

Resources for Informing Land Conservation in Massachusetts: Summary of Research

An exploration of the use of the resources, to inform efforts to improve their usability including through developing new outreach materials

A USDA McIntire-Stennis Capacity Grant implemented by the UMass Center for Agriculture, Food and the Environment, and Department of Environmental Conservation

What is this document?

This document is a summary of and reflection on the Massachusetts Land Conservation Tools research project by the UMass Center for Agriculture, Food and the Environment, and the Department of Environmental Conservation. For more detailed summaries of the specific components of the research project, please visit the [Research page](#) of the [Land Conservation Tools](#) website.

Project overview

The UMass Amherst research team received a McIntire-Stennis Capacity Grant from the U.S. Department of Agriculture to **study the resources used by Massachusetts organizations to assist with forest conservation decision making**. The project ran from 2019-2022.

The project targeted information sources, mapping products and other tools (resources) that had been developed to support decision making for forest protection (permanent land conservation) and forest stewardship (land management) in a climate adaptation context.

The study aimed to understand how these resources were used (or not used) by forest conservation practitioners. **We expected that our work would help inform future resource design and outreach**, and ultimately improve the prospects for our forests.

Massachusetts land conservation

While Massachusetts is a largely forested landscape, most of the resources explored in this project included consideration of forested and non-forested habitats (such as wetlands and grasslands).

Given the dominance of forested land in Massachusetts, most land conservation projects in the Commonwealth inevitably include forest, but non-forest conservation often still affects forests given that these other habitat types are often embedded within forested landscapes and have an ecological influence on the adjacent forests. **We believe that the broader term ‘land conservation’ is more inclusive and relevant to the needs and work of conservation practitioners.** Importantly, this broader terminology and focus does not reduce the ability of the project’s outputs to inform forest conservation.

Project first steps

The project began with a focus on reviewing the scientific literature for relevant studies, exploring a wide variety of resources for potential inclusion in the research, and developing a list of practitioners to invite to participate in our study. We regularly convened the resource developer community to provide input on our research and to seek information about their resources, including how they engage with users of their resource. Based on these initial steps, we designed and implemented the first survey and the follow up focus groups.

Target resources

After extensive research, discussion, and consultation (and some false starts!), we focused on nine resources:

- [Adaptation Workbook](#) (Northern Institute of Applied Climate Science/US Forest Service)
- [BioMap2](#) (MassWildlife & The Nature Conservancy)
- [DSL - Designing Sustainable Landscapes](#) (UMass Amherst)
- [MAPPR - Mapping & Prioritizing Parcels for Resilience](#) (Mass Audubon)
- [Massachusetts Climate Action Tool](#) (UMass Extension, MassWildlife, Northeast Climate Adaptation Science Center)
- [MassCAPS - Massachusetts Conservation Assessment & Prioritization System](#) (UMass Amherst)
- [Nature's Network](#) (UMass Amherst & US Fish & Wildlife Service)
- [New England Landscape Futures \(NELF\) Explorer](#) (Harvard Forest)
- [Resilient & Connected Landscapes](#) (The Nature Conservancy)

Conservation practitioners

The intended audience for the resources, and the target participants for the survey and focus groups, were affiliated with **five organization types**:

- Land trusts
- Municipalities
- Private consultants (licenced foresters)
- Regional planning authorities
- State government agencies

While landowners were initially considered potential participants, they are very diverse, more difficult to contact and to encourage to participate, and are often served by the above organizations. Ultimately, they were not formally included in the project and we instead focused on practitioners.

Practitioner input

This project was focused on gathering perspectives from conservation practitioners. Participants in our studies were excited to learn the focus of our research, and had considerable interest in better understanding the resources, including how to differentiate between them. In general we found that **participants were unsure how to efficiently and effectively approach the resources** that were the focus of this study. Participants provided a wealth of feedback, in various forms, to inform our project.

It became apparent that a website which provided details about each resource, and which allowed ready comparison between and provided access to each resource, would be a major benefit to the land conservation community. Practitioners wanted access to information, tailored to their needs, that provided different ways to explore and understand the resources. They welcomed an opportunity to build confidence in their awareness and understanding of the suite of available resources. **Participants were excited just to see a compiled list of the resources!**

New website & outreach materials

Informed by the findings of the survey and focus groups, we designed the [Land Conservation Tools portal website](#) that focused on assisting practitioners to choose the most appropriate resource(s) for their needs.

We also developed **two summary outreach products** to complement the website, one being a general [‘cheat sheet’](#) to the resources, the other providing a view of the resources through a [climate adaptation lens](#). We sought formal and informal feedback on the website and these summary outreach materials, and made many modifications to enhance their usefulness. The resource developers were integral for creating the content associated with their resources.

Presentations about these resources have been an ongoing component of UMass Extension outreach for many years, and during this research project we refined these presentations, conducted them with new audiences, and complemented the presentations with the website and these new outreach materials.

Follow up surveys

To assess any change in resource awareness and use (and our measures of understanding, proficiency, importance and motivation to use) over time, and to understand the potential impact of the outreach materials, we conducted follow up surveys 16 and 22 months after the initial survey. While sample sizes were reasonable, they were often too small to readily detect changes over time. However, **we did record a significant increase in the importance placed on several of the resources, and a near significant increase in the average number of resources that participants used. The strong measure of motivation to use the resources in the future was promising, and the low proficiency in using resources suggests a practitioner need to training.**

While positive survey feedback was received about the website and related outreach materials, we believe there was too little time between their release and the follow up surveys for there to have been any significant increase in awareness and adoption from these outreach efforts.

The resource developer community

An important aspect of this project was bringing the resource developer community together. While the developers were instrumental in crafting the website content, equally important were discussions that were highly informative, inspiring and are likely to be instrumental in improving the conservation outcomes collectively derived from their resources. The meetings were an important opportunity for resource developer teams to learn from each other about resource design, outreach approaches, funding opportunities, and practitioner needs.

We feel that the long-term future of these resources is embedded in this resource developer community space.

BioMap2

An interesting take away from practitioners was the broad awareness and acceptance of BioMap2. This resource was developed by the Massachusetts State Government in partnership with The Nature Conservancy, to inform conservation of biodiversity at the species, habitat and landscape levels. It was released in 2010 (though there was a prior version), and was very well promoted.

Practitioners were most familiar with this resource, valued it highly for guiding their work, and used it for a variety of purposes. A newer version (“BioMap3”) was released in Fall 2022, and has increased functionality.

Some of the other resources were used in the production of BioMap2, and some of the other resources included BioMap2 within their products. **There seems to be much to learn from the popularity of this resource, and in understanding how other resources can and do complement and contribute to BioMap,** and collectively meet the diverse needs of the land conservation community.

Climate adaptation

Climate change and how our society can best adapt is a dominant paradigm in Massachusetts, and land conservation is one of the critical climate adaptation actions. Land conservation practitioners earnestly wish to know how they can access and use information to inform land conservation from a climate adaptation perspective.

While most of the resources include information that can help our wildlife and habitats respond to climate change, these components are generally not explicitly expressed. We created the summary outreach product [Massachusetts Land Conservation Tools: Exploring Climate Adaptation](#) to help practitioners approach the resources through a climate adaptation lens. **We believe that the resources could more fully consider climate adaption in future versions.**

Project outputs and findings

Outreach materials and research findings from this project can be found by using the following links:

- [Land Conservation Tools](#) (website)
- [At a Glance: Massachusetts Land Conservation Tools](#) (infographics document)
- [Massachusetts Land Conservation Tools: Exploring Climate Adaptation](#) (infographics document)
- [Survey 1 summary](#) (presentation slides)
- [Focus groups summary](#) (presentation slides)
- [Surveys 2 and 3 summary](#) (presentation slides)
- Journal article (in preparation)

Project continuity

Despite the project having formally concluded, we intend to continue to gather the resource developer community via the ongoing roles of key UMass Extension staff. This forum is powerful for progressing issues associated with expanding the relevance and use of the suite of resources, and facilitating ongoing peer learning. **Approaching issues in a manner that considers the suite of resources may prove most beneficial for land conservation practitioners**, especially continued outreach that considers the most valuable purpose of each resource, the differences among them, and their limitations.

We also intend to continually update the website and summary outreach materials. UMass Extension expects to conduct future presentation and workshops on the suite of resources, but now to a broader audience, with expanded outreach materials, and with greater confidence given the involvement of the developer community.

Future research

Future researchers may be interested in adopting our evaluation methods or using our findings to further identify patterns of, and barriers to, the appropriate use of these land conservation resources. **We see considerable potential for further evaluating the outreach methods used to promote resources (individually and collectively)** to better understand how to affect adoption and increase confident use of the resources by practitioners. As the resources evolve and the practitioner work environment changes, periodic research will help ensure that the resources and their associated outreach efforts remain relevant for informing land conservation decision making.

Giving thanks

We appreciate that so many practitioners completed our surveys and participated in our focus groups, and did so with enthusiasm. Their input shaped our idea of how practitioners interact with the resources, and highlighted issues that the resources and their outreach need to address - individually and collectively - to maximise the use of these resources and thereby best ensure the inclusion of scientific information in land conservation decision making.

We also thank the resource developer teams who willingly came together to support our project and these resources, and provided feedback on our interpretations of their products. Successfully gathering this group feels like a major achievement of the project. The collective experience and passion of the developers will be a major driver of change in the functionality, outreach and use of this amazing suite of resources.

We also thank Evonne Gong (UMass Center for Agriculture, Food, and the Environment) for her work on the website, and Penny Michalak (graphic design consultant) for her work on the two summary outreach products.

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Thanks for your interest!