



August 5, 2016

Dear Commissioner Roy,

The MSPCA, the Animal Rescue League of Boston, and the Humane Society of the United States oppose the proposal of a second cull of deer populations in the Blue Hills Reservation.

Last year's deer cull was not only controversial and met with the disapproval of many residents, but also failed to serve as an effective deer population control mechanism in the Blue Hills or solve conflicts the deer have purportedly caused. This year's proposed deer cull continues the pursuit of ineffective methods and—with the addition of bow-hunting—adds inhumane practices and unaddressed public safety issues to an already unpalatable mix.

**Bow hunting does not offer a humane solution—for people or animals.**

According to dozens of studies, bow-struck deer incur an unacceptably high “crippling rate” (when a deer is crippled but not killed) of close to 50%.<sup>1</sup> When deer are struck by an arrow but not immediately killed, they tend to flee, often leaving the area where they were struck. For many hunters, part of the “sport” of bow and arrow hunting involves following the “blood trail” to track the wounded animal. Because deer do not understand property lines, there is potential that they will flee onto private property abutting the Blue Hills, causing hunters to either trespass to put the animal out of its misery or to abandon the effort at a property line, leaving the animal to linger and die slowly from arrow-penetration wounds. The close proximity of major highways presents a frightening scenario with wounded deer fleeing the area and rushing onto the highways. This is an unacceptable public safety risk.

Bow hunting not only results in wounded deer, but it also means that passersby, hikers, and others simply trying to recreate outdoors are subject to the trauma of seeing a mortally wounded deer or viewing her remains when she finally succumbs to her injuries. Bow hunting is not an “efficient” means of population control for deer, and its inclusion into the Blue Hills Deer Management Plan represents only an additional method of recreational hunting.

**Culls are not a long-lasting or cost-effective solution to address deer population concerns.**

If the food source is good, as it is in the Blue Hills, deer populations can quickly recover. After a cull, deer may respond by having twins or triplets, breeding at an earlier age, and having higher fawn survival due to more resources available to a slightly smaller population. The result cull may result in a sharp increase in deer numbers – a rebound – in the following spring. Thus, culling merely re-creates – and even exacerbates – the very problem it purports to solve as deer numbers keep bouncing back. Culling is

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<sup>1</sup> Gregory 2005, Nixon et al 2001, Moen 1989, Cada 1988, Boydston and Gore 1987, Langenau 1986, Gladfelter 1983, Stormer et al 1979, Downing 1971.

not a viable solution for reducing deer numbers, and 2015's failed hunt should demonstrate that this strategy is equally ineffective as applied in the Blue Hills.

The Department of Conservation and Recreation reports that it and other state agencies spent approximately \$141,000 on the four-day Blue Hills hunt. Neighboring municipalities spent an additional \$11,000 on the deer hunt. That \$152,000 total does not appear to include time and resources spent prior to the hunt by these agencies, or any hunt-associated costs incurred by MassWildlife. Additionally, the Division of Fisheries and Wildlife, the State Police, and the Environmental Police have been unresponsive to requests for public records relating to the cost of the hunt. These requests were submitted by the MSPCA in December 2015/January 2016. Hunters killed 64 deer in the 2015 Blue Hills deer hunt, which amounts a small percentage (8-11%) of the MassWildlife's estimated deer totals in the Blue Hills. Accordingly, each individual deer killed cost *at least* more than \$2,300 of state and local money (without a full accounting of costs, this number is a low estimate). With the planned two-day extension of this year's hunt, the increase in areas open to hunting, and the inclusion of bow hunting—which has a lower kill rate than shotgun hunting—this year's expenses may be even higher.

### **Ecological impacts – deer make an easy target.**

Issues of biodiversity and lack of regeneration of secondary growth forests are not unique to the Blue Hills. For decades, research scientists, forest managers, timber companies, and many others have grappled with various aspects of and trends in forest growth, and many academic journals have been devoted to the topic.

The Blue Hills, like much of the northeastern forested landscape, are subject to any number of direct and indirect influences that together have created the conditions that we see today, which have the potential to skew any baseline vegetation sampling survey. These influences run the gamut from harsh winters, drought conditions, acid rain, insect damage, disease, development, pollution, loss of soil fertility, herbivory, invasive and other competing plant species, parasitic organisms, and landscape fragmentation, among other factors.

Deer are among the largest wild animals tolerant of living in suburban and even urban environments. We can see deer and attribute ecological impacts to them easily. We cannot see other influences as easily, and it is only quite recently that we have recognized that even non-native earthworms may play as great or even a greater role in influencing forest ecology and biodiversity. Furthermore, deer are a highly desired, hunt-able species. Therefore, it is convenient to focus on deer when arguments about “restoring” forest biodiversity are being made, even if deer may not be the source of the problems.

While it is easy to point the finger at deer and blame them for our forest regeneration woes, the reality is that our ecosystem issues are fraught with complexity, and they are also subject to human aesthetic preferences, which may or may not be grounded in any sort of biological reality. For example, we may want to see more biodiversity in certain areas because we are used to having seen it there in the past. Yet nature is not static. A condition in which a forest floor was carpeted with wildflowers can rapidly transition into another state as a result of many different processes. As forest succession proceeds, abundance and diversity of “natural” plant and wildlife species changes. Certain plant species are shaded out as trees mature and the forest canopy closes. Later successional stages are, by their very nature, less diverse.

While we may want to see a certain flower grow somewhere doesn't mean it “should” be there. Take the case of certain trillium, which are often used as an indicator of high deer abundance. Some research

shows that soil acidity is a much stronger determinant of where purple trillium and many important timber species (red oak, sugar maple, quaking aspen, etc.) will grow, rather than deer density levels.<sup>2</sup>

In lieu of considering these factors, DCR has based its ecological assessments on one sole vegetation monitoring area/deer enclosure, a mere 30'x30' plot within over eleven miles of Blue Hills forest. This small enclosure, located in a random location, appears insufficient to allow a true measure of impacts within a much larger wild space.

### **No major health authority recommends deer culls to address human Lyme disease control.**

The 2016 Draft Management Plan has back-tracked from the 2015 Draft Management Plan goal of controlling Lyme disease, and instead focuses on biodiversity and forest management. However, public statements from officials demonstrate that the misconception persists within the administration and agencies that deer culls could impact the human incidence of Lyme disease.<sup>3</sup>

Effective and economical strategies to reduce the risk of Lyme disease require both consideration and an understanding of the current scientific knowledge, even if the facts challenge long-held and entrenched beliefs about the relationship between deer populations and Lyme disease.

Deer hunting is ineffective at controlling Lyme disease because hunting does not significantly reduce the *tick* population. Deer are only one of nearly 200 different species that serve as hosts for ticks, including birds, reptiles, opossums, raccoons, mice, dogs, and squirrels.<sup>4</sup> Human risk of exposure to Lyme disease is correlated with the abundance of immature (rodent) hosts and their food resources, not deer numbers.<sup>5</sup> Studies finding this correlation are additionally confirmed by a scientific study – and entire book on Lyme disease – by leading Lyme disease expert Richard Ostfeld. Deer are among the most ineffective pathogen transmitters of Lyme while rodents appear to be more effective.<sup>6</sup> A critical, but often-ignored, factor in the incidence of Lyme disease is the effectiveness of host transmission *to the tick*. Ticks must contract the pathogen from an effective host (such as a mouse) before they can transmit it to their next host (such as a human).

No major health organization has identified hunting as an effective means to address Lyme disease. In fact, the CDC states that prevention—such as checking oneself for ticks, keeping lawns mowed, and wearing tick repellent—is the best defense. Studies have also indicated that some of the most effective solutions use living wildlife hosts themselves to kill ticks. For example, bait attractants for deer and mice that apply chemicals to their bodies (similar to topical treatments for pets) as they retrieve food baits have

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<sup>2</sup> Penn State College of Agricultural Sciences News Release, May 17, 2002

<sup>3</sup> Young, C., State House News Service, *Beaton: Blue Hills Deer Population Well Beyond Healthy Levels*, Nov. 30, 2015 (“...Beaton said the hunt will help to control the spread of Lyme disease...”); Herndon, A., Boston Globe, *Protesters demand end to upcoming Blue Hills deer hunts*, Nov. 30, 2015 (“Agency officials and their supporters said a 2013 study indicates the deer population at Blue Hills is at least six times healthy levels, increasing the potential spread of Lyme disease and other tick-borne illnesses...”); Murphy, M., Masslive.com, *How many deer were killed in the Blue Hills State Reservation controlled hunt on Monday?*, Dec. 1, 2016 (“‘There are public health issues associated with doing nothing’ Baker told reporters...”); Michelson, B., Wicked Local Randolph, *Deer hunt at Blue Hills OK’d*, Oct. 15, 2015 (“‘My main concern and reason I called for these hearings is the public safety risk due to the extreme growth of the deer tick population,’ said state Sen. Brian Joyce at the first hearing of three public hearings. ‘This is directly attributed to the growing deer herd throughout the region. Lyme disease has grown to be a public health epidemic in Norfolk County.’”).

<sup>4</sup> Ostfeld, R. 2011. *Lyme Disease: The Ecology of a Complex System*. Oxford University Press: Oxford, UK.

<sup>5</sup> Ostfeld RS, Canham, CD, Oggenfuss, K, Winchcombe, RJ, Keesing, F. 2006. “Climate, deer, rodents, and acorns as determinants of variation in Lyme-disease risk.” *PLoS Biology* 4:1058–1068; Ostfeld, R. 2011.

<sup>6</sup> Ostfeld, R. 2011.

reduced tick populations anywhere from 67%–98%.<sup>7</sup> In contrast, multiple studies have documented the ineffectiveness of deer hunting in reducing the risk of Lyme disease.<sup>8</sup> Simply put, killing deer does not equal killing ticks. As stated by Dr. Tamara Awerbuch of the Harvard School of Public Health (Ms. Awerbuch attended the July 12, 2016 public meeting to speak in opposition to the hunt), as deer are killed, “you would simply have more ticks per deer because the surface area of each is enough to support many ticks. Just killing deer won’t do the job.”<sup>9</sup> By the time hunting season occurs, most adult ticks have already dropped off the deer to lay eggs anyway, so the tick’s reproductive cycle is not even interrupted.<sup>10</sup>

In conclusion, the Blue Hills deer cull is scientifically unjustified, inhumane, and presents great risks to public safety. It should be halted immediately. Continuing it under the guise of Lyme disease control or biodiversity enhancement, at substantial cost to taxpayers, is a significant disservice to MA residents.

Thank you for your consideration,

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Laura Simon, Wildlife Ecologist, and Stephanie Harris, Massachusetts State Director, Humane Society of the United States

Laura Hagen, Deputy Director of Advocacy, Massachusetts Society for the Prevention of Cruelty to Animals

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<sup>7</sup> Dolan M, Maupin G, Schneider BS, Denatale C, Hamon N, Cole N, Ziedner NS, and KC Stafford III. 2004. “Control of immature *Ixodes scapularis* (Acari: Ixodidae) on rodent reservoirs of *Borrelia burgdorferi* in a residential community of Southeastern Connecticut.” *J Med Entomol*, 41(6):1043–54; Solberg, VB, Miller, JA, Hadfield, T, Burge, R, Schech, JM and Pound, JM. 2003. “Control of *Ixodes scapularis* (Acari : Ixodidae) with topical self-application of permethrin by white-tailed deer inhabiting NASA, Beltsville, Maryland.” *J. Vector Ecol*, 28: 117–134; McGraw, L and McBride, J. 2001. “Tick Control Device Reduces Lyme Disease.” *Agricultural Research*, May: 5–7.

<sup>8</sup> Boston.com. *The deer-Lyme disconnect*. May 8, 2011. Available at: [http://www.boston.com/lifestyle/health/articles/2011/05/08/why\\_new\\_hunting\\_programs\\_arent\\_going\\_to\\_check\\_the\\_spread\\_of\\_lyme\\_disease/?page=3](http://www.boston.com/lifestyle/health/articles/2011/05/08/why_new_hunting_programs_arent_going_to_check_the_spread_of_lyme_disease/?page=3) (accessed Sept. 23, 2015).

<sup>9</sup> Harvard School of Public Health. *Killing deer not the answer to reducing Lyme disease, says HSPH scientist*. Nov. 23, 2010. Available at <http://www.hsph.harvard.edu/news/features/killing-deer-not-answer-reducing-lyme-disease-html/> (accessed Oct. 1, 2015)

<sup>10</sup> McShea, W.J. H.B. Underwood, and J.H. Rappole, 1997. *The science of overabundance: Deer ecology and population management*. Washington D.C.: Smithsonian Institution Press.