

Draft Compatibility Determination

Title

Draft Compatibility Determination for competitive running races, and birding and wildlife cups, Assabet River National Wildlife Refuge.

Refuge Use Category

Outdoor Recreation (General)

Refuge Use Type(s)

Competitive sporting event

Refuge

Assabet River National Wildlife Refuge (NWR)

Refuge Purpose(s) and Establishing and Acquisition Authority(ies)

... as a refuge and breeding ground for migratory birds and other wildlife. Executive Order 7907, dated June 6, 1938

"... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." 16 U.S.C. § 715d (Migratory Bird Conservation Act)

"... the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions ..." 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986)

National Wildlife Refuge System Mission

The mission of the National Wildlife Refuge System (NWRS), otherwise known as Refuge System, is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (Pub. L. 105-57; 111 Stat. 1252).

Description of Use

Is this an existing use?

No

What is the use?

Competitive running races and birding and wildlife cups (hereto referred as “competitive sporting events”). Competitive sporting events can be used for a variety of purposes including organizational fundraising, charity fundraising, official races for national/international rankings, and community engagement. For the purpose of this document, a competitive sporting event includes those running, or birding and wildlife cup events where a permittee charges a participant a fee for a program or service that includes a competition for participants. Birding cups include participants competing to hear and/or see the most number of bird species in a given time period. This CD does not cover commercial activities lacking a competitive nature including guided tours, rentals, and transportation services entering the refuge all hosted by a third party for profit. Each event request will be required to include an interpretation or outreach component related to the refuge and must promote responsible use. Under certain circumstances, competitive events can support priority public uses of the National Wildlife Refuge System such as environmental education, interpretation, and wildlife observation by increasing public awareness, understanding, and support of the U.S. Fish and Wildlife Service, and the conservation of natural resources, in general. Further, competitive events can promote ethical outdoor behavior, thereby helping to reduce and minimize adverse impacts to wildlife and habitats. This use would be allowed as a means to facilitate connection to natural resources and a sense of stewardship for the National Wildlife Refuge System.

Is the use a priority public use?

No

Where would the use be conducted?

Competitive sporting events would be allowed in limited areas of the refuge open to the public.

Birding and/or wildlife cups will be allowed on the approximate 15 miles of trails, at the fishing piers/viewing platforms, the entrance road and parking lots at Assabet NWR. These trails include: -Carbary’s Trail, Harry’s Way, Hill Trail, Kingfisher Trail, Otter Alley, Patrol Road, Petapawag Trail, Pine Garden Trail, Powerline Trail, Puffer Pond Trail, Sandbank Trail, Taylor Way, Towhee Trail, Tri-town Trail, White Pond Road, Winterberry Way, and Tebassa Trail on the Northern Portion of the Refuge and Fisher Loop, Mink Link, and Sweet Fern Trail on the South Side of the Refuge. Two fishing piers on Puffer Pond (along the Sandbank Trail and Puffer Pond Trail) also

provide opportunities for these activities. More detailed information and trail maps can be found at: <https://www.fws.gov/refuge/assabet-river/visit-us/trails>.

Competitive running races would be allowed on the approximate 10 miles of trails, the entrance road and parking lots at Assabet NWR. These trails include: Harry's Way, Patrol Road, Pine Garden Trail, Powerline Trail, Puffer Pond Trail, Taylor Way, Tri-town Trail, White Pond Road, Winterberry Way. More detailed information and trail maps can be found at: <https://www.fws.gov/refuge/assabet-river/visit-us/trails>. Activities would not be permitted in areas of the Refuge that are closed to the public.

When would the use be conducted?

All competitive sporting events must be conducted during times the refuge is open to the public. Further, competitive running events would only be permitted from September 1 through April 15, and would not be considered during other times of year due to impacts to natural resources. Birding and/or wildlife cups would be considered year-round. Any refuge facilities and grounds may temporarily close to the public for a refuge management activity, safety, special event, or other programs, causing the cancellation of a planned competitive sporting event.

How would the use be conducted?

Competitive sporting events at Assabet River NWR will be reviewed annually to ensure the program is providing a safe, high-quality experience for participants and maintains a connection related to the refuge. Periodic evaluations will be done by refuge staff on trails to assess visitor impacts on the habitat. If evidence of unacceptable adverse impacts occurs, these uses will be curtailed, relocated, or discontinued. Refuge regulations will be posted and enforced.

Only competitive events that support public outreach, environmental education, interpretation, conservation, refuge purposes and the Refuge System mission will be considered and/or permitted.

This use would be permitted in limited areas of the refuge that can accommodate competitive sporting events. All competitive sporting events would require a Special Use Permit (SUP) for these activities. The Special Use Permit does not give the permittee or its designees' exclusive use or access to any site or facility. Requests for events must be received at least 60 days in advance of the desired date. Each request must be presented in writing with details of who, what, where, when, why, and how the activity will be conducted. The provider would supply the refuge and/or designated partner with the participant or registration fees -charged per participant. The event host is responsible for acquiring and/or renewing any necessary state and federal permits prior to beginning a competitive sporting event. Any collection of money for fund raising aspects of events and the giving of prizes to winners will be conducted off Federal property.

The refuge would permit up to four birding or wildlife cups per year with a maximum participation of 100 participants. The refuge would permit up to two competitive running races through the refuge per year with up to 200 maximum number of participants per event. The refuge manager may limit the number of participants for these events through the Special Use Permit. Priority consideration for competitive sporting events would be given to events sponsored by designated partners, such as the Friends of Woodlands and Waters. Depending on the details of an event, a CPR/First Aid certified individual provided by the event host would be requested to support the activity. Vehicles are not permitted to follow runners. Competitive running races must start within the area designated within the associated Special Use Permit. Each competitive sporting event request has different logistics, and potential impacts will be evaluated for conflict with other scheduled activities during the proposed time of an activity, conflict with other refuge visitors, and impacts on refuge purposes. Each request will receive confirmation that their proposed activity is either approved, approved with modifications requested, or denied.

Competitive sporting events conducted as an independent activity are not considered a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997. However, one of the goals stated in the Assabet River NWR Comprehensive Conservation Plan (CCP 2005) Goal 3, is to “Build a public that understands, appreciates, and supports refuge goals for wildlife.” and Objective 5: “Improve the visibility of the refuge in the community and increase awareness of the Refuge System in general and the management activities and purpose of the refuge.” This use may provide a connection to natural resources and a sense of stewardship for the Refuge System.

Availability of Resources

Competitive events would require an annual permit fee based on the complexity of the proposed use detailed in the application. No special equipment, facilities, or improvements are necessary to support competitive sporting events. Specific costs would be determined as implementation of the program occurs. Staff time associated with administration of these uses is related to reviewing requests, issuing Special Use Permits, providing programs to participants, and ensuring compliance with regulations. Impacts from the use would be monitored as resources allow.

The Refuge Manager or Project Leader will use sound professional judgement to determine the staffing needed to perform the functions necessary to ensure compatibility. The funding resources needed to provide this use are available under the current refuge budget. However, adequate levels of refuge staffing, funding, and

facilities are necessary to administer this use in a manner that ensures continued compatibility (603 FW2 2.11(A.2)). Therefore, if staffing levels or budgets decrease and alternate resources cannot be found to facilitate competitive event activities, the Refuge Manager or Project Leader may need to re-evaluate whether these uses are still compatible with refuge purposes and the Service's mission.

Anticipated Impacts of the Use

Potential impacts of a proposed use on the refuge's purpose(s) and the Refuge System mission

The effects and impacts of the proposed use to refuge resources, whether adverse or beneficial, are those that are reasonably foreseeable and have a reasonably close causal relationship to the proposed use of competitive sporting events. This CD includes the written analyses of the environmental consequences on a resource only when the impacts on that resource could be more than negligible and therefore considered an "affected resource." Resources that will not be more than negligibly impacted by the action, including geology, hydrology, air and water quality, threatened and endangered species, cultural resources and socioeconomics have been dismissed from further analyses. Since competitive sporting events would be hosted in areas already open to the public and on established trails and roads located in less sensitive areas, impacts are expected to be similar to those of biking, and environmental education and interpretation at the refuge.

Competitive sporting events can result in varying impacts to wildlife resources, both positive and negative. This use would promote public understanding and appreciation of the National Wildlife Refuge System. Recreational visitation and associated economic contributions made to local and state economies provide a powerful catalyst for conserving public lands (Marion 2019).

Short-term impacts

Short-term impacts resulting from anthropogenic disturbance from visitors engaging in competitive sporting events may include changes in wildlife behavior, distribution or abundance (Leblond et al. 2013). Wildlife may employ a variety of avoidance strategies in response to human disturbance that may result from visitors participating in competitive sporting events, often including departures from a site, use of suboptimal habitat, altered behavior and increased energy expenditure. Tolerance to human disturbance varies among species and depends on multiple factors, including adaptation to urbanization and body mass (Samia et al. 2015). Overall, recreational activities tend to have at least temporary effects on the behavior and movement of birds and other animals within a habitat or localized area. Burger et al. (1995) determined that with careful planning people and birds can coexist without

undue disturbance.

Among activities considered as disturbing to wildlife, Korschen (1992) determined that birdwatching was among the least disturbing, but Klein (1993) noted that approaching birds on foot was the most disruptive of usual refuge activities. There are many recommendations for reducing impacts to wildlife: provide visitor education, require staying on trails, closing areas during sensitive periods such as nesting, require minimum set back distances for approach to areas such as rookeries, etc. (Boyle and Samson 1985, Erwin 1989, Haverro et al. 1992, Klein 1993, Miller et al. 2001, Morton et al. 1989, Rodgers and Smith 1995, Taylor and Knight 2003).

Human disturbance to avifauna has been thoroughly documented around the world. Several studies have examined the effects of trail-based recreation on birds inhabiting wildlife refuges and coastal habitats in the eastern United States. McNeil et al. (1992) found that many waterfowl species avoid disturbance by feeding at night instead of during the day. Disturbance can increase the risk of predation when individuals are forced to forage in more dangerous habitats and can increase intraspecific competition when avoiding humans necessitates movement into suboptimal habitats (Frid and Dill 2002). Some uses, such as bird observation, are directly focused on viewing certain wildlife species and can cause more significant impacts during the breeding season and winter months. Research has shown that as the intensity of human disturbance increased, avoidance response by birds increased, and that out-of-vehicle activity was more disruptive than vehicular traffic (Klein 1993, Freddy et al. 1986, Vaske et al. 1983). Miller et al. (1998) found bird abundance and nesting activities (including nest success) increased as distance from a recreational trail increased, in both grassland and forested habitats. Some studies have found that some songbird species habituate to repeated intrusion. Frequently disturbed individuals of some species vocalize more aggressively, have higher body masses, or tend to remain in place longer (Cairns and McLaren 1980). Disturbance may affect the reproductive fitness of males by hampering territory defense, mate attraction, and other reproductive functions of song (Arcese 1987, Ewald and Carpenter 1978).

Overall, the existing research clearly demonstrates that disturbance from recreation activities always have at least temporary effects on the behavior and movement of birds within a habitat or localized area (Burger 1981, Burger 1986, Klein 1993, Burger et al. 1995, Klein et al. 1995, Rodgers and Smith 1997, Burger and Gochfeld 1998). The location of recreational activities and the size of participating groups are also important factors affecting the magnitude of disturbance. A number of species have shown greater reactions when pedestrian use occurred off-trail (Miller et al. 2001, Samia et al. 2015), and when pedestrians traveled in large groups (Beale and Monaghan 2004).

Birding and/or wildlife cups will include educating participants to remain at distances to prevent disturbance to birds and other wildlife.

For northern long-eared bats and tricolored bats, no known maternity roost trees or

hibernaculum are located on lands within the Assabet River NWR boundaries. Bats may be disturbed due to the presence of large groups, but this is highly unlikely due to their nocturnal behavior.

Since users engaged in jogging travel at a faster rate than hikers and may be more likely to disturb wildlife than walking, there is the potential for this activity to result in conflicts between joggers and other user groups (e.g., photographers). By flushing wildlife these activities could potentially reduce the quality of experience for other visitors, photographing birds from portable blinds in designated areas, or hiking in designated areas.

Conflict among users tends to arise when visitors disregard the established refuge rules and regulations. Crowding from this use may deter some recreationists or refuge visitors; these individuals may alter their time or location of visitation or develop other coping mechanisms, such as rationalization or shifting their understanding of the activity or place (Manning and Valliere 2001, Marcouiller 2008). Potential positive impacts of competitive sporting events include a deepened sense of place, heightened appreciation for the refuge's habitat and wildlife, and inspired engagement in conservation efforts (Ardoin 2006, Kudryavtsev et al. 2012). Competitive sporting events will be planned, scheduled, and coordinated with staff to limit disturbance and impact to other user groups.

Long-term impacts

The long-term impacts that may result from competitive sporting events may have implications for wildlife populations including the potential to alter species composition in certain areas or habitats. For example, generalist species are typically more abundant near trails, whereas specialist species are less common. Frequent use of areas or trails repeatedly for competitive sporting events could alter species composition in the immediate areas utilized for these activities. Evaluation and approval of competitive sporting events should carefully consider and monitor the duration and proximity of the encounters with wildlife.

Frequent disturbance may cause shifts in habitat use, abandonment of habitat, and increased energy demands on affected wildlife (Knight and Cole 1991). Trails may block movements of small mammals, and therefore a trail network could decrease gene flow within and among the population. Fragmentation also may reduce potential habitat for dispersal, as well as decrease availability to water and food, and ultimately reduce biodiversity (Haddad et al. 2015). Fragmentation may ultimately lead to smaller population sizes within each fragment, and increased vulnerability to population decline and extinction (Fahrig and Merriam 1994). Reducing survival could cascade into the higher trophic levels that utilize these animals as prey (Haddad et al. 2015).

With respect to mammalian carnivores, Baker and Leberg (2018) found that coyotes and bobcats had higher occupancy in protected areas with more human disturbance

(i.e., trails) but overall, protected areas with less human disturbance had greater carnivore community diversity. Their results varied among species, however, the general trend showed that carnivores are impacted by human activity. Reed and Merenlender (2008) found that human activity decreased carnivore density and shifted community composition significantly from native species to non-native species.

Visitors can introduce invasive plants, animals, and pathogens to habitats (Anderson et al. 2015, Brock and Green 2003, Davies and Sheley 2007, Marion et al. 2006). Once present, invasive species can outcompete native plants and animals, thereby altering habitats (Anderson et al. 2015, Marion et al. 2006). Invasive species can alter animal and plant composition, diversity, and abundance (Davies and Sheley 2007, Eischer et al. 2005). These changes may reduce native forage, cover, and water sources (Brock and Green 2003, Eischer et al. 2005).

The effect of human intrusion is not limited to habitat fragmentation or shifts in species' behavior. Continued public use of the refuge can affect habitats in various ways. Damage to ecosystems is known to occur when informal trails are created and used by the public (Barros and Pickering 2017). The uses described herein are only permitted in areas that are generally hard-surface roads and trails, and no informal or off-trail activity is permitted. Impacts to vegetation and soil should therefore be minimal.

Within the refuge, human disturbance most commonly results in temporary displacement of wildlife, without long-term effects on individuals or populations. Careful, strategic placement of trails and viewing areas is critical to minimizing negative impacts of these uses, while emphasizing the positive results of recreational access.

Minor effects may occur in association with hiking and jogging, such as temporary wildlife disturbance, littering, soil erosion and compaction, and trail departures. Outdoor recreation, including nature-based tourism, has long been recognized as an agent of ecological change in natural systems (Monz et al. 2010). Finally, severity of wildlife response and associated impacts correlate directly to the frequency and duration of human disturbance. Therefore, impacts associated with hiking are likely to be minimal where group sizes are small (<10) and/or infrequent, particularly in areas where other non-consumptive uses already occur. Providing well-maintained and well-marked trails and roadways further mitigates the likelihood of off-trail use, which in turn reduces impacts.

Studies show that humans can exert a strong disturbance effect over time, affecting such factors as latency to feed, vigilance, foraging time, number of feeding visits, and number of animals feeding together in a comparison of disturbances caused by humans, dogs, wolves, and bears (Clinchy et al. 2016). Human disturbances can be indirect as well, as species changing behavior to avoid humans may become active during different times of day and come into contact or competition with species that

otherwise occupy separate niches (Patten et al. 2019). Trail placement may offset impacts. Long-term impacts associated with competitive sporting events are expected to be negligible.

Activities that may occur as part of competitive sporting events including hiking and jogging may cause long-term physical impacts on soil surfaces, however, soil erosion is largely avoidable with good trail design and maintenance. Properly designed drainage features will divert water from the trail, where vegetation and organic litter can filter out sediments (Volpe 2021). Where designated public use trails are established in part to funnel visitors through approved areas and prevent impacts from occurring across larger areas of habitat, impacts related to soil compaction, litter, and transport of invasive plant material are similar to those associated with other trail user groups. The degree of surface compaction is dependent on topography, soil structure, soil moisture, and time of year (Whittaker 1978). Impacts of trampling on vegetation and soils commonly noted on trails (Dale and Weaver 1974; Liddle 1975) are unlikely to occur on existing road systems, except for shoulder areas.

Running may provide opportunities for visitors to observe and learn about wildlife and refuge lands firsthand and at their own pace in an unobstructed environment. Individuals who visit strictly to engage in running may be enticed to participate in the more educational facets of public programming as well as the priority public uses. In addition, running promotes the national and regional priority, Connecting People to Nature, and other health-related initiatives.

Running along the edges of the trail or off trail may also cause vegetation to be trampled. Complete loss of vegetation cover occurs more quickly in shady forested areas and less quickly in open areas with resistant grassy vegetation. Once trampling occurs, vegetation is slow to recover; however, studies have consistently shown that the most impact occurs with initial or low use with a diminishing increase in impact associated with increasing levels of traffic (Volpe 2021). Litter may be intentionally or incidentally deposited by trail users. As stated above, where designated public use trails are established in part to funnel visitors through approved areas and prevent impacts from occurring across larger areas of habitat, impacts related to soil compaction, litter, and transport of invasive plant material are similar to those associated with other trail user groups.

Public Review and Comment

The draft compatibility determination will be available for public review and comment for 14 days. The public will be made aware of this comment opportunity through posting at refuge headquarters. State and Tribes have been asked to review and comment on the draft compatibility determination. A hard copy of this document will be posted at the Refuge Headquarters located at 680 Hudson Road Sudbury, MA 01776. It will be made available electronically on the refuge website https://www.fws.gov/refuge/assabet_river/. Please contact the Refuge Manager if

you need the documents made available in an alternative format. Concerns expressed during the public comment period will be addressed in the final document.

Determination

Is the use compatible?

Yes.

Stipulations Necessary to Ensure Compatibility

The following stipulations are necessary to ensure compatibility for all competitive sporting events:

- 1) Competitive running events would not be permitted from May 1 through August 30 to minimize negative impacts to nesting migratory birds.
- 2) The refuge would permit up to four birding cups per year with up to 100 maximum number of participants per event to minimize negative impacts to other users and natural resources.
- 3) The refuge would permit up to two competitive running races through the refuge per year with up to 200 maximum number of participants per event.
- 4) Competitive running races must start and stop at designated locations to minimize users congregating and causing negative impacts to natural resources.

Justification

Competitive sporting events are not a wildlife-dependent priority public use of the refuge as defined by statute (16 U.S.C. 668dd et seq.), but they can contribute to the fulfillment of refuge purposes by connecting people with nature and generating deeper awareness and appreciation for the refuge and Refuge System. Under certain circumstances, competitive sporting events can support priority public uses of the National Wildlife Refuge System such as environmental education, interpretation, and wildlife observation by increasing public awareness, understanding, and support of the U.S. Fish and Wildlife Service, and the conservation of natural resources, in general. Further, competitive sporting events can promote ethical outdoor behavior, thereby helping to reduce and minimize adverse impacts to wildlife and habitats. Approved competitive sporting events would not conflict with the national policy to maintain the biological diversity, integrity, and environmental health nor would they materially interfere with or detract from the purposes of Assabet River NWR, nor cause an undue administrative burden. Potential for wildlife disturbance is minimal given the non-threatening, indirect approach of this activity. Restricting the

disturbances from competitive events to established roads and trails where public use already occurs will minimize the additional and/or compensatory impacts from the competitive events. This activity will not materially interfere with, or detract from, the mission of the Refuge System or purposes for which the refuge was established. In addition, this activity will fulfill one or more purposes of the refuge or Refuge System.

Signature of Determination

Refuge Manager Signature and Date

Signature of Concurrence

Assistant Regional Director Signature and Date

Mandatory Reevaluation Date

2035

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