



DIVISION OF FISHERIES & WILDLIFE

Barrens Restoration at Muddy Brook Wildlife Management Area

Location: Hardwick

Overall size: 2,498 (1,937 acres of Wildlife Management Area + 561 acres of Wildlife Conservation Easement)

Potential size of restoration area: Approximately 950 acres

Size of area currently under restoration: Approximately 515 acres



Left: Photo taken after initial tree clearing completed was completed to begin restoration at the Muddy Brook WMA in Hardwick. **Right:** That same area in November 2019, seven months after first prescribed burn.

Summary of restoration activities:

- The greater Muddy Brook Valley represents one of the most important opportunities in Massachusetts to restore and maintain a significant collection of fire-influenced natural communities, often collectively referred to as *Barrens*.
- Barrens communities support approximately 75 species on the Massachusetts Endangered Species List, along with a long list of vulnerable species identified in the MA Strategic Wildlife Action Plan.
- Barrens are *disturbance-dependent* communities. They require periodic disturbance events, in most cases fire, to keep them functioning at a high level.
- The Muddy Brook Valley retains a clear legacy of barrens communities which have been degraded by 75 years of fire exclusion. Restoration at this site requires a one-time timber harvest to remove generalist species and to restore the open structure of functioning barrens communities. Long-term maintenance of these communities will involve periodic prescribed fire events.
- Barrens communities are incredibly resilient and highly restorable; their associated species will recolonize a recently disturbed community quickly either through the seedbank, through previously dormant rootstock, or by animals that immigrate from other similar areas.

- A few growing seasons have passed since the bulk of phase I restoration was completed at Muddy Brook and there has already been an impressive ecological response, including:
 - The emergence of 23 fire-influenced plants not observed prior to the restoration event, including 2 Endangered, 2 Threatened, and 3 Watchlist species;
 - The return of the eastern whip-poor-will bird to the site following a documented 30-year absence;
 - A significant increase in early successional breeding birds, including the American woodcock, prairie warbler, field sparrow, and eastern towhee;
 - An increase in bee species from 36 to 103 species; and
 - A growing list of specialized moths and butterflies that includes several state-listed species.

- The positive conservation results at Muddy Brook are being amplified across the region as other agencies, non-profit organizations, and institutions are learning from MassWildlife's approach to inland barrens restoration and utilizing these methods in their own habitat management efforts. Muddy Brook is now used regularly as a living laboratory to teach college students, land managers, and the general public about restoration and conservation.