

## **Appendix D**

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# **Summary of Public Comments and Service Responses on the Eastern Massachusetts National Wildlife Refuge Complex (Assabet River, Great Meadows, and Oxbow National Wildlife Refuge) Recreational Hunting Plan and Environmental Assessment**

## **Introduction**

In March 2020, the U.S. Fish and Wildlife Service (Service, we, our) published the draft Recreational Hunting Plan and Environmental Assessment (EA) for Assabet River, Great Meadows, and Oxbow National Wildlife Refuges (NWRs, refuges). The draft plan and EA proposed expanding hunting on these three refuges to include new species and new areas.

On March 16, 2020, we distributed a press release to news organizations and alerted the public about the availability of the hunting plan with postings on the respective refuge's websites. The plan was sent directly to local town representatives and partners as well as emailed to members of the Friends of Assabet River NWR mailing lists. No public meetings were held due to bans on public gatherings due to COVID-19. The Refuge Manager did answer questions on the hunt plan during a Monthly River Stewardship Council Meeting of the Sudbury, Assabet, and Concord River Wild & Scenic Partnership attended by representatives from seven towns and three partner groups. Upon request, the public comment period was extended from April 24, 2020 (40 days) until May 22, 2020 (a total of 68 days).

## **Summary of Comments Received**

A total of 189 unique comment letters representing 501 individuals or entities offered input to the refuge (Table D-1). Among the comments were two petitions: an online Care2.com petition with 262 signatures representing 40 people from Massachusetts, 55 people from other states, and 167 people living in other countries, and a mailed petition representing 25 Massachusetts people. The petitions were addressed as one unless specific substantive comments were offered. Of the unique responses received, 40 were in favor of the proposed hunting expansion, 124 were generally opposed to the hunting expansion, and 25 expressed support for some aspects of the plan while being opposed to other parts of the plan. It is important to understand that commenting on a proposal is not a "vote" on whether the proposed action should take place (CEQ Citizens Guide to the NEPA, 2009). Rather, substantive comments allow refuge management to consider additional information into their analysis and address any fundamental concerns.

We received a variety of comments from local and State entities, including the following:

- Massachusetts Division of Fisheries and Wildlife (MassWildlife)
- Northeast Association of Fish and Wildlife Agencies
- The Center for Biological Diversity
- The Association of Massachusetts Bird Clubs
- Brookline Bird Club
- Cochituate Chapter of Ducks Unlimited
- Carlisle Trails Committee
- Devens Enterprise Commission
- Harvard Conservation Commission
- Hudson Conservation Commission
- Maynard Conservation Commission
- OARS (for the Sudbury, Assabet, and Concord Rivers)
- Sudbury, Assabet, Concord Wild & Scenic River Stewardship Council
- Stow Conservation Commission
- Stow Conservation Trust
- Sudbury Conservation Commission
- Sudbury Valley Trustees

- Town of Concord

**Summary of Plan Changes**

After reviewing all comments, we are proposing to move forward with changes proposed in the plan including opening for new species and new hunting units. Based on comments regarding safety, we have decided to make the following changes to the proposed hunt plan regarding method of take by removing handguns and rifles on all three refuges. This would affect the following opportunities as proposed in our draft hunt plan:

Species	Refuge and Hunt Unit	Current/Draft Proposed Method of Take	Final Proposed
Bear	<p><b>Assabet River:</b> North Unit A*</p> <p><b>Oxbow:</b> North Unit Hospital Road South Sheridan Road Route 2 South</p>	Proposed: Align with State (including handguns and rifles)	Change to no handguns and no rifles
Rabbit	<p><b>Assabet River:</b> North Unit A</p>	<p>Currently: Archery and Shotgun only</p> <p>Proposed: Align with State (including handgun and rifles)</p>	Maintain currently allowed method of take: Archery and Shotgun Only (no rifles and handguns)
	<p><b>Oxbow:</b> North Unit Hospital Road South Sheridan Road Route 2 South</p>	<p>Currently: Shotgun only</p> <p>Proposed: Align with State</p>	Change to Shotgun and Archery (no rifles and handguns)
Squirrel	<p><b>Assabet River:</b> North Unit A</p>	<p>Currently: Archery and Shotgun only</p> <p>Proposed: Aligned with State (including handgun and rifles)</p>	Maintain currently allowed method of take: Archery and Shotgun only (no rifles and handguns)
	<p><b>Oxbow:</b> North Unit Hospital Road South Sheridan Road Route 2 South</p>	<p>Currently: Shotgun only</p> <p>Proposed: Alignment for method of take</p>	Change to Shotgun and Archery (no rifles and handguns)

## **Service's Response to Comments by Subject**

We grouped similar comments together and organized them by subject in the discussion below:

- **General Comments on Hunt Plan**
  - General Support.
  - Special hunts for youth, veteran, women, and diverse groups.
  - General Opposition.
  - Opposition to opening “Concord Unit” to hunting.
  - Opposition to killing animals and general animal welfare, and hunting will change the character of the refuges.
  - Against “sport hunting.”
  - Impacts to non-hunters; conflicts with other users.
  - Noise Impacts
  - Hunter Numbers.
  - Enough private and/or State lands already available for hunting and fishing.
  - How can hunting be allowed but not dog walking?
  - Wild & Scenic River.
  
- **Hunt Administration**
  - Cost of administration of hunt.
  - Public engagement was inadequate.
  - Lead ammunition.
  - Additional refuge regulations.
  
- **Biological**
  - Invasive species.
  - General overuse and negative impacts on the environment.
  - Hunting lacks a biological basis of need, and therefore should not be pursued.
  - Against hunting predators: bears, coyotes, fox.
  - Beyond the scope of the CCP.
  
- **Safety**
  - Safety concerns associated with hunting near residential areas, accidental shootings, and areas are too small
  - Law Enforcement
  - How will safety buffers be identified?

Directly beneath each subject heading, you will also see a list of unique correspondence numbers that correspond to the submitter name listed in table D-1.

We address and respond to substantive comments, which are those that suggest our analysis is flawed in a specific way (e.g., challenge the accuracy of information presented; challenge the adequacy, methodology, or assumptions of the environmental or social analysis and supporting rationale; present new information relevant to the analysis; present reasonable alternatives, including mitigation, other than those presented in the document).

Our discussion does not include responses to any comments we determined to be non-

substantive, such as comments that support or object to our statements without providing reasoning that meet the criteria for a substantive comment; comments that do not pertain to the project area or proposal; or typographical corrections.

The full versions of the documents are available online at:

[https://www.fws.gov/refuge/assabet\\_river/](https://www.fws.gov/refuge/assabet_river/)  
[https://www.fws.gov/refuge/great\\_meadows/](https://www.fws.gov/refuge/great_meadows/)  
or <https://www.fws.gov/refuge/oxbow/>

For a print copy of the plan, please contact:

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## **General Comments on Hunt Plan**

### **General support**

Some commenters were supportive of the plan. Several hunters, abutters, local residents, members of the Cochituate Chapter of Ducks Unlimited, MassWildlife, and the Northeast Association of Fish and Wildlife Agencies supported the hunt expansion. (40 responses).

**Response:** We appreciate the support, and remain interested in providing a variety of hunting opportunities for the public, which is supported by the National Wildlife Refuge System’s (Refuge System) priority public uses policy. Sections 5(c) and (d) of the Refuge System Improvement Act (Improvement Act) states “compatible wildlife-dependent recreational uses are the priority general public uses of the Refuge System and shall receive priority consideration in planning and management; and when the Secretary [of the Interior] determines that a proposed wildlife-dependent recreational use is a compatible use within a refuge, that activity should be facilitated, subject to such restrictions or regulations as may be necessary, reasonable, and appropriate.” Hunting is one tool used to manage and maintain wildlife populations at a level compatible with the environment while providing wildlife-dependent recreational opportunities and permitting the use of a valuable renewable resource. As development in the Boston Metro West Region grows at a greater rate than the available habitats to support wildlife, hunting is a very important tool to maintain populations at a suitable carrying capacity at a landscape scale to prevent disease, starvation, road mortality, and human conflicts with wildlife. The refuge works closely with MassWildlife to manage hunting opportunities based on the data they collect throughout the year for various game species. We defer to them on hunting regulations that manage for sustainable populations of game species. Secretarial Order 3356 also directs “greater collaboration with state, tribes, and territorial partners” which encourages better alignment of refuge-specific regulations with State regulations.

### **Special hunts for youth, veteran, women, and diverse groups**

Several commenters (3 responses) supported the efforts of the Service to host special hunts for underserved groups.

**Response:** The Service is committed to promoting and sustaining a diverse and inclusive environment in our programs. We support the state led effort to recruit, retain, and reactivate hunters of diverse backgrounds and with special needs.

### **General opposition to hunting and fishing on National Wildlife Refuges**

Many commenters expressed general opposition to any hunting (55 responses) at the Eastern Massachusetts NWR Complex and/or in the Refuge System. In many cases, commenters stated that hunting was antithetical to the purposes of a “refuge” which, in their opinion, should serve as an inviolate sanctuary for all wildlife.

**Response:** The Improvement Act stipulates that hunting (along with fishing, wildlife observation and photography, and environmental education and interpretation), if found to be compatible, is a legitimate and priority general public use of a refuge and should be facilitated. The Service has adopted policies and regulations implementing the requirements of the Improvement Act that refuge managers comply with when considering hunting programs.

We allow hunting on refuge lands only if such activity has been determined compatible with the established purpose(s) of the refuge and the mission of the Refuge System as required by the Improvement Act. Hunting of resident and migratory wildlife species on refuges generally occurs consistent with State regulations, including seasons and bag limits. Secretarial Order 3356 also directs “greater collaboration with state, tribes, and territorial partners” which encourages better alignment of refuge-specific regulations with State regulations. Refuge-specific hunting regulations can be more restrictive (but not more liberal) than State regulations and often are more restrictive in order to help meet specific refuge objectives. These objectives include resident and migratory wildlife population and habitat objectives, minimizing disturbance impacts to wildlife, maintaining high-quality opportunities for hunting and other wildlife-dependent recreation, eliminating or minimizing conflicts with other public uses and/or refuge management activities, and protecting public safety.

The word “refuge” includes the idea of providing a haven of safety for wildlife, and as such, hunting might seem an inconsistent use of the Refuge System. However, the Improvement Act stipulates that hunting, if found compatible, is a legitimate and priority general public use of a refuge which should be facilitated.

On refuges designated as an inviolate sanctuary for migratory birds, hunting can be allowed, provided that hunting of migratory gamebirds cannot exceed 40 percent of the land base at any one time unless shown to be beneficial to the populations. Other species can be hunted throughout the area as determined compatible. The proposed plan meets this requirement.

Furthermore, we manage refuges to support healthy wildlife populations that in many cases produce harvestable surpluses that are a renewable resource. As practiced on refuges,

hunting and fishing do not pose a threat to wildlife populations. It is important to note that taking certain individual animals through hunting does not necessarily reduce a population overall, as hunting can simply replace other types of mortality, including disease, starvation, and road collisions. In some cases, however, we use hunting as a management tool with an explicit goal of reducing a population. Therefore, facilitating hunting opportunities is an important aspect of the Service's roles and responsibilities as outlined in the legislation establishing the Refuge System, and the Service will continue to facilitate these opportunities where compatible with the purpose of the specific refuge.

**Opposition to opening “Concord Unit” to hunting**

A few commenters (7 responses) opposed opening hunting in Concord, MA and in the “Concord [Impoundment] Unit.” to hunting.

**Response:** We are not proposing to open the Concord Impoundment Unit, located at Mosen Road in Concord, MA to any form of hunting in perpetuity. It is a highly visited area and there is a deed restriction that prohibits hunting on that unit.

**Opposition to killing animals and general animal welfare**

Many commenters (29 responses) were opposed to killing any wildlife and mentioned concerns for wounded game.

**Response:** As detailed in our response to *General opposition to hunting and fishing on National Wildlife Refuges*, above, we do not take lightly the decision to allow hunting on a refuge, and we never allow hunting if there is evidence that it will impair the purposes of the refuge, public safety, or the mission of the Refuge System. Refuge managers use a variety of techniques to minimize disturbance to non-target species of wildlife, such as time and space zoning. In some cases, hunting may be part of a management program to reduce the population of nuisance species; otherwise, hunt programs are carefully designed and regulated so as not to affect the sustainability of wildlife populations. Refuge managers are authorized to suspend a hunt program at any time if it appears as though the hunt is causing unacceptable impacts to refuge values or resources.

The Service understands that some members of the public do not believe that hunting is ethical. However, the Improvement Act stipulates that hunting and fishing, if found to be compatible, are legitimate and priority public uses of a refuge and should be facilitated. As detailed above, the decision to open a refuge to hunting must comply with all applicable laws, regulations, and policies; requires rigorous examination; and provides opportunities for public comment, all to ensure that hunting is consistent with the purpose of the specific refuge and the mission of the Refuge System.

We must base our decisions on the best available science, and these commenters have not provided information that would change our analysis. Our hunting programs are consistent with State regulations and, where necessary, use more stringent refuge-specific regulations to ensure that hunting and fishing are carried out in a safe, responsible manner.

**Against “sport hunting”**

Some commenters (14 responses) were opposed to “sport hunting” or “trophy hunting,” stating opposition for hunting species where the animal is not “consumed or used.” A couple mentioned

that eating bear is “bizarre behavior.”

**Response:** We allow hunting of resident wildlife on NWRs only if such activity has been determined compatible with the established purpose(s) of the refuge and the mission of the Refuge System as required by the Administration Act. Furthermore, hunting must be consistent with State regulations and not undermine safety or negatively impact the biological environment or the wildlife populations. Massachusetts hunting regulations prohibit wanton waste (321 CMR 2.17) and prohibit hunters from “intentionally or knowingly leaving a wounded or dead animal in the field or the forest without making a reasonable effort to retrieve and use it. Each retrieved animal shall be retained or transferred to another until processed or used for food, the pelt, feathers, or taxidermy.” Federal wildlife officers enforce this regulation on the refuge, however, we are not in the position to place judgement or value on the use of harvested animals nor are we in the position to regulate its use after the harvest has been removed from the refuge.

### **Impacts to non-hunters**

Many commenters (39 responses) expressed concerns about the impacts to non-hunters including people observing wildlife (hiking, walking, birding, and wildlife photography) and others learning about and enjoying the natural world. Concerns included the exclusion of the non-hunters (locals and tourists) to the refuges during hunting, multi-use trails where hunters and non-hunters would be allowed on the refuge during the same time, hunting being an incompatible use, and general impacts from stress and anxiety associated with hunting on the refuges.

**Response:** A compatibility determination evaluates whether a proposed use is consistent with the purposes for which a national wildlife refuge is established, and is not used to determine compatibility between uses. Hunting is equally considered along with fishing, photography, wildlife observation, environmental education and interpretation - none are considered of higher priority than the others. The refuge limits the number of hunters on the refuge for the various species and seasons via a permit system. Doing so has allowed the refuge to maintain a low hunting pressure and opening additional acres may further disperse hunters over a greater area while also supporting a small increase in hunter numbers, likely resulting in higher quality hunt. With regards to concerns over potential visitor use conflicts, the refuge will implement time and space zoning to mitigate conflicts between consumptive and non-consumptive users and to ensure the safety of all users.

The refuge addressed potential user conflicts in the draft plan, CD and EA. Staff collect visitor use data on an annual basis with a variety of techniques. The visitation numbers used in the Hunting Plan, and the EA are current estimates of usage on the Complex. We identified potential conflicts and the plan addresses means to minimize those conflicts. For the past 15 years, hunting has been permitted on all three refuges without major incident. Our staff, partners, and volunteers continue to offer safe high quality visitor service program outside of the hunting season including an Urban Wildlife Refuge Program and summer youth camps run by MassAudubon.

We expect slightly more users because of the increased opportunities for hunting on the refuge. We do not expect to see an increase in the number of conflicts among user groups. Experience has proven that time and space zoning (e.g. establishment of safety zones in high use areas and restriction on the number of users via a permit system) is an effective

tool in eliminating conflicts between user groups. We imposed shortened seasons for coyote and fox to ensure hunting days for the new species did not extend the current hunting seasons. At Great Meadows and Oxbow NWRs hunting of some form is allowed 173 days with the majority of the hunting opportunities in November and December. Hunting is not permitted for a total of 192 days (including all Sundays) each year on those refuges. Similarly, we imposed shortened seasons for coyote, fox, and bear at Assabet River NWR to include 173 days where hunting is allowed (an increase of 17 days from the currently allowed number of hunt days) and 192 days (including Sundays) where hunting is not permitted. Of those 173 days, 17 of those days are only open for waterfowl along a limited area of the Sudbury River.

Expanded hunting opportunities may have potential adverse impacts on a certain segment of the public that does not desire change in current public use programs and regulations, may not want to see harvested animals or hunters with firearms, or that may hold differing views on hunting in general. Conflicts between wildlife observers, photographers, hikers, and other refuge users are expected to be short-term and minimal based on experience in administration of our current 15-year hunting program. Refuge managers use a variety of techniques to minimize conflict between different user groups, such as time and space zoning can be managed through public notices. News releases, refuge websites, and Facebook posts and notices at trail heads will be used to alert locals and tourists about upcoming hunting seasons, and recommending hikers to wear florescent orange clothing during the those times. While some may not choose to visit the refuge, we feel that most uses will continue. If conflicts arise among user groups, mitigation efforts can be designed and implemented to mitigate for any significant impacts to other user groups.

### **Noise impacts**

A few commenters (5 responses) stated that firearms hunting creates noise impacts that may be stressful and that a full study on noise impacts and mitigation must be conducted (specifically for Assabet River NWR).

**Response:** At Assabet River NWR, South Unit, North Unit B, and Unit C are archery only for specific species of big game and upland game species. At Unit C, there is a very limited area open for waterfowl hunting which is via shotgun. Additionally, legal firearms hunting is already occurring on the river, on private lands, and at nearby hunt clubs for different species. Opening Unit C to waterfowl hunting effectively allows hunters to shoot ducks in flight along the water's edge and lawfully retrieve animals on refuge property. The increase in hunters in this area due to opening Unit C for waterfowl hunting is limited and we do not anticipate a significant increase in gunshot noise due to this opening.

Big game and upland game hunting at Great Meadows NWR is archery only hunting and, therefore, gunshots will not be heard due to the expansion of hunt opportunities for those species. In general, we do not expect a huge increase in the number firearms hunters that would result in a significant increase in noise. At this time, a study on noise impacts and mitigation is not necessary.

### **Consideration for other public uses**

We received multiple comments (6 responses) stating that expansion of hunting opportunities gives preference over other public uses. Some stated that the refuge prioritizes non-consumptive uses

over hunting.

**Response:** Congress, through the Administration Act, as amended, envisioned that hunting, fishing, wildlife observation and photography, and environmental education and interpretation would all be treated as priority public uses of the Refuge System. Therefore, the Service facilitates all of these uses on refuges, as long as they are found compatible with the purposes of the specific refuge and the mission of the Refuge System. For this plan, we specifically analyzed the possible changes to the hunting programs. We appreciate the widespread interest in using the refuge for non-consumptive recreational uses. The refuge has a robust visitor services program that includes all six of the priority wildlife-dependent recreational uses and a visitor services plan is being drafted to address and update the refuge's visitor services program.

### **Hunter numbers**

Some commenters (18 responses) stated that there are relatively low numbers of hunters using the refuge so hunting opportunities does not need to be expanded on the refuge.

**Response:** In our plan, we note that in 2017 hunting visits accounted for 2,353 out of a total of 919,980 visits to the Assabet River, Great Meadows, and Oxbow NWRs. This relatively low number of hunting visits represents specific management action to control the number of hunters (via a permit system) to allow for a quality hunt and ensure the safety of all users. It should not be interpreted as a lack of interested hunters. We have hosted hunter education workshops lead by MassWildlife at Assabet River NWR for years and have always been at capacity with a waitlist of interested parties. Nationwide and in Massachusetts, the decline in hunting is due in part to lack of access to hunting areas and limited opportunities which is amplified closer to urban and suburban areas. We work closely with MassWildlife who manage statewide hunting programs and discuss shared wildlife management goals including hunting opportunities. By working closely with MassWildlife to increase hunting opportunities we are able to work cooperatively to manage and maintain wildlife populations at a level compatible with the environment while providing wildlife-dependent recreational opportunities and permitting the use of a valuable renewable resource on refuge lands.

### **Private and/or State lands available for hunting and fishing sufficient**

Several commenters (5 responses) opined that State-run Wildlife Management Areas and private lands offer enough opportunities for hunters and anglers. Many believe that non-consumptive users that participate in wildlife observation and photography should enjoy a higher priority when it comes to use of refuge lands.

**Response:** The proposed plan evaluated hunting and fishing opportunities on national wildlife refuges only. Nationwide, the Service has experienced high demand for participation in some existing hunting opportunities on refuge lands, with an estimate that over 16 million Americans actively participate in hunting and fishing opportunities. As noted in our response to hunter numbers, the decline in hunting is due in part to lack of access to hunting areas and opportunities, which is amplified in areas closer to urban and suburban areas. MassWildlife, local hunters, and partners have requested additional hunting opportunities for years. We feel that there is adequate demand for these types of outdoor opportunities, regardless of other opportunities in the State.

### **How can hunting be allowed but not dog walking?**

Two commenters questioned why hunting was a compatible use on the refuges but dog walking was not compatible.

**Response:** Allowing dogs on refuge lands throughout the year would represent a substantial and long-term adverse impact to a wide variety of wildlife including ground nesting and foraging birds. In comparison, hunting is undertaken during a shorter period of time by fewer individuals, mostly occurring outside of the key nesting periods for many wildlife species. Activities must be found to be appropriate and compatible before allowing the use - we have found that the wildlife-dependent use of hunting meets this standard. Dog-walking is not a wildlife-dependent use.

### **Wild and Scenic River**

Two comments mentioned the Wild & Scenic River Partnership designation of the Sudbury, Assabet, and Concord Rivers (SuAsCo) and that decisions on hunting should be shown to not diminish the Outstanding Remarkable Values for which the river was federally designated; additionally the commenters also noted that there are no hunter requirement for a setback from other people enjoying on-river recreation.

**Response:** The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Act is notable for safeguarding the special character of these rivers, while also recognizing the potential for their appropriate use and development. Outstanding remarkable values for the SuAsCo Wild and Scenic River portions include recreation, ecological, historical, scenic, and educational values. Section 13 of the Wild & Scenic Rivers Act confirms state jurisdiction to hunting and fishing is **not** affected on public waterways, and that water rights are determined by established principles of law (A Compendium of Questions & Answers Relating to Wild & Scenic Rivers, 1997). As noted in previous response, legal firearms hunting is already occurring via boat on the river, which is an open waterway, Opening portions of the refuge to waterfowl hunting effectively allows hunters to shot waterfowl in flight along the water's edge and lawfully retrieve animals on refuge property. The Act also notes that the river-administering Secretary may, designate no hunting zones or periods in which no hunting is allowed for public safety or other reasons. The Secretary must issue such regulation in consultation with the wildlife agency of the state(s). Therefore, regulating for hunter setbacks to other users on public waterways, including those designated as Wild and Scenic, is not within the jurisdiction of the refuge.

### **Comments on Hunt Administration**

#### **Cost of administration of hunt**

Many commenters and organizations (30 responses) raised concerns that expanding the hunting program would divert resources from other critical management needs impacting stewardship, property maintenance, and enforcement of regulations.

**Response:** As stated in the hunt plan it will cost \$48,500 initially to start up a new hunting

program and \$41,600 annual costs for a new hunting program. The cost to run our current hunting program is \$41,000 of which \$31,000 is for law enforcement. We have two Federal Wildlife Officers (FWOs) which provide coverage 7 days a week across our complex. The \$31,000 cost is an estimate of their time specifically patrolling Assabet River, Great Meadows, and Oxbow NWRs during the hunting seasons. While on patrol, FWOs enforce all Federal wildlife laws on and off refuge lands as well as state and refuge regulations on refuge lands. The refuge has sufficient funds to cover the \$7,500 initial increase (of which the majority of the cost is for existing staff time to prepare documents and brochures and post new signs) and the \$600 increase in the annual costs to run the new hunt program, which includes extra costs to print brochures. The sale of refuge permits support these hunt program, which also includes property maintenance which benefits all users.

### **Public engagement was inadequate**

Many commenters (25 responses) communicated that there was inadequate public engagement for the proposed plan due to the cancelling of the proposed public open house, and the release of the proposed plan during the COVID-19 pandemic excluded some people from learning about the plan and submitting comments. Additionally, some commenters expressed concerns that neighbors were not mailed individual notifications about the proposed plan, and that no notifications were posted at the refuge trailheads informing the public about the proposal. A few noted that the Service used the pandemic to quickly push a new hunting program past the public.

**Response:** We issued multiple press releases to news organizations in the Boston Metro West region on March 17, 2020. The draft documents were available for public review on the three refuge websites since March 16, 2020. All Town representatives and local partners were sent email notification about the draft plan and EA. The comment period was extended to 68 days to allow for public comments to be received. Sending individual letters was not feasible, nor is it required. Notice boards at the refuges were only used to post COVID-19 safety guidelines. The Service worked directly with two town newspapers (the Stow Independent and the Harvard Press) on news stories to cover the draft hunt plan and EA and the local papers also printed many Letters to the Editors. The Service feels that the extended comment period provided adequate opportunity for the public to comment. The decision to allow hunting on a refuge is not a quick or simple process and is a multi-year process. It is full of deliberation and discussion, including review of all available data to determine compatibility, safety, and population before we allow it to be hunted.

### **Lead ammunition**

Seven commenters and organizations raised concerns about allowing lead ammunition to be used on the Complex, which could result in toxic levels of lead in the environment.

**Response:** The Service shares the concerns regarding lead in the environment. We acknowledge the potential adverse effects of spent lead ammunition (bullets) on the environment, endangered and threatened species, humans, and all fish and wildlife susceptible to biomagnification or acute poisoning.

Although there is not a Service-wide ban on lead ammunition for non-migratory bird hunting activities, the Service has taken specific steps to limit the use of lead in hunting and fishing activities on refuges and hatcheries. At refuges in the Eastern Massachusetts

NWRC, the effects of lead will be minimized by only allowing archery hunting on several refuge units. Further, the refuges will work to educate hunters and anglers on the impacts of lead on the environment, including on human health and safety concerns of consuming animals harvested with lead ammunition. We always encourage hunters to voluntarily use non-toxic ammunition and tackle. Lead alternatives are becoming more widely available and used by hunters and anglers.

Ultimately, the Service believes it is important to collaborate in partnership with States to reach decisions on lead use. The Improvement Act states “[r]egulations permitting hunting or fishing of fish and resident wildlife within the System shall be, to the extent practicable, consistent with State fish and wildlife laws, regulations, and management plans.” (16 U.S.C. 668dd(m)).

On refuges in Eastern Massachusetts NWRC, the Service will allow lead ammunition and tackle in a manner consistent with the State. We do not anticipate a large number of new hunters or anglers as a result of the new and expanded opportunities, and so the addition of lead into the environment is expecting to be minor or negligible, and dispersed. We will continue to work in partnership with the State to encourage use of non-toxic alternatives, and in some places to prohibit the use of lead, where necessary to ensure compatibility.

#### **Additional refuge regulations**

A few individuals and organizations supported additional refuge regulations including restrictions on time of year, time of day, method of take, the use of bait.

**Response:** We designed refuge-specific regulations to provide a safe and high-quality hunting experience, minimize wildlife disturbance, ensure wildlife conservation, and reduce or avoid conflicts with other refuge users. Among these regulations are the limits on permits for some species, shorter seasons for bear on Assabet River NWR, coyote and fox season only running concurrently with current deer season, restriction on night hunting and baiting, and restrictions on methods of take for certain species and in certain areas for safety reasons.

#### **Comments on Biological Aspects**

##### **Invasive species**

Two commenters mentioned that expanding hunting would lead to spread of invasive species.

**Response:** As mentioned in our EA, we do not anticipate a huge increase in hunter that would cause an increase in invasive species spread. Furthermore the majority of hunting occurs in November and December while vegetation is dormant and less likely to spread.

##### **General overuse and negative impacts on the environment**

Six commenters submitted concerns about the general overuse and negative impacts caused to non-target plants and animals during hunting, including disruption of the natural balance of the ecosystem including food chain, migrating birds, and other natural processes.

**Response:** We do not allow hunting on a refuge if it is found incompatible with that individual refuge's purposes or with the mission of the Refuge System. Service biologists

and wildlife professionals, in consultation with the State, carefully consider how a proposed hunt fits with individual refuge goals, objectives, and strategies before allowing the hunt. None of the known, estimated, or projected harvests of migratory game birds, upland game, or big game species in the plan is expected to have significant adverse direct, indirect, or cumulative impacts to hunted populations, non-hunted wildlife, endangered or threatened species, plant or habitat resources, wildlife-dependent recreation, air, soil, water, cultural resources, refuge facilities, or socio-economics.

### **Hunting lacks a biological basis of need, and therefore should not be pursued**

Twenty-nine commenters stated that hunting should only be allowed if there is a biological objective or need to manage the population.

**Response:** On national wildlife refuges, there are six wildlife-dependent recreational activities which are promoted when compatible. Hunting is equally considered along with fishing, photography, wildlife observation, environmental education and interpretation - none are considered of higher priority than others. Hunting can be allowed as a recreational activity without the need to control specific wildlife populations or other biological need as long as it is found compatible with no significant impacts to the environment or wildlife populations.

### **Against hunting predators including bears, coyotes, fox**

Many commenters (43 responses) were against killing predator species and citing there was insufficient biological basis of need, that there are insufficient population numbers of bears, and that allowing the hunting of coyote and fox would impact the rodent population which would lead to an increase in diseases such as Lyme's disease.

**Response:** The decision to allow hunting on a refuge is not a quick or simple process. It is full of deliberation and discussion, including review of all available data to determine the relative health of a population before we allow it to be hunted. Before allowing predators to be hunted, a refuge manager would have to ensure that the hunt would not threaten the integrity, diversity, or health of the refuge ecosystem. Hunting is a very important tool to maintain populations at a suitable carrying capacity along a landscape scale to prevent disease, starvation, road mortality, and human conflicts with wildlife. The refuge works closely with MassWildlife to manage hunting opportunities based on the data they collect throughout the year for various game species.

Massachusetts provides very good black bear habitat and natural survival rates are very high. MassWildlife reports that the black bear population in Massachusetts has been increasing in density and expanding eastward for the past 50 years and continues to do so. The bear population expanded from a small remnant population in the northern Berkshires in the 1970s to throughout western Massachusetts west of the Connecticut River by the mid-1990s. As the population expanded it also increased in density where it was established. In the 1990s bears expanded across the Connecticut River and have been increasing in number and expanding further east since then. Currently, black bears are well established to the west of the Interstate 190 (I-190) corridor and as far east as I-495 and Route 3 north of Route 2, and, in recent years, the density of bears in these areas has begun

to increase rapidly. Bears are continuing to expand further east, into the I-495 and I-95 corridor, where Assabet River, Great Meadows, and Oxbow NWR is located. MassWildlife and the Environmental Police have received regular reports of black bears in towns between I-495 and I-95 for the past several years.

In an ongoing study, MassWildlife found very little natural mortality and most bears die of human-associated causes. There has been a regulated black bear hunting season in Massachusetts since 1970. As the bear population has increased and expanded in the State, the hunting season has been increased as well. Despite the increase in hunting pressure and hunting mortality, the bear population has continued to grow. Hunter harvest, vehicle collisions, and nuisance kills by the public account for total causes of mortality. However, in eastern Massachusetts, data indicates that vehicle collisions are a larger source of mortality than hunting. In order to stabilize the population at the current level, mortality would need to be increased in the population. The only means we have to do that is through an increase in regulated hunting. Without hunting in an area, the only significant sources of mortality are vehicle collisions and nuisance kills, and the bear population would be expected to increase rapidly under those circumstances, which would likely lead to more of both types of mortality and increased conflict with the public. While there is currently limited bear populations in Eastern Massachusetts, the Refuge Complex represents a large block of wildlife habitat in the middle of the expanding bear range and plays a role in the landscape scale management of bears. MassWildlife and the Northeast Association of Fish and Wildlife Agencies both support the refuges plan for black bear hunting and cite “An Evaluation of Black Bear Management Options (2012)” in support of this action. MassWildlife has provided a Summary of Black Bear Management that further supports black bear hunting in Eastern Massachusetts (See Attachment D-2)

MassWildlife notes that “the eastern coyotes first arrived in Massachusetts in the 1950s and quickly established itself throughout the state. For the past 10 to 20 years, coyotes have existed at saturation levels in Massachusetts, where they exist at high densities and occupy all suitable territories in the state. Coyotes can now be found in every city and town in mainland Massachusetts including Boston.” They estimate that there are between 9,500 and 11,500 coyotes in Massachusetts. For the past 10 years when coyotes have been at saturation levels in the State, there has been a pretty consistent harvest of coyotes of between 400 and 600 animals per year. Studies have shown that in order to have a long-term reduction in coyote populations in an area over 70 percent of the population would have to die on an annual basis. The current harvest levels are well below this level and coyote hunting in Massachusetts and at the Eastern Massachusetts NWRC poses no threat to health and abundant coyote populations in the state. MassWildlife has provided a Summary of Coyotes Management that further supports coyote hunting in Eastern Massachusetts (See Attachment D-3).

For fox, MassWildlife also reports relatively low hunting pressure on the species with a 5-year Statewide annual average of 43 grey fox and 73 red fox harvested a year. Masswildlife has noted that there is a very robust population of fox and hunting does not impact healthy viable population of fox throughout the State. Through sound professional

judgment, as well as consultation with MassWildlife, we found that permitting the hunting of bears, coyotes, and foxes will not affect the sustainability of the population. Therefore, it will also not have an impact on the rodent population in which they coyote and fox prey upon nor will it result in an increase in tick borne diseases that uses rodents as vectors.

### **Beyond the scope of the CCP**

A few commenters (17 responses) noted that the Hunt Plan was beyond the “Scope” of the CCP, that the biological objectives and goals have not been met, that the current CCP is expired and should be updated before a new hunt plan is developed.

**Response:** Developing a comprehensive conservation plan (CCP), a 15-year plan for the refuge, is generally the first step a refuge manager takes in rigorous examination of the available data to make management decisions related to hunting. The CCP provides guidelines for management decisions and set forth goals, objectives, and strategies to accomplish these ends. Step-down plans, of which a hunting plan would be one, are developed based on the guidelines provided in the CPP. Both CCPs and step-down plans including hunting plans need to be reviewed and updated following appropriate compliance with the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 et seq.), such as conducting an environmental assessment accompanied by the appropriate decision documentation (record of decision, finding of no significant impact, or environmental action memorandum or statement). Step down plans can be updated before, after, or during revisions for existing CCPs. Biological objectives and goals of CCPs do not need to be fully met before revising CCPs or step down plans, but their current status is taken into consideration in the updates.

### **Comments on Safety**

#### **Safety concerns associated with hunting near residential areas, accidental shootings, and areas being too small**

Many commenters (59 responses) mentioned safety concerns. Concerns included accidents and injuries to other refuge users, nearby residential areas and bike paths from firearms and archery hunting.

**Response:** As detailed in the Complex’s Plan, CD and EA, hunting activities would be limited by Statewide hunting safety setbacks as set by MassWildlife. This includes prohibiting the possession of a loaded firearm, discharge of firearms, or hunting within 500 feet of a dwelling, and a prohibition against discharge of firearms or release of any arrow upon or across any road or within 150 feet from a road. Hunters will provided hunting brochures, which describes the regulations and maps to aid in navigation. All hunters must have in their possession a valid State hunting license, which requires new hunters to pass a hunter education course that includes safety. Aerial maps showing the hunt unit boundaries and safety zones will be provided to hunters to aide in navigation. The plan allows for adjustment to the hunt program should problems or safety issues arise, including season length and methods of take. It is worth noting that injuries and deaths related to hunting are extremely rare, both for hunters themselves and for the non-hunting public. The 2019 International Hunter Education Association State Report shows 57,921 licenses hunters in Massachusetts and no hunting accidents (both fatal and non-fatal) in 2018 (See Table D-4).

By limiting the number of hunters via a permit system, shortening seasons for specific species, and only allowing archery hunting in some areas, the Service feels the hunt plan can be conducted safely.

#### Law Enforcement

We received some comments (5 responses) noting that law enforcement on the refuge seems insufficient to manage the hunts and/or enforce regulations.

**Response:** We want to emphasize that ensuring the safety of refuge visitors and resources is a top priority at the Eastern Massachusetts NWRC. We have two FWOs that patrol the complex 7 days a week, year round. When needed, we are often able to rely on State law enforcement to assist in enforcement of hunting and fishing regulations. FWOs and State conservation officers will patrol public hunting area to enforce game laws and address trespass issues.

#### **How will safety buffers be identified?**

Four commenters asked how safety buffers/zone would be identified to ensure hunters did not trespass on private property, and to ensure hunters were not too close to houses.

**Response:** As detailed in the Complex's Plan, CD and EA, hunting activities would be limited by hunting safety setbacks as set by MassWildlife. This includes prohibiting the possession of a loaded firearm, discharge of firearms, or hunting within 500 feet of a dwelling, and a prohibition against discharge of firearms or release of any arrow upon or across any road or within 150 feet from a road. Hunters will be provided hunting brochures, which describes the regulations and maps to aid in navigation. All refuge units will display standard U.S. Fish and Wildlife Service boundary signs along their boundaries. We also provide GIS based hunt area boundaries to mobile hunting map applications to allow for advanced location and navigation while in the field. Ultimately, it is the responsibility of the hunter to know their location at all times and follow the Federal, State, and refuge hunting regulations. FWOs will patrol public hunting areas to enforce game laws and address trespass issues as necessary.

**Table D-1. Correspondences submitted for Eastern Massachusetts NWRC Hunt Plan/EA**

<b>ID #</b>	<b>Submitter Name</b>	<b>Affiliation</b>
1	John Nelson	Association of Massachusetts Bird Clubs
2	Neil Hayward	Brookline Bird Club
3	Marc Lamere	Carlisle Trail Committee
4	Collette Adkins	Center for Biological Diversity
5	Matt Gallacher	Cochituate Chapter of Ducks Unlimited
6	Brian Griffin	Cochituate Chapter of Ducks Unlimited
7	Peter Lowitt	Devens Enterprise Commission
8	Jessica Bendel	Substantive Comment From Care 2 Petition
9	Roger Gayeski	Substantive Comment From Care 2 Petition
10	Kate Kenner	Substantive Comment From Care 2 Petition
11	Ellen Kosmer	Substantive Comment From Care 2 Petition
12	Bageshri Kundu	Substantive Comment From Care 2 Petition
13	Debra Maher	Substantive Comment From Care 2 Petition
14	Elyse Rhodin	Substantive Comment From Care 2 Petition
15	Michael Rhodin	Substantive Comment From Care 2 Petition
16	Aimee Yermish	Substantive Comment From Care 2 Petition
17	Margaret Sisson	Harvard Conservation Commission
18	Pam Helinek	Hudson Conservation Commission
19	Local Residents	Local Petition
20	Mark Tissa	Massachusetts Division of Fisheries and Wildlife (MassWildlife)
21	Kaitlyn Young	Maynard Conservation Commission
22	Paul Johansen	Northeast Association of Fish & Wildlife Agencies, Inc.
23	Alison Field-Juma	OARS
24	Laurie Larson	Online Care2 Petition: 262 Signatures
25	Anne Slugg	River Stewardship Council
26	Kathy Sferra	Stow Conservation Commission
27	Jeffry Ritterson	Stow Conservation Trust
28	Lori Capone	Sudbury Conservation Commission
29	Lisa Vernegaard	Sudbury Valley Trustees
30	Michael Lawson	Town of Concord
31	Sondra Albano	
32	Donald Allen	
33	Lynn Atkins	
34	Cynthia Baddour	
35	Rona Balco	
36	Desirée Ball	
37	Evan Barry	
38	Galdys and Guy Beaudette	
39	Louise Berliner	
40	Bruce Blumberg	
41	Jane Blumberg	

*Summary of Comments Received and Service Responses*

42	Robin Borgstedt	
43	Cliff Brown	
44	Shawn Brown	
45	Pat Brown	
46	James Brownell	
47	Sarah Buchanan	
48	Audra Budny	
49	Robert Burgess	
50	Krisanne, Joel, Leonard Bursik	
51	Alison Campbell	
52	Robin Carlaw	
53	Ann Carley	
54	Brian Carpenter	
55	Mike Catalfano	
56	Danise Cavallaro	
57	Caroline Chaves	
58	AJ Cohen	
59	Eliot Cohen	
60	Evan Collins	
61	Mary Compton	
62	Richard Conant and Martha Patton	
63	Aims and Terry Coney	
64	Melanie Coo	
65	Laura Corbin	
66	Cathy Corning	
67	Jim Correia	
68	David Cudmore	
69	Cindy Cummings	
70	Rebecca and John Cutting	
71	Jonathan Daisy	
72	Laura Davis	
73	David Davis	
74	Jonathan Dekock	
75	Robert Dibattista	
76	Eve Donohue	
77	Ellen Duggan	
78	Carolyn Holt and Ennis Stock	
79	Anthony and Helen Fiore	
80	Weston Fisher	
81	Mark Flinkstrom	
82	Dorothy Flood-Granat	
83	Suzanne Foley	
84	Siragan Gailus	
85	Mark and Tanya Gailus	

*Summary of Comments Received and Service Responses*

86	Arshan and Nicole Gailus	
87	Joe Garrity	
88	Nick and Celina Gayeski	
89	Jeannie Geneczko	
90	Julie Ghrist	
91	Robert Gibson	
92	Lorraine Gill-Pazaris	
93	Paula Goodwin	
94	Scott Greenaway	
95	Sylvia Greene	
96	Reid Hammond	
97	Lisa Harsip	
98	DW Hernes	
99	Rob Hewett	
100	Dana Hollinshead	
101	Ann Howe	
102	Mary Hunt	
103	Tracey Hurd	
104	Hewon Hwang	
105	Marla Iyasere	
106	Betsey Jackson	
107	Marty Jalonski	
108	Barbara and Greg Jones	
109	Chris and Kristen Juliani	
110	James Kalina	
111	Ronnie and Steve Kanarek	
112	David Kay	
113	Christine Keene	
114	Diana Kelly	
115	Bill Kemeza	
116	David Keough	
117	Kathy King	
118	Will Kirousis	
119	Jacqui Kluft	
120	Eve Kodiak	
121	Dan Kozarsky	
122	Meghan Kwartler	
123	Patricia Kwartler	
124	Dave Lange	
125	Sarah Lawrence	
126	McChord Lindsey	
127	Lydia Lodynsky	
128	David Longland	
129	Karen Luther	

*Summary of Comments Received and Service Responses*

130	Stephanie Lynch	
131	Joseph Maar	
132	Donald MacFarlane	
133	John Mackesy	
134	Joseph Madison	
135	JP Mann	
136	Pam Marston	
137	Lori Millar-Nicholson	
138	Janet Miller	
139	Meredith Monaghan	
140	Jamie Monat	
141	Marshall Moore	
143	Patricia Noone	
144	Joseph O'Gorman	
145	Justine Olmez	
146	Barbara Olsen	
147	Leia Owen	
148	Sal Persico	
149	Robin Petri	
150	Derek Place	
151	Daniela Plesa Skwerer	
152	Eleanore Recko	
153	Laura Reiner	
154	Michelle Riccio	
155	Brian Richards	
156	Majorie Rigg	
157	Karen and Ron Riggert	
158	Schaller Robert	
159	Jacquie Rodgers	
160	Lydia Rogers	
161	Millie and Steve Rothman	
162	Pedro Sanchez	
163	Joseph Savarino	
164	Emily Schadler	
165	Tom and Nancy Schadler	
166	Marcia Schloss	
167	Tom Sciacca	
168	Jonathan Seller	
169	Erin Sharaf	
170	Bryan Sifakas	
171	Arthur Skura	
172	Daniela Skwerer	
173	Sarah Sloan	
174	Siri Smedvig	

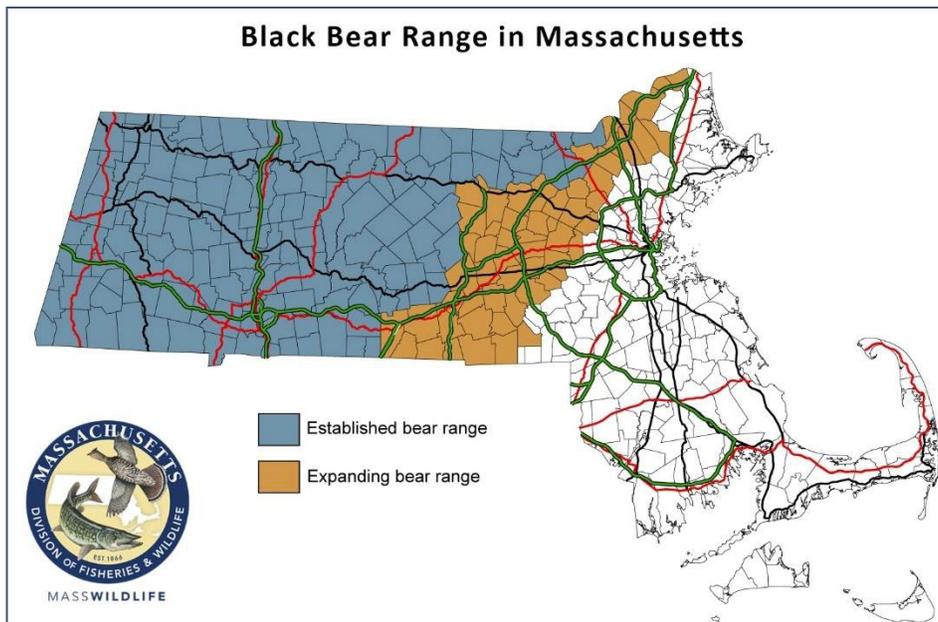
*Summary of Comments Received and Service Responses*

175	Rebecca Stadolnik	
176	Brooks Stevens	
177	Sharon Sticher	
178	Henri Tarbi	
179	Daniel Tracey	
180	Valerie Tratnyek	
181	Bret Valerio	
182	Lora and David Venesy	
183	Michael Volk	
184	John von Rohr	
185	Peg Von Rohr	
186	Jonathan Way	
187	Pamela Weathers	
188	Christopher Wendell	
189	Sanford Whitehouse	
190	Bryan Windmiller	
191	Melodie Wing	
192	Carolyn Wirth	
193	David Witherbee	
194	Eve Wittenberg	
195	Leslie Wittman	
196	Janice Wright	
197	David Youngsman	
198	Sherry Zitter	
199	Margaret Miles	

**Attachment D-2. Bear Management Summary (Provided to US FWS by Michael Huguenin, Assistant Director, Wildlife Research, Massachusetts Division of Fisheries and Wildlife)**

The black bear population in Massachusetts has been increasing in density and expanding eastward for the past 50 years and continues to do so. The bear population expanded from a small remnant population in the northern Berkshires in the 1970s to throughout western Massachusetts west of the Connecticut River by the mid-1990s. As the population expanded it also increased in density where it was established. In the 1990s bears expanded across the Connecticut River and have been increasing in number and expanding further east since then. Currently, black bears are well established to the west of the Interstate 190 (I-190) corridor and as far east as I-495 and Route 3 north of Route 2, and in recent years the density of bears in these areas has begun to increase rapidly. Bears are continuing to expand further east, into the I-495 and I-95 corridor, where the Assabet River NWR is located. MassWildlife and the Environmental Police have received regular reports of black bears in towns between I-495 and I-95 for the past several years.

As bear populations expands, it is typically young males that disperse first. They cannot compete with large males with established territories and disperse into the unoccupied habitat of our expansion zone. Young females typically do not disperse as far from their mother's range as males do. Reproductive females are essential to the growth of the bear population in an area, so it is the dispersal and establishment of females into new areas that eventually triggers the phase of population growth. MassWildlife anticipates if there are not already, there will be reproductive females in the vicinity of the Assabet River NWR in the near future. The pattern of population expansion and increase has repeatedly played out across western Massachusetts over the past several decades.



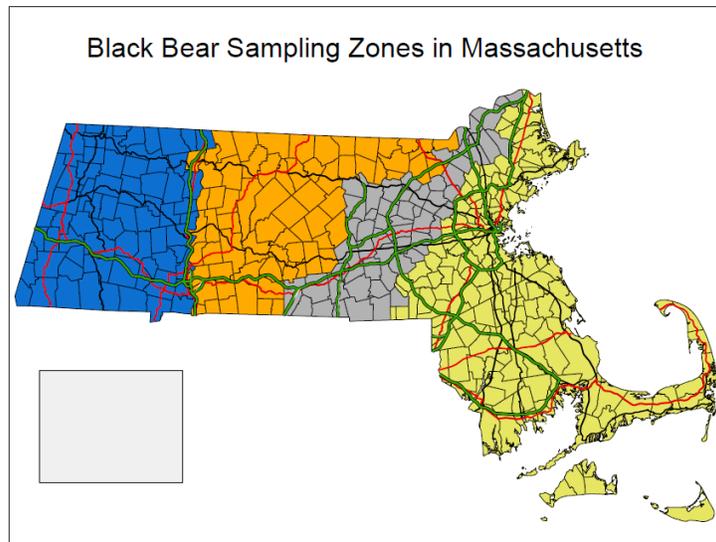
There has been a regulated black bear hunting season in Massachusetts since 1970. As the bear population has increased and expanded in the state, the hunting season has been increased as well. Despite the increase in hunting pressure and hunting mortality, the bear population has continued to grow.

MassWildlife has been collaring and tracking black bears in the state for the past 40 years. We have extensive information of the survival, reproductive rates, and causes of mortality in our black bear population. Massachusetts provides very good black bear habitat and natural survival rates are very high. We have documented very little natural mortality in our study and most bears die of human-associated causes. Hunter harvest has been the greatest source of mortality for black bears, followed by vehicle collisions, and nuisance kills by the public. However, in eastern Massachusetts, data indicates that vehicle collisions are a larger source of mortality than hunting.

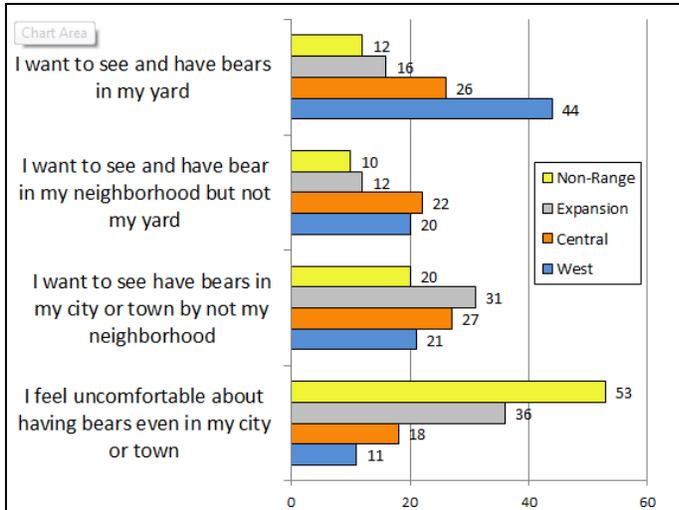
Despite the combined causes of mortality, black bear survival remains high and the population is growing. In order to stabilize the population at the current level, mortality would need to be increased in the population. The only means we have to do that is through an increase in regulated hunting. Without hunting in an area, the only significant sources of mortality are vehicle collisions and nuisance kills, and the bear population would be expected to increase rapidly under those circumstances, which would likely lead to more of both types of mortality and increased conflict with the public.

In the fall of 2017, MassWildlife conducted a human dimensions study of the public's attitudes towards black bears in the state and their area. We split the state up into four sampling zones, based on the differences in bear density in those areas. In the figure below, the "West" area is west of the Connecticut River and has high bear densities and long-term occupation by bears; the "Central" area has a lower, but increasing density of bears and shorter period of occupation; the "Expansion" zone is our expanding bear range in the state, it has very low bear densities and almost all are dispersing young males and possibly a few reproductive females; and our "Non-Range" where there are no or very few resident bears. We asked the same questions of people in all four zones. Two of the questions we asked people are how they felt about bears living in the immediate area of their homes and what they thought should happen to the bear population in their area.

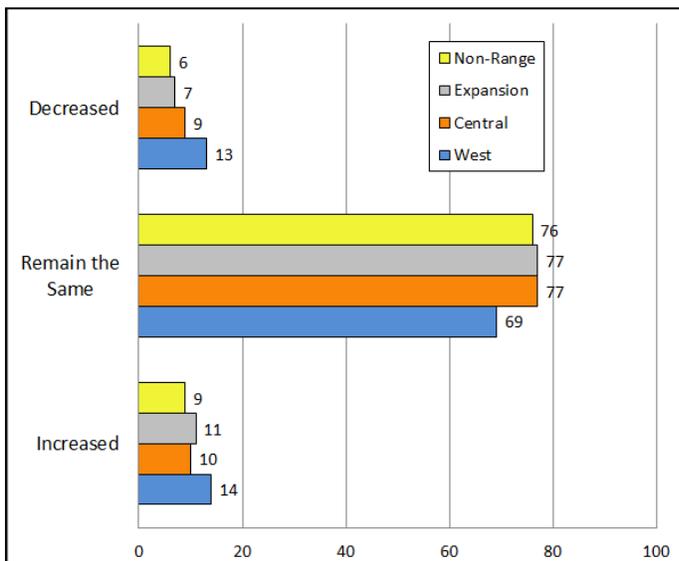
We have documented very little natural mortality in our study and most bears die of human-associated causes. Hunter harvest has been the greatest source of mortality for black bears, followed by vehicle collisions, and nuisance kills by the public. However, in eastern Massachusetts, data indicates that vehicle collisions are a larger source of mortality than hunting.



In response to the question; Which of the following statements best describes your feelings about black bears around your primary home and your area?, the public replied as below. In reality, in the Expansion area, thus the area around Assabet River National Wildlife Refuge only the 16% who replied they want bears in their yards are tolerant of having bears in the vicinity of their homes. Those that responded they want them in their neighborhood, but not their yard, or in their town but not their neighborhood, are choosing something that is not realistic. If there are bears in your town, they will also be in your neighborhood, and if they are in your neighborhood, they will also be in your yard.



In response to the question; In your opinion should the bear population in your city or town be increased, decrease, or remain the same? The public responded as below. The overwhelming majority of people in the Expansion zone want the bear population in their area to remain the same. Meaning, they want almost no bears in the area, which is the current population status. As wildlife managers we know that that will not be the case if there is no hunting in the area. The population is likely to increase in the next few years and there will be bears in the towns, bears in the neighborhoods, and bears in people’s yards.



Assabet River National Wildlife Refuge represents a large block of wildlife habitat in the middle of the expanding bear range and has a key role to play in the management of wildlife populations in the surrounding area. The Refuge will likely be an area that is used extensively by black bears in the near future. In fact a research paper on black bear movements in Massachusetts that is going to be published in a special issue on Dynamic Landscape Connectivity in the journal *Lands*, which predicts the movement corridors and pathways bears will use to occupy eastern Massachusetts, specifically identifies Assabet River National Wildlife Refuge as one of the main pathways bears will use to move into eastern Massachusetts (Line 256 of Attached Paper). For transparency, Dr. Dave Wattles, MassWildlife black bear biologist is a co-author of this paper, however, the mention of the Assabet River National Wildlife Refuge was included based only on the results of the analyses and was done so by the lead author without knowledge of Dr. Wattles.

However, Assabet River National Wildlife Refuge cannot be looked at in isolation from the surrounding landscape. Female black bear home ranges in central Massachusetts are over 200 km<sup>2</sup> in size, and typically encompass multiple towns. This means that bears that are using the Wildlife Refuge will also be using the surrounding communities as well.

Managing wildlife populations in eastern Massachusetts can be challenging due to land use patterns that limit access to hunting on private lands. Large blocks of conservation land that are open to hunting, are essential to MassWildlife's ability to manage wildlife populations, including bears, at levels that are compatible with heavily populated areas of Massachusetts. If the Assabet River NWR were to be close to black bear hunting, it would not only serve as a bear reservoir in an area where the public has indicated it has low tolerance levels for the presence of bears. It would severely limit MassWildlife's ability to reduce the rate of growth of the bear population in the area through hunting. This would likely result in a rapid increase in the bear population to above levels that are tolerable by the public, an increase in vehicle collisions, an increase in nuisance kills by the public, and an increase in human-bear conflict in the region.

Hunting will not eliminate black bears from Assabet National Wildlife Refuge once they become established there, nor will it eliminate bears from the surrounding region. MassWildlife wants to have healthy bear populations, existing at levels that are compatible with the human population in Massachusetts and hunting is the main tool we have to help to maintain that. This will help to maintain black bears as an important natural resource and a valuable component of the natural community in Massachusetts, in the eyes of the public. Assabet River National Wildlife Refuge has an important role to play in helping MassWildlife achieve that goal.

**Attachment D-3. Coyote Management Summary (Provided to US FWS by Michael Huguenin, Assistant Director, Wildlife Research, Massachusetts Division of Fisheries and Wildlife)**

The eastern coyotes first arrived in Massachusetts in the 1950s and quickly established itself throughout the state. For the past 10-20 years coyotes have existed at saturation levels in Massachusetts, where they exist at high densities and occupy all suitable territories in the state. Coyotes can now be found in every city and town in mainland Massachusetts including Boston. Coyote biology is somewhat unique compared to other species due to their territoriality, the way their populations are structured, and the way they respond reproductively to the availability of resources (food) on the landscape. In areas of abundant resources coyotes exist at high densities, they will have small home ranges, because a smaller area can support their needs, and have larger family groups because there are a lot of resources to go around. Conversely, in areas of fewer resources, they will have larger territories, smaller family groups, and fewer pups, and thus exist in lower densities. Surprisingly, coyotes tend to exist in higher densities in suburban and urban areas due to the abundance of human-associated foods that supplement their diets, than they do in rural or more natural areas where they are more dependent solely on natural food sources.

However, coyote populations will not increase indefinitely, but tend to come to a relative balance with the availability of resources. As population density increases, so does competition for resources and there is less food for each individual. As a result, under conditions of increasing competition, females are in poorer body condition, produce fewer pups, have less milk for their pups and less food to bring back to them. As a result, pup survival is lower. Conversely, if resources are abundant, females will be in good body condition, produce a greater number of robust pups, have plentiful milk for nursing and can provide more food for the pups and pup survival is higher. Thus, there is some level of population stabilization around a carrying capacity level, as the population fluctuates between periods of slightly higher and lower density.

It is also this response to resources along with the structure of their populations, that all makes coyote populations very resilient to mortality. Whether the mortality comes from natural causes, e.g., disease, starvation, competition, conflict; or from human-associated causes like hunting or vehicle collisions. Mortality in the population temporarily reduces coyote population density and thus competition for resources. As explained above, coyotes rapidly respond by producing more pups with greater survival and the population almost immediately rebounds to the pre-mortality level. Another key component of coyotes' ability to respond to mortality is the structure of their populations, which consist of both territorial family groups and transients. Transients are juveniles and other coyotes that have dispersed from their family group and live a semi-nomadic existence between and around the territories of other family groups. They are constantly looking to find a mate and establish a territory for themselves. Thus, when there is mortality of a one or both members of a breeding pair, either subordinate members of the family group or transients quickly move in to replace them. That combined with their responsiveness to resources provides very strong population level stability.

Studies have shown that in order to have a long-term reduction in coyote populations in an area over 70% of the population would have to die on an annual basis. Even with 70% mortality, each year the population would rebound to nearly the pre-mortality level. However, year on year of that level of mortality would begin to cause a gradual reduction in the population. As a result, it is virtually impossible to "control" coyote populations through hunting or other means. As a result,

with the exception of extreme cases hunting has little year-to-year impact on coyote populations. Take Massachusetts for example. We can use information on coyote family group home range sizes in rural and suburban areas, average family group composition (the breeding pair and several subordinate members (3), the average number of pups produced (4-8), average pup survival rates (50%), the number of transient animals (30% of pre-whelp population) and combine that with the amount of available habitat to come up with a population estimate for Massachusetts. Using this method, we can estimate that there are between 9,500 and 11,500 coyotes in Massachusetts.

Massachusetts has a regulated hunting season and is one of only a few states that does not have a year-round season. The coyote hunting season is closed from mid-March to mid-October, thus providing protection for coyotes when they are pupping and raising their young. For the past 10 years when coyotes have been at saturation levels in the state, there has been a pretty consistent harvest of coyotes of between 400 and 600 animals per year. There was a one-year spike in 2018 up to 750 animals, but harvest was back to the average of 617 in 2019. Even the all-time high harvest of 750 coyotes is only 7.5% of a population of 10,000 coyotes and only 10% of the overall 70% mortality that would cause an incremental decrease in the coyote population. As a result, coyote hunting in Massachusetts poses no threat to health and abundant coyote populations in the state. Similarly, coyote hunting at Assabet River National Wildlife Refuge would not pose a threat to coyotes on and around the refuge either.

Table D-4. International Association of Hunter Safety: 2019 State Report

Jurisdiction	HE Program Began	Hunter Education Section Structure					Mandatory Requirements			2018 Students Trained			2018 Active Instructors			Delivery Methods				# of Hunters		# Hunting Incidents		TOTAL Ranges						
		What Department/Section	Does Your Hunter Education Program Reside In?	How Many Hunter Education FTES Does Your State Have?	How Many Range FTES Does Your State Have?	How Many Range FTES Does Your State Have?	How Many R3 FTES Does Your State Have?	How Many R3 FTES Does Your State Have?	Trapper Ed	Other *	Basic Hunter Ed	Bow Hunter Ed	Basic Hunter Ed	Bow Hunter Ed	Traditional Class	Internet + Field	Internet only - 17+	Challenge Option	Taught in Schools	Live Fire Req.	Apprentice Lic.	HH Proof to Buy	USFWS 2018 Paid License Holders (Mss.gov)	2018 Fatal (A)	2018 Nonfatal (A)	Fatal Fall from Stand(B)	Nonfatal Fall/Stand (B)	3rd Party Grants	Agency-Owned	
Alabama	1973 Wildlife		5	2	0	2	0	0	X			11878	44	387	2	X						X	547905	2	4	1	10	0	12	
Alaska	1973 Wildlife Conservation		6	3	2	7	0	1	X			2355	531	449	214	X						X	108921							
Arizona	1955 Division	Information Education Recreation	2.5	0	41	10			X	10-1	4292	29	330	0	X							X	305214	0	1	0	0	4	10	
Arkansas	1971 Education		7	0	3	3	0	1	X			12863	49	1290	10	X*						X	326559							
California	1954								X			25556	162	1350	138	X						X	280967	1	11				1	
Colorado	1970 Volunteers	Education, Partnerships and	3	1	4	0	0	0	X			16,678	159	672	144	X						X	294319	2	4	0	0			
Connecticut	1957								X	(tu)	777	15	40	3	X							X	37489							
Delaware	1970 Fish & Wildlife	Division of Hunting and Game	3	2	3	18	0	1	X													X	17847	0	0	0	0	0	2	
Florida	1957 Management		14	1	42	3	2	0	X			13349	257	531								X	190232	0	6	0	2	0	11	
Georgia	1971 Game Management		10	2	0	50	10	0	X			14144	294									X	651910	2	11	0	20	15		
Hawaii	1978 Enforcement		5	0	0	0	0	0	X			1626	23	43	14	X						X	10617	0	0	0	0	2		
Idaho	1950 COM		8	12	2	3	0	1	X			10000	4000	600	300	X						X	286947	2	1				3	
Illinois	1959 OLE		3	0	0	0	1	0	X			7747	903									X	306024	4					14	
Indiana	1974 LE		2	0	0	0	4	0	X			12017	407	849	3	X						X	267447	1	9	0	12			
Iowa	1960 LE		1	6	1	12	0	2	X			10347	107	1568	25	X						X	223232	1	17	0	2	0	12	
Kansas	1973 Education		3	2	0	0	1	0	X			7659	16	1400	44	X						X	251390	0	4	0	2	0	4	
Kentucky	1944								X													X	352408							
Kentucky	1973 Office of Wildlife		20	4	5	2	0	1	X			11500	45	1000	50	X						X	398008	2	6	0	2	0	4	
Louisiana	1975 Resource Management - Wildlife		1	10	0	1	1	0	X			3611	1286									X	163191	0	5					
Maryland	1966								X													X	120334							
Massachusetts	1954 our own section - Hunter Ed		6	0	0	0	1	0	X			3162	459	300	65	X						X	57921						0	
Michigan	1946 LED		3	5	6	20	1	0	X			15133	4090	2187	425	X						X	706101	1	7				16	
Minnesota	1955 ENF		0	12	0	1	1	0	X			21834	843	3878		X						X	568057	3	10				0	
Mississippi	1972 LE		3	1	5	9	1	0	X			8708				X						X	706101						0	
Missouri	1957 Outreach & Education		14	0	50	25	0	0	X			24407	189	1100	50	X						X	498319	4	11				9	
Montana	1957 Comm-Ed		6.5	0.5	0	0	0	0	X			6592	2212	747	286	X						X	259412	2	4	0	0	0	0	
Montana	1974 Communications		1	8	10	2	5	X				5315	4271	665	71	X**						X	183056	2	2	0	0	20	19	
Nevada	1973 Conservation Education		3	3	0	0	0	0	1	X		4733	41	194	26	X						X	68744	0	0	0	0	25	0	
New Hampshire	1963								X													X	58099						0	
New Jersey	1954 I&E		4	0	0	0	2	1	X			2612	1828	267	267	X						X	74794	1	10				24	
New Mexico	1965 I&E		1.5	3	1	1	1	0	X			OHV	1486	35	545	56	*					X	107331	4					2	
New York	1944 Wildlife		4	18	0	0	0	0	X	Wait	20021	9611	1787	1173	X							X	579043	1	18	6	6		2	
North Carolina	1969 Edu		8	0	1	5	1	0	X			14209	38	857	15	X						X	585766	0	15	5	7		7	
North Dakota	1972								X			5000	120	650	30	X						X	141553	2	4				5	
Ohio	1956 I&E		5	5	1	1	1	0	X			10000?										X	390268	2	12					
Oklahoma	1956 I&E		1	1	1	1	0	0	X			10000		350	X							X	529651	5						
Oregon	1958 Information and education		4	1	0	0	0	0	X													X	264684							
Oregon	Bureau of Information & Education,								X													X	264684							
Pennsylvania	1959 Research & Education Division		0.5	2	0	0	1	2	X	X - C	3498	63	1902	218	X							X	975650	1	26				31	
Rhode Island	1956 Fish & Wildlife		1	2	0	4	0	0	X			427	237	51	37	X**						X	8209	0					1	
South Carolina	1974 LE		18	0	6	6	0	0	X			11274	31	110	5	X**						X	210869	1	20	0	5		6	
South Dakota	1955 Education		1	0	0	0	0	0	X			2571	73	325	5	X						X	233215	3	21	0	0		0	
Tennessee	1972 Law Enforcement		2	8	5	2	1	0	X			11398	47	987	32	X						X	700600	0	2	0	0	5	13	
Texas	1972 Communications		7	2	1	0	0	0	X			57194	246	3140	128	X						X	1157779	3	14	0	1	89	0	
Texas	1957 Conservation Outreach		3	1	7	2	0	2	X			8456	126	458	38	X						X	236656	0	4	0	0		2	
Utah	1959 Outreach/Education		3	1	3	0	0	0	X			2648	1087	371	74	X						X	69943						0	
Virginia	1961 Outreach		6	2	0	0	1	0	X			10383	429	559	76	X*						X***	No	276019	1	11	2	8		2
Washington	1957 Wildlife Program		2.8	4.2	0	0	0	0	1.5	X		9669	62	1015	36	X						X	183063	0	3	0	0	0	1	
West Virginia	1957 Law		0	10	0	0	0	0	X			2105	1246	4376	382	X						X	217123	1	4	1	3		30	
Wisconsin	1967 LE		2	10	0	2	3	4	X			21375	1246	4376	382	X						X	706400							
Wyoming	1967 Comms		1.4						X			4560	448									X	130304							
TOTAL			205.2	134.7	198	191	36.3	22.5				56+05	34147	40457	4060							X	15620578	46	285	15	94	165	295	

Notes \* OT Other Mandatory - Mtn, Lion (CO); Turkey (DE); Wolf (ID); Snowmobile (IL); Crossbow (ME); Combo HB/BE (MI-2820, NY 938)\*Online-Hybrid course to be available 10/16; Restricted to HI residents 10+; Mandatory in-person classroom conclusion course.  
 Notes \*\* Internet w/ Live Firing Credit (FL); Internet Only Bow (ID); Home Study+Field Option, too (MI)  
 Notes \*\*\* Internet - 30 yrs + (NE); Internet + in-person test in lieu of field (RI, SC); 100 Clubs Received (More than One Grant) (SD)  
 Notes \*\*\*\* Internet Course allowed for In-state Residents ONLY Age 12 and Up  
 Note ▲ Live fire encouraged but not required by policy, due to range availability limitations. Instructors can require live fire for classes. (Washington)  
 Note 0 Not taught in NE schools as a general rule, but some instructors/teachers have obtained special permission to do so

**References**

Marsh, Gary. 1997 A Compendium of Questions & Answers Relating to Wild & Scenic Rivers: A Technical Report of the Interagency Wild and Scenic Rivers Coordinating Council. pp. 42

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