice command Black Hills Black Elk-voice command GMUG Raggeds-leash West Elk-voice command Medicine Bow Encampment River-voice command Huston Park-voice command Platte River-voice command Savage Run-voice command Pike/San Isabel, Lost Creek-leash Mt. Evans-leash Routt, Byers Peak-voice command Mt. Zirkel-voice command Platte River-voice command Sarvis Creek-voice command Rio Grande, South San Juan-voice command San Juan, Weminuche-voice command White River, Flat Tops-voice command and Eagles Nest-leash Maroon Bells Snowmass-leash and Hunter-Fryingpan-leash Holy Cross-leash and Ptarmigan Peak-leash.

Various state statutes about dogs at large.

<http://www.animallaw.info/articles/arusdogschasewildlifetable.htm>

18. Joshua L. Dooley, Todd A. Sanders Jr., Paul F. Doherty. 2010. Mallard Response to Experimental Walk-In and Shooting Disturbance. *J. Wildl. Manage.* 74:1815-1824.

**ABSTRACT:** Spatial and temporal closures of anthropogenic activities are a common management strategy to increase waterfowl usage of an area. However, empirical evidence, specifically how individual waterfowl respond to disturbance, is lacking to support their efficacy. We exposed radiomarked mallards (*Anas platyrhynchos*) to walk-in, shooting, or no disturbance along the South Platte River corridor in Colorado, USA, from September to February during 2006–2007 and 2007–2008. Mallards exposed to shooting disturbance had greater mean flight distance after disturbance (FDAD) during September–November (4.58 km, 95% CI = 3.55–5.62) than December–February (3.04 km, 95% CI = 2.51–3.58) and were 35% and 17% greater than mean FDAD of mallards



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exposed to walk-in disturbance, respectively. Walk-in and shooting disturbance had a similar effect on return rates, and disturbed mallards had higher (0.09–0.41) movement probabilities away from and lower (0.15–0.20) probabilities of returning to treatment locations than controls. Probability of presence of disturbed mallards was 37% lower than controls during the daytime but was equal at night. Mallards exposed to walk-in (0.38 [95% CI = 0.30–0.46]) and shooting (0.23 [95% CI = 0.17–0.30]) disturbance had low return rates the first afternoon after a disturbance compared to controls (0.71 [95% CI = 0.65–0.77]). A high proportion of mallards exposed to walk-in (0.75 [95% CI = 0.67–0.83]) and shooting (0.70 [95% CI = 0.64–0.76]) disturbance returned to treatment locations in  $\leq 1$  day. Managers may be able to more effectively manage disturbance regimes by 1) accounting for surrounding lands within  $< 10$  km, especially lands within  $< 5$  km, 2) being conscientious when establishing regulations that will affect levels of disturbance 1–2 days after a previous disturbance, and 3) considering shooting and walking disturbance equally for refuge design.