

# Embedding Public Engagement into Long Term Ecological Research: Insights from Hubbard Brook and Harvard Forest

Sarah Garlick<sup>1</sup>, Kathy Fallon Lambert<sup>2,3</sup>, Marissa Weiss<sup>2,3,4</sup>, John C. Besley<sup>5</sup>, and the PES@LTERs Team

<sup>1</sup> Hubbard Brook Research Foundation, Woodstock, NH

<sup>2</sup> Science Policy Exchange

<sup>3</sup> Trillium Institute for Science Impact

<sup>4</sup> Harvard Forest, Harvard University, Petersham, MA

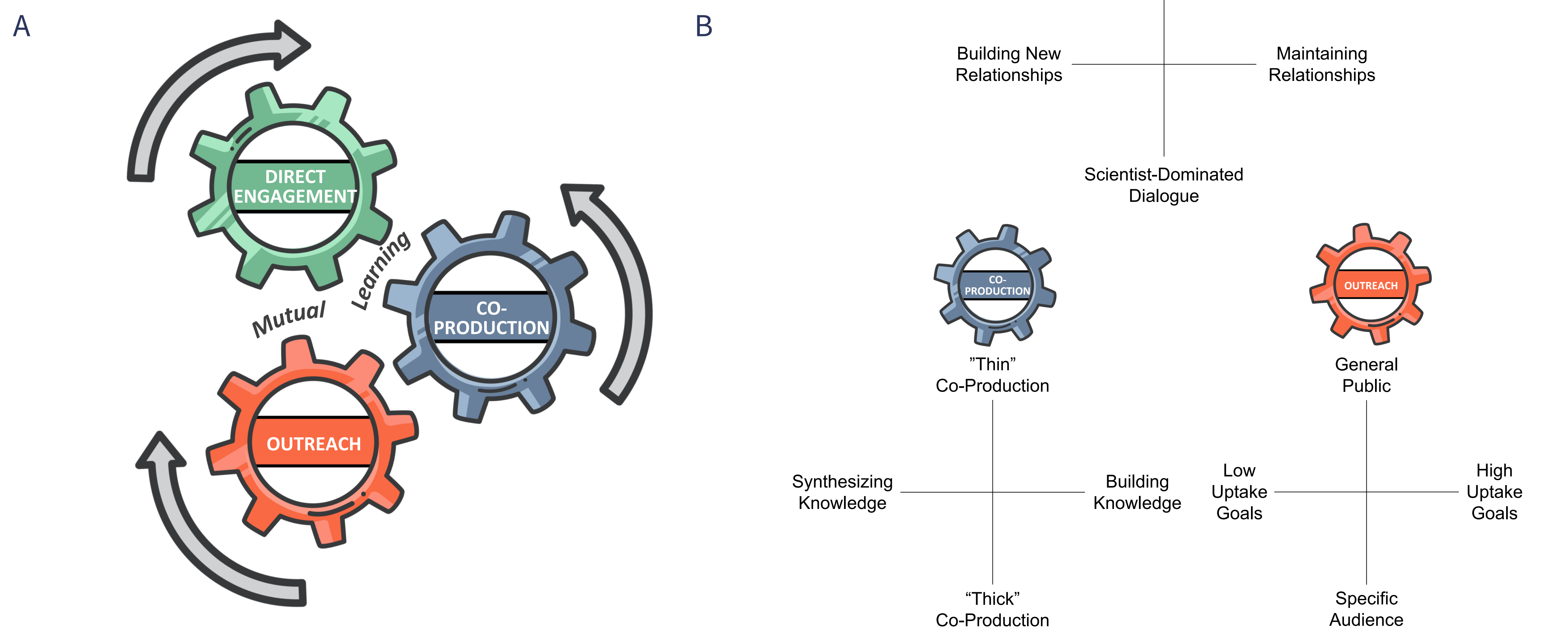
<sup>5</sup> Michigan State University, East Lansing, MI

Correspondence: sgarlick@hubbardbrookfoundation.org



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## THE ECO FRAMEWORK FOR PUBLIC ENGAGEMENT PLANNING



(A) The ECO Framework focuses on three modes of public engagement with science: (1) direct engagement with stakeholders, (2) co-production of knowledge, and (3) outreach to broader audiences. We think of these modes as the “gears of mutual learning” between scientists and public audiences. As a planning tool, we encourage users to consider the role of each of these gears in their engagement strategies based on their goals for engagement and their engagement contexts. (B) We have further defined the dimensions of each of these modes. For example, co-production can occur on a spectrum from lighter-lift, “thin” engagement, such as co-creating a fact sheet with stakeholder advisors, to heavier-lift, “thick” engagement, such as developing science-based policy. Individual engagement programs or tactics may afford multiple modes. For example, participating in a science café could involve direct engagement with stakeholders and outreach to broader audiences.

## Highlights

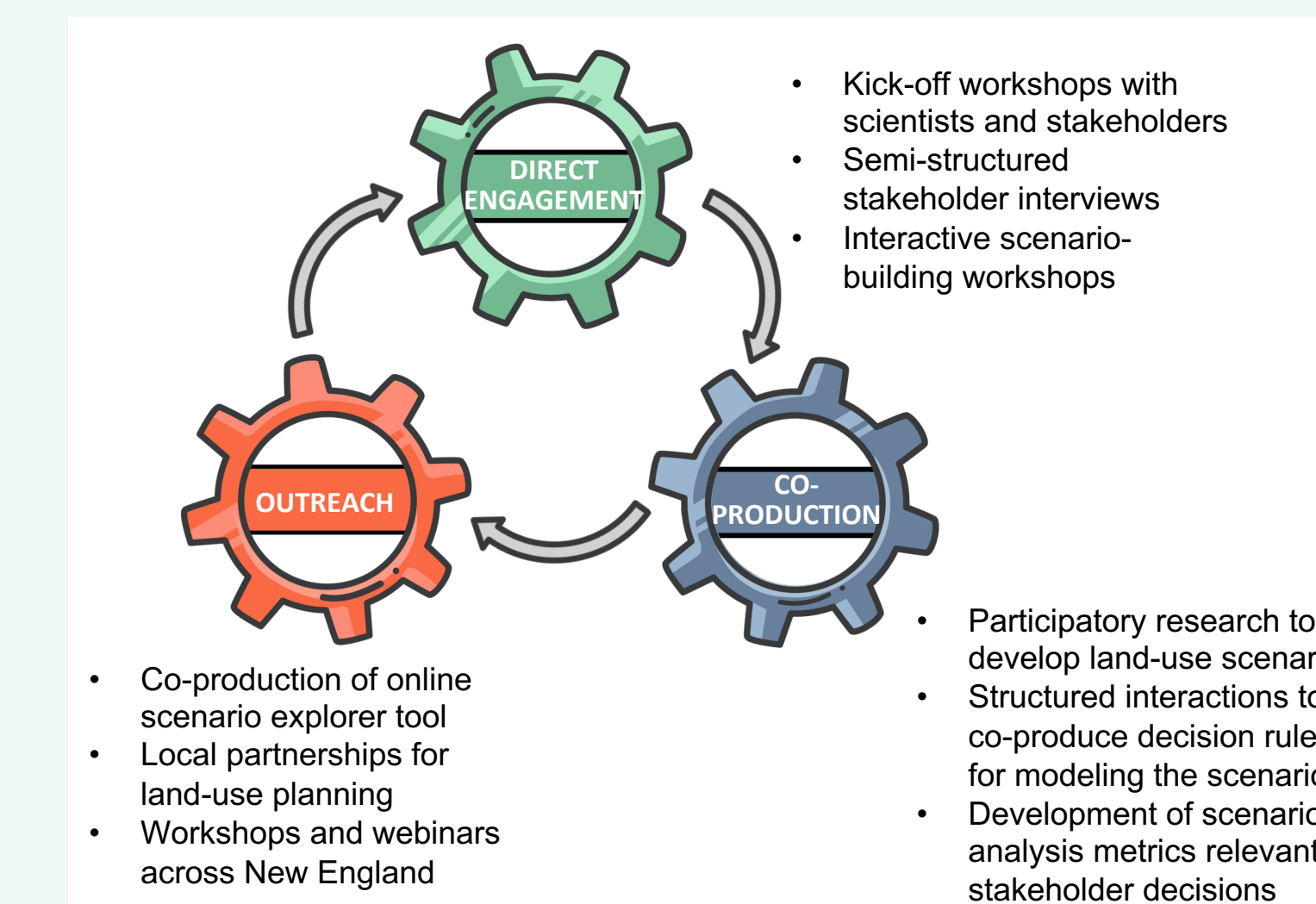
- Based on 20+ years of front-line experience in science policy and science communication, we’ve developed a strategic planning tool for public engagement with science.
- The ECO Framework guides scientists and boundary-spanning professionals in making decisions about engaging with stakeholders.
- The ECO Framework encourages users to consider the affordances of engagement tactics and the interactive effects of science communication and co-production.
- We’ve used the ECO Framework to design science–policy projects and broader impacts plans. We’ve also used the tool to plan institutional-level public engagement programs for long-term research.

## Summary

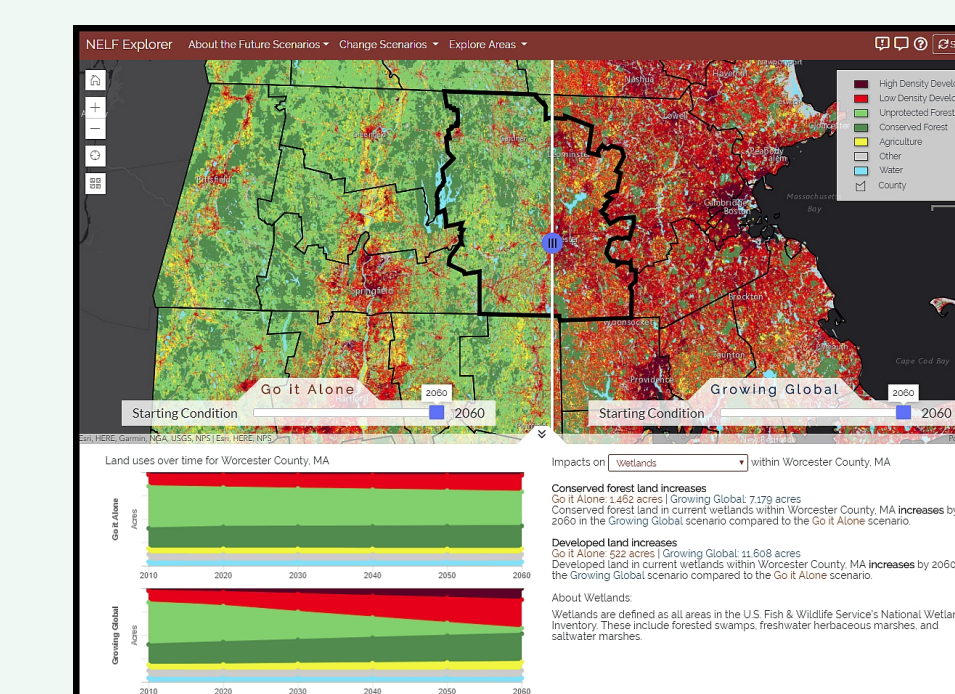
The “PES@LTERs” project involves the R&D of practical tools for embedding public engagement into long-term ecological research, using Hubbard Brook and Harvard Forest as pilot sites. Project activities include: (1) engaged synthesis projects, (2) embedding activities, and (3) research and evaluation. Engaged synthesis projects employ iterative dialogue methods with scientists and stakeholders to answer socio-scientific questions and co-produce reports and tools. Embedding activities focus on building institutional capacities for public engagement and knowledge co-production. These include hosting roundtable dialogues with scientists and stakeholders, forming stakeholder advisory boards, and offering “regular touch” communication. Research and evaluation activities involve surveys and interviews with scientists and external tracking of project outputs. The ECO Framework reflects our increasing focus on the design of engagement strategies at the organizational level in scientific research.

## The ECO Framework in Action

### I. Project life cycle, ex. Harvard Forest

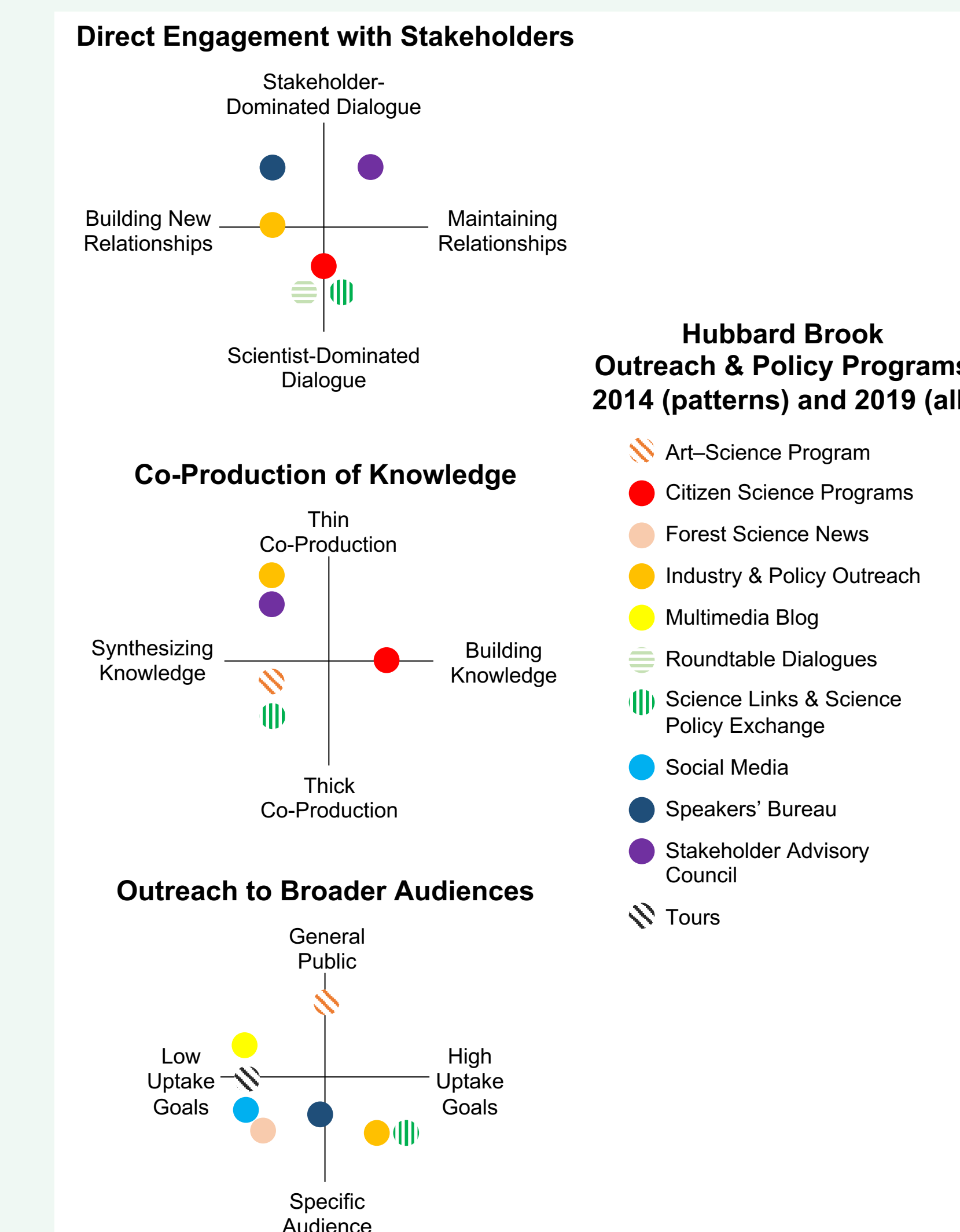


E.C.O. Framework gears used to design the “life cycle” of an engaged synthesis project at Harvard Forest about land-use change across New England. Scientists worked with stakeholders to develop and model future land-use scenarios and co-produce an online visualization tool to aid decision-makers in land-use planning and conservation prioritization (see below).



The New England Landscapes Futures Explorer is an online tool that simulates how New England would look in 2060 if land use continues “business as usual,” in terms of development, agricultural use, and land conservation. Users can compare that simulation to four alternative scenarios for the future created with input from more than 100 New Englanders. Try it! <https://newenglandlandscapes.org/>

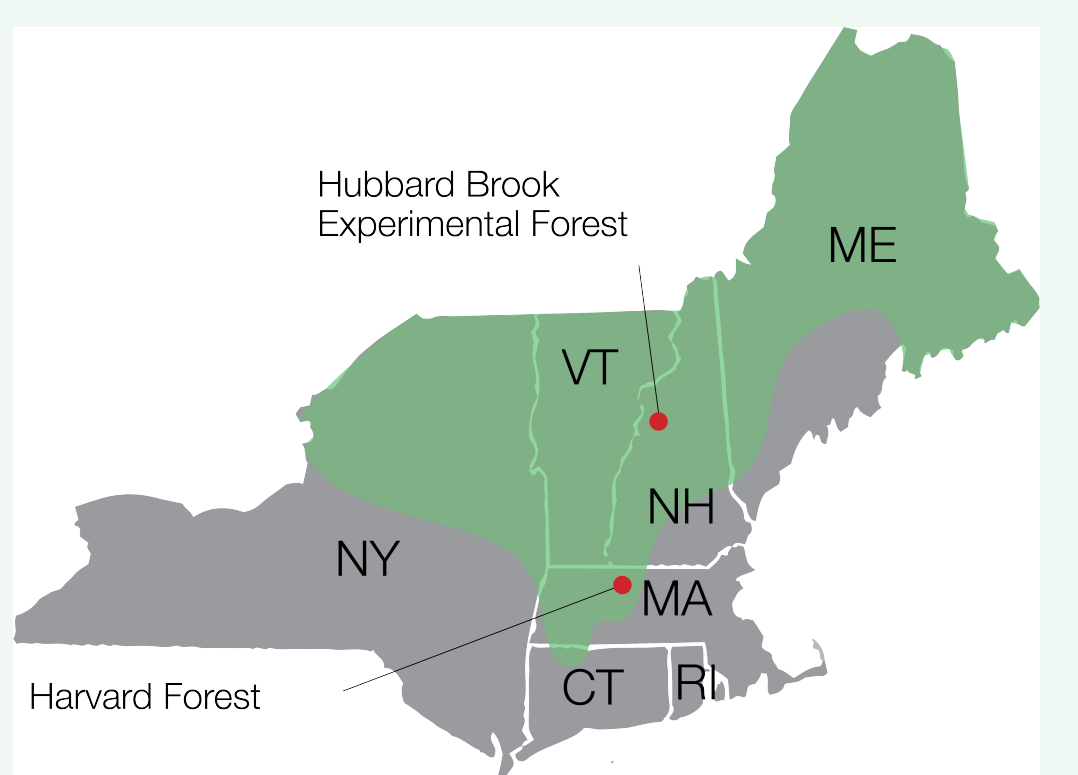
### II. Organizational planning, ex. Hubbard Brook



ECO Framework “dimension maps” of the outreach and policy programs led by the Hubbard Brook Research Foundation in 2014 (patterned dots) and 2019 (all dots). Most programs plot onto more than one map. The point of using the ECO Framework in this way is not to fill up all the maps, but rather to consider the strengths and weaknesses of public engagement program offerings with respect to an organization’s goals and objectives.

## Context

Hubbard Brook and Harvard Forest are part of the Long Term Ecological Research Network, a group of 28 ecological research sites distributed across the diverse biomes of North America and beyond. Hubbard Brook and Harvard Forest lie in the heart of the Northern Forest, a 30-million-acre, largely intact forest ecosystem that is home to more than 2 million people, many in rural communities.



Area of largely intact forestland in the northeastern U.S. (green), modified after Duveneck et al., 2015.