

Deer Concerns and Management across Massachusetts

Results from the 2017 Massachusetts Municipal Deer Survey



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Introduction

White-tailed deer (*Odocoileus virginianus*) populations in Massachusetts and across the northeastern United States have changed dramatically over the past two centuries. Hunted nearly to extinction during the latter half of the 19th Century, deer populations in Massachusetts rebounded and deer numbers are now believed to exceed pre-colonial populations (Foster et al. 2002). While the recovery of deer populations is a conservation success, deer densities have reached unprecedented levels in many urban and suburban areas and have become a cause for concern for some residents, town and city officials, and wildlife managers (McCabe and McCabe 1997, Urbanek et al. 2012).

The responsibility for the protection and management of deer and other wildlife resides with the Massachusetts Division of Fish and Wildlife (MassWildlife) and similar agencies in other states. Historically, these state wildlife agencies have focused on the preservation and management of wildlife populations in mostly rural regions. However, the growth of deer populations in suburban and urban environments (where hunting may be limited) creates challenges for traditional approaches to wildlife management. In this context, towns and cities can be gatekeepers for hunting access and have become influential actors in deer management in many areas of the state.

Despite the importance of town and cities in deer management, most research on the human dimensions of deer management has focused on state agencies and/or individuals. The role of municipalities in deer management is not well-understood. To improve understanding of the ways concerns about and responses to deer vary across municipalities in Massachusetts, a team of researchers from Boston University surveyed city and town officials in 2017. This report describes the results of the Massachusetts Municipal Deer Survey.

Survey design, administration, and analysis

To understand how concerns about deer, responses to deer, and local bylaws vary across the Commonwealth of Massachusetts, we conducted an online survey of town and city officials in the 351 MA municipalities in 2017. The survey collected information about the perceived status of deer populations, local concerns about deer, municipal bylaws that restrict hunting, municipal deer management strategies in use or under consideration, and the ways municipalities have learned about deer and deer management.

Since the person (or people) most involved and knowledgeable about deer differs across communities, we asked municipal clerks and managers in each city and town to identify the best person(s) to complete the survey for their municipality. The resulting list of survey recipients included conservation agents, town/city clerks, members of the board of health,

and animal control officers. We distributed the survey via email (providing paper surveys or the opportunity to complete by telephone upon request) and conducted email and phone follow-ups. To document hunting-related bylaws and update the survey data collected about ongoing discussions of bylaws, we also collected and analyzed the text of municipal bylaws across the state in 2019.

Survey Results

Two hundred sixty municipalities completed the online survey, yielding a response rate of 74%. The responding towns and cities included urban, suburban, and rural municipalities¹ located in all of the MassWildlife Wildlife Management Districts (WMD; Figure 1). The response rate was higher in the more suburban WMDs in the eastern portions of the state than the more rural WMDs.²

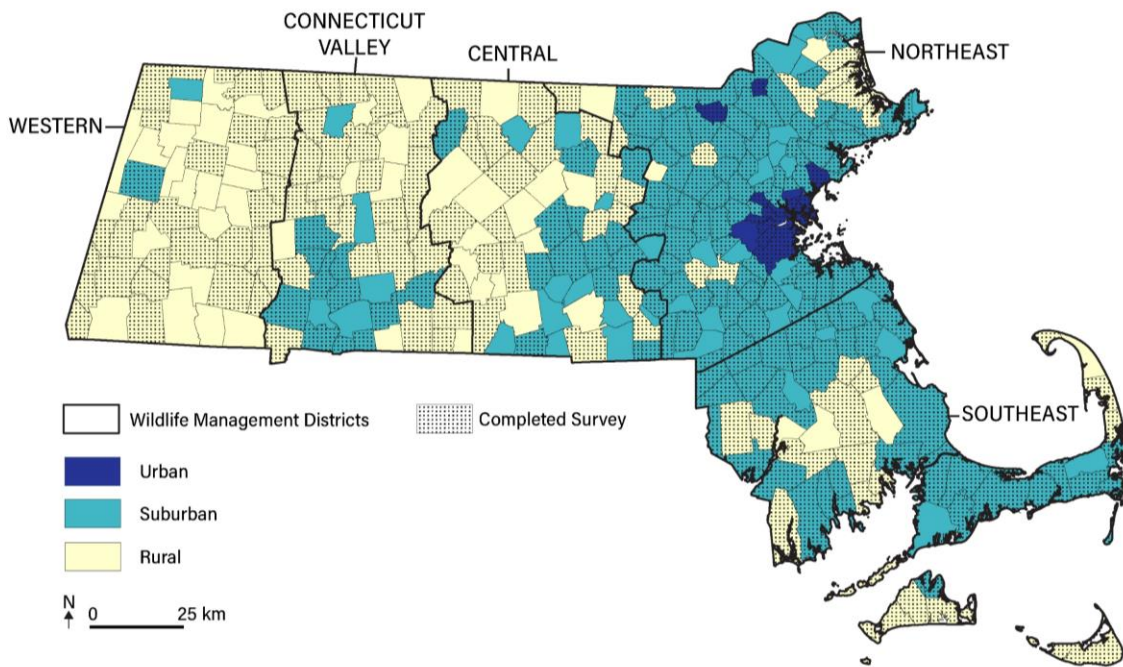


Figure 1. Survey Completion across Urban, Suburban, and Rural Towns and Wildlife Management Districts. Designations of municipalities as urban, suburban, and rural is based on methods in Short Gianotti et al. 2016

¹ Survey respondents included 13 urban municipalities (87% of urban municipalities), 143 suburban municipalities (78% of suburban municipalities), and 104 rural municipalities (68% of rural municipalities).

² The response rate varied across the WMDs as follows: 85% of the municipalities in the Southeast WMD responded; 83% of the municipalities in the Northeast WMD responded; 73% of the municipalities in the Connecticut Valley WMD responded; 58% of the municipalities in the Central WMD responded; and 58% of the municipalities in the Western WMD responded.

Deer Populations and Municipal Concerns about Deer.

Many town and city officials have observed changes in deer populations over the past two decades. Over one-half of survey respondents (52%) reported that deer populations have increased in the past 20 years while 32% reported that populations are stable and 16% reported that they have declined (n=184; Figure 2).³ More municipalities in the eastern and more suburban WMDs (Northeast and Southeast WMDs) reported growing populations of deer than those in the more rural districts of the state (Central, Connecticut Valley and Western WMDs).

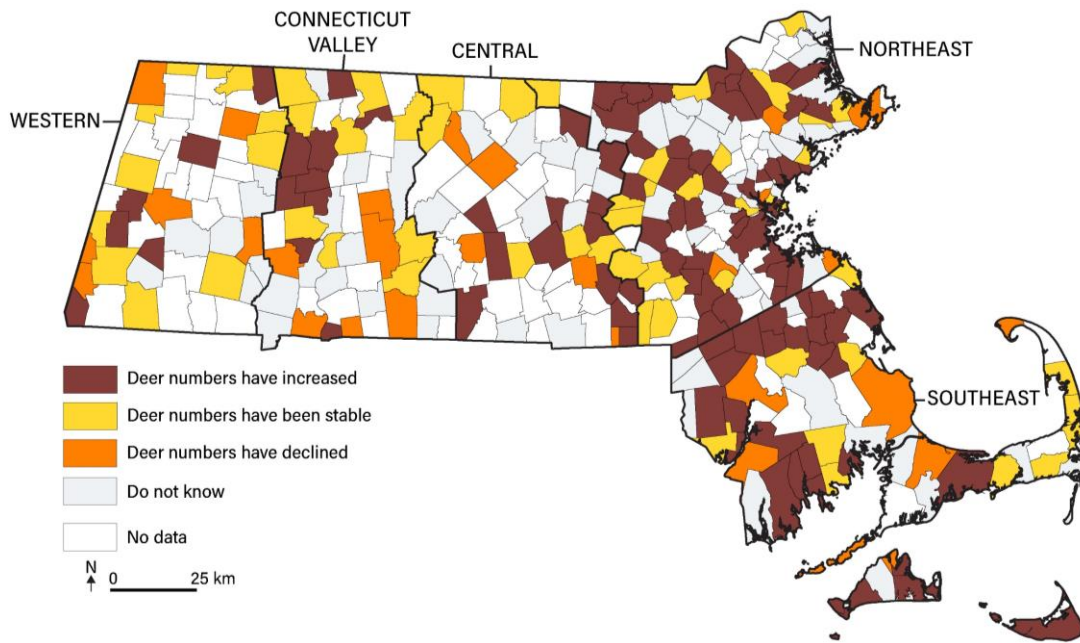


Figure 2. Reported Changes in Deer Populations Over the Past 20 Years

Despite the relatively widespread recognition of growing populations, most survey respondents do not believe deer to be a concern for residents in their town or city. When asked to estimate the proportion of residents that consider deer to be a problem, 81% of survey respondents reported that a minority or no residents consider deer to be a problem in their town or city, 12% reported that about half of their residents consider deer to be a problem, and only 8% reported that the majority or all of residents consider deer to be a problem (n=260; Figure 3). Most survey respondents also reported that complaints about deer are infrequent with 56% of respondents reporting that they never receive resident

³ Many survey respondents did not know how deer populations were changing in their area. Town officials in 76 responding municipalities reported that they did not know how deer populations have changed.

complaints about deer, 40% reporting that they “sometimes” receive complaints about deer, and only 4% reporting that they “often” receive complaints about deer (n=229).

Many of the towns reporting the highest levels of concern about deer are located in the Southeast WMD, which includes suburban communities, Cape Cod, and the islands of Martha’s Vineyard and Nantucket (Figure 3). However, across the state and within WMDs, there is no obvious pattern in the level of concern reported by the respondents. Adjacent municipalities with similar landscape features report very different levels of concern, which suggests that the level of concern may reflect social characteristics and local relationships to deer in addition to the density and impacts of deer.

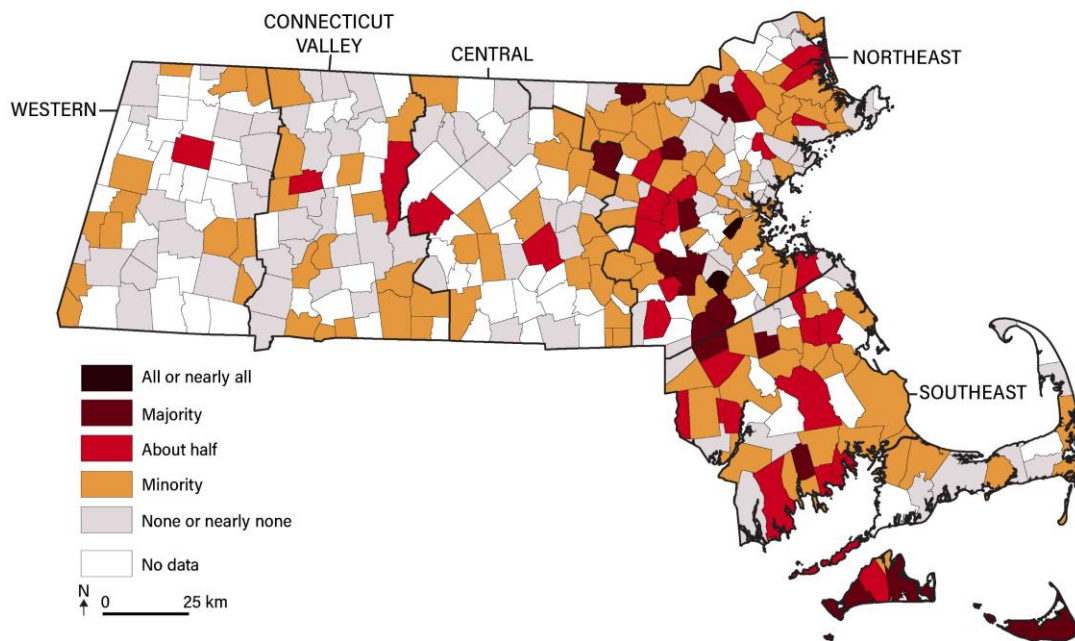


Figure 3. Proportion of Residents that Consider Deer a Problem as Estimated by Survey Respondents

To better understand the nature of concerns about deer, we asked survey respondents how concerned they believe residents are about a range of deer-related issues (tick-borne disease, deer-vehicle collisions, property damage, and impacts of deer on forests). Their answers reflect their *perception* and *estimation* of concern among residents rather than a measurement of residents’ actual concerns (n=250; Figure 4). We asked an identical question regarding their perception of town and city officials’ concern about the same issues (n=251; Figure 4). Survey respondents estimated that residents and town officials

hold similarly high levels of concern about tick-borne disease⁴ and deer-vehicle collisions.⁵ While concerns about property damage due to deer were relatively low, survey respondents estimated higher levels of concern among residents than town officials.⁶ Conversely, respondents estimated that municipal officials held higher levels of concern about the impacts of deer on forests than residents, though few respondents reported moderate or strong concern for those impacts.⁷

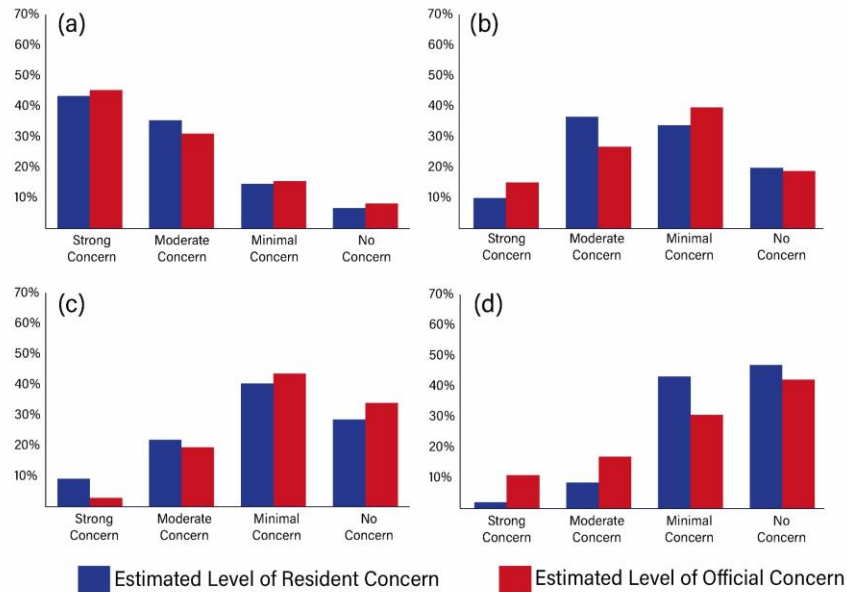


Figure 4. Survey Respondents’ Perception of the Level of Concern Held by Residents and Municipal Officials about (a) Tick-Borne Disease, (b) Deer Vehicle Collisions, (c) Property Damage due to Deer, and (d) Impacts of Deer on Forests

⁴ 79% of respondents estimated that residents held moderate or strong levels of concern about tick-borne disease. 76% of respondents estimated that town officials held moderate or strong levels of concern about tick-borne disease.

⁵ 46% of respondents estimated that residents held moderate or strong levels of concern about deer-vehicle collisions. 42% of respondents estimated that town officials held moderate or strong levels of concern about deer-vehicle collisions.

⁶ While 31% of respondents estimated that residents held moderate or strong levels of concern about property damage due to deer, only 22% of respondents estimated that town officials held moderate or strong levels of concern about property damage due to deer.

⁷ Only 10% of respondents estimated that residents held moderate or strong levels of concern about the impacts of deer on forests. 27% of respondents estimated that town officials held moderate or strong levels of concern about the impacts of deer on forests.

Deer Hunting – Access, Constraints, and Changes.

The growth of deer populations in suburban and urban areas is often attributed to state and local regulations and cultural factors that limit hunting access in these areas. To understand the ways that local regulations vary and shape hunting opportunities across the state, the survey contained questions about hunting access and local bylaws or ordinances that restrict hunting. The majority of respondents (85%) indicated that hunting is permitted on some private, state, municipal, and/or other land within their town (n=241). However, the level and ease of hunting access differs across municipalities. Our analysis of municipal bylaws across the state shows that more than half (56.7%) of municipalities have bylaws or ordinances that restrict hunting beyond state regulations (n=351; Figure 5). Common restrictions include the prohibition of or constraints on the discharge of firearms and/or archery, requiring some form of written permission to hunt on public and/or private property, and/or prohibiting hunting on certain properties. While the exact restrictions vary, some form of hunting related bylaws is in place in nearly all municipalities in the Northeast WMD and common in the rest of the state.

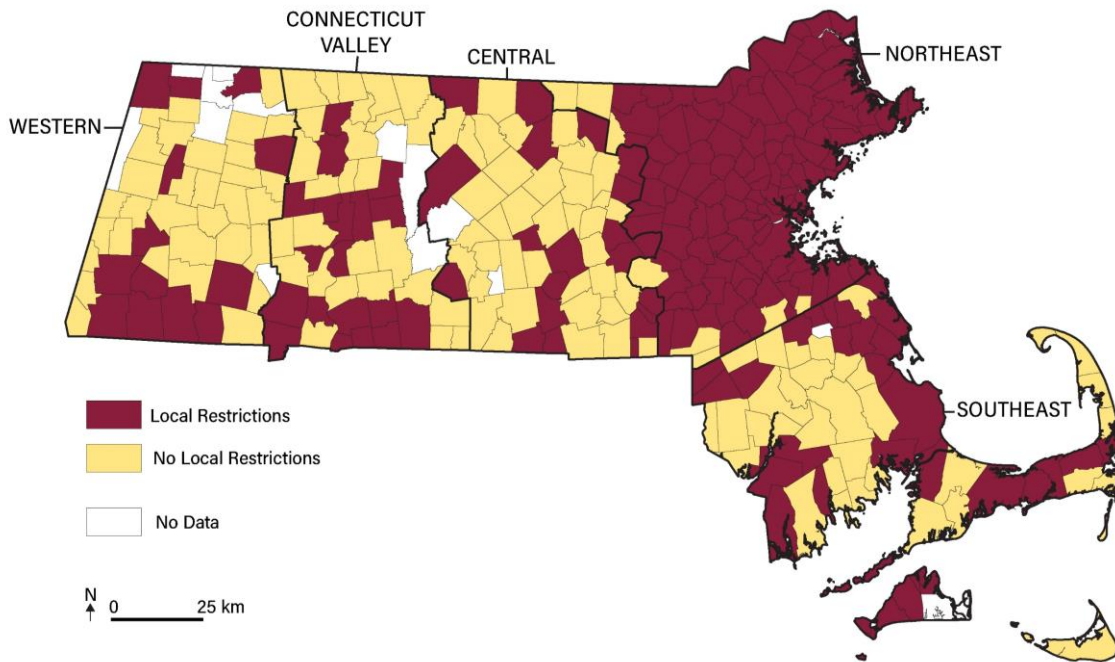


Figure 5. Municipal Bylaws and Ordinances That Restrict Hunting

When faced with challenges associated with growing deer populations, municipalities (in Massachusetts as well as across the Northeast) sometimes debate and initiate strategies to reduce deer populations. These efforts can include changing local bylaws and/or increasing access to public lands for hunting. The public debate about these changes can be contentious and do not always result in policy changes or other forms of deer management. In order to identify municipalities that have debated and/or implemented strategies for local deer management, we asked a series of questions about ongoing and past changes to local bylaws and hunting access. We found that most changes have occurred or are being considered in the more suburban and urban areas of the state (n=234; Figure 6).

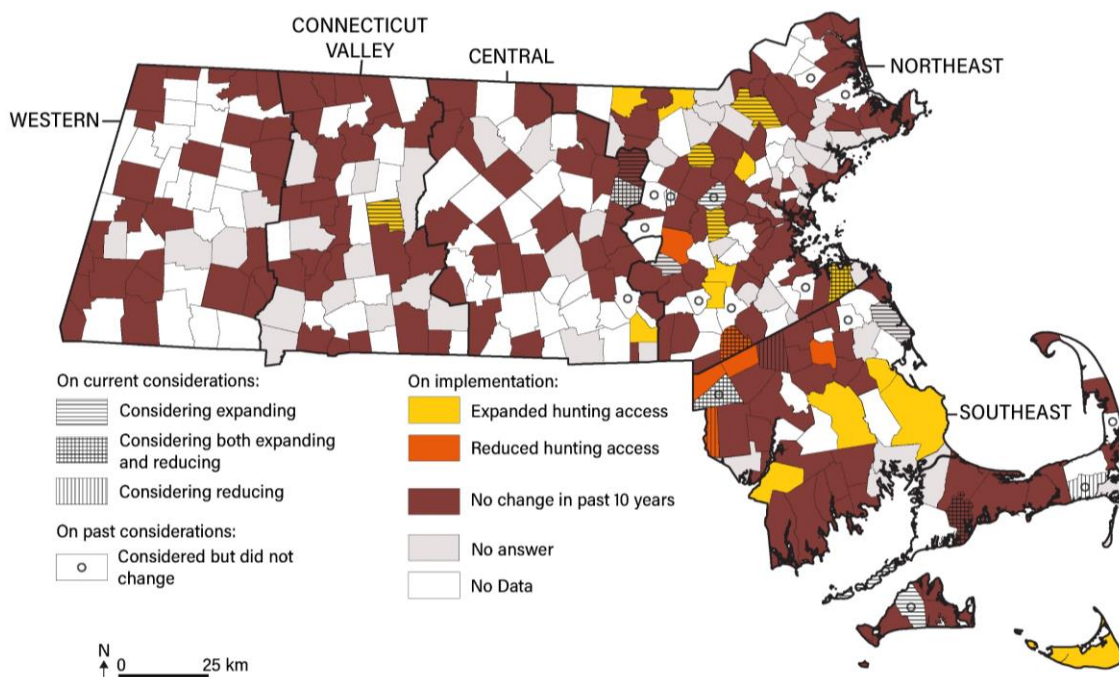


Figure 6. Modifications to Hunting-Related Bylaws and Hunting Access

Approximately 4% of respondents reported that their municipalities were currently considering changes that would expand hunting, 2% were considering changes that would reduce hunting, and another 2% were simultaneously considering changes that would expand and reduce hunting (n=226; Figure 6). With respect to past changes, the majority of respondents (89%) indicated that no changes have been made in the past decade (n=202; Figure 6). Sixteen surveyed municipalities (8%) expanded hunting access by reducing restrictive bylaws and/or making other changes that increased the amount of land available for hunting. In this same time period, six municipalities (3%) implemented changes that reduced hunting access and 19 municipalities (10%) considered taking action that would alter hunting access but ultimately did not implement those changes.

Public opposition to hunting is often viewed as a major obstacle to effective wildlife management efforts and 50% of survey respondents indicated that there is opposition to hunting in their towns or cities (n=179).

Learning about Deer and Management Strategies.

When confronted with deer-related challenges, town employees and volunteers often consult outside sources to assess deer populations in their municipalities and to learn about options for management. We asked respondents about the ways that they have learned about deer populations and potential management strategies. While the vast majority of municipalities have not conducted research about deer density or the local impacts of deer, respondents from 22 municipalities (11%; n=206) indicated that either local officials, volunteers, residents, or other organizations have conducted research about the number and/or impacts of deer locally.

Consulting with outside sources for management strategies was fairly common among respondents across MA – 36% of respondents noted that their municipalities had consulted one or more outside source regarding deer management (n=260). MassWildlife was the most commonly cited source of information. Approximately one quarter (28%) of survey respondents reported consulting with MassWildlife, and this includes both municipalities with strong concerns about deer and active municipal deer management strategies as well as towns with no municipal management activity. Other common sources of information include hunters (consulted by 18% of responding municipalities), the Massachusetts Department of Conservation and Recreation (consulted by 12% of responding municipalities), non-profit organizations (consulted by 10% of responding municipalities), and other nearby communities (consulted by 11% of responding municipalities).

Conclusion

This survey is one of the first assessments of municipal concerns about the management of deer populations. The survey reveals variation in municipal perceptions of, concerns about, and management of changing deer populations. While concern about tick-borne disease and deer vehicle collisions is widespread, more general concerns about large deer populations are primarily concentrated in suburban communities surrounding Boston, Cape Cod, and the islands of Nantucket and Martha's Vineyard. These same areas are also where municipal actors are becoming more involved in deer management by debating and/or changing hunting access. While these results draw attention to the key role municipalities are playing in deer management, the resulting pattern of hunting restrictions and access is patchy, prompting questions about how the policies evolved and the long-term outcomes of varied management.

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Acknowledgements

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