SMITH COLLEGE

Constructing a Living Building Leads to Land Conservation

By Shuyi Lin

ALPINE
ACADEMICS FOR LAND PROTECTION IN NEW ENGLAND

Academic Conservation Briefs

A view of the Smith College campus in autumn. Credit: Smith College

At a glance:

- 210 conserved acres of forest land
- Living building
- Research field station
- Interdisciplinary student projects

"From green building construction to land protection, the conservation story of Smith College demonstrates a unique way to not only connect living buildings with protecting lands, but also to connect people to the environment around them."

Established in 1873, Smith College is a private, liberal arts college with an enrollment of 2,400 women. Smith College is located in Northampton, Massachusetts and consists of 147 acres that include the campus and an arboretum, plus 250 acres of forest and farm land in the nearby town of Whately. The natural beauty of Smith College's setting is a powerful reminder of the importance of conservation to the college. The college is committed to conservation by "stewarding the resources that sustain [communities]."

The history of conservation at Smith can be traced back to 1886, when Florence Merriam Bailey, a student concerned with bird conservation, started the Smith College Audubon Society. Today, facilitated by the Center for the Environment, Ecological Design, and Sustainability (CEEDS), the concept of sustainability and conservation can be found in the school's academics, operations, research, and student life.

In 2014, Smith College constructed the Bechtel Environmental Classroom and participated in the Living Building Challenge, which signifies the highest standard for ecological design, including buildings that are designed for optimal sustainability. A significant goal of the Living Building Challenge is to preserve and expand existing wildlife areas and prevent their destruction by development. This imperative seeks to conserve existing habitats and does so by requiring, for each hectare of the project site, an equal amount of land to be conserved through the Institute's Habitat Exchange Program or an approved land trust. Expanding on the parameters of the Living Building Challenge, Smith College worked with the Kestrel Land Trust to conserve most of the land located in Whately.

An autumn view from Smith College's conserved property in West Whately, MA. Credit: Smith College

Ada and Archibald MacLeish Field Station

The Ada and Archibald MacLeish Field Station is made up of 250 acres of forest and farm land that provide opportunities for faculty and students to pursue environmental research, outdoor education, and low-impact recreation. The property was acquired by the college in the 1970s as an observatory site for the astronomy department. It featured two buildings at the time: an astronomy observatory and a support building. (In 2010, a third building was added, the Bechtel Environmental Classroom; see the following section for more details.)

Prior to 2008, there had been very little activity by students and faculty on this land as it was used mainly as a buffer to reduce light pollution for the observatory. In 2008, the Field Station was officially established and named the Ada and Archibald MacLeish Field Station in recognition of the MacLeishes, who are passionate environmentalists, donors, and friends of former Smith College President Jill Kerr Conway (Figure 1). In 2014, Smith College also partnered with the Kestrel Land Trust to formally place 190 of the Field Station's 250 acres into permanent conservation, as part of the construction of a living classroom on the property (this is explained in more detail in the following section).

The environmental features of the Field Station make it an important site for field study (Figure 2). For example, the western boundary abuts a reservoir that supplies drinking water to the City of Northampton, offering students the opportunity to investigate how local land use and the area's hydrology, geochemistry, and ecology interact to determine the quality of water for the campus and surrounding communities. Further, town records provide historical information for the parcels on the Whately property and in the surrounding area, including showing when the forest land was logged over the past century. This offers students the ability to track changes in the land and document forest recovery over time. Also, an atmospheric sampling tower next to the building provides data about air quality and pollution as part of a long-term regional atmospheric monitoring project.

Bechtel Environmental Classroom

In 2010, the college made plans to construct a classroom on the MacLeish Field Station property and applied to the S.D. Bechtel Jr. Foundation for funds, which were successfully received. In 2012, based on student encouragement and involvement in developing programs for the Field Station, Smith College decided to have this new classroom be a living building, and the result was the Bechtel Environmental Classroom.

The Living Building Challenge certification was achieved in February 2014. Initiated by the International Living Future Institute, the living building challenge is a project that challenges people around the world to create ideal buildings that go beyond the goal of operating sustainably to having a positive environmental impact. The challenge consists of seven areas of focus: place, water, energy, health, material, equality, and beauty.

The Bechtel Environmental Classroom is a living building that was constructed on property conserved by Smith College. Credit: Smith College

The Bechtel Environmental Classroom is a 2,500-square-foot, single-story building. The building includes two major spaces: a classroom for biological and earth sciences and a large space for humanities seminars and group gatherings. The building has met all required imperatives listed by the Living Building Challenge, including the net-positive water and energy imperatives.

Land Conservation

As a part of the Living Building Challenge, Smith College conserved a portion of their land to meet the habitat exchange imperative that is a requirement for certification as a living building. This imperative can be met by either donating a portion of the land to the public or conserving the land. For this project, Smith was required to conserve approximately twelve acres of land. However, the college worked with the Kestrel Land Trust to expand that significantly, ultimately conserving a total of 190 acres.

The Kestrel Land Trust was influential in expanding this conservation project. The organization works with individuals and other organizations to conserve land and care for the environment in the Pioneer Valley of western Massachusetts. The Kestrel Land Trust has conserved a total of 25,000 acres of wild land, farm land, and riparian land since 1970.

When Smith College approached the Kestrel Land Trust and proposed to conserve twelve acres of the field station, Kristin DeBoer, executive director of the Kestrel Land Trust, persuaded Dr. Reid Bertone-Johnson, who was then the assistant director of the MacLeish Field Station, that conserving the bare minimum fails to illustrate the character of environmental stewardship that Smith College values. Instead of conserving 5% of the existing Field Station land, DeBoer proposed that Smith College should conserve close to 90%. Professor Bertone-Johnson immediately accepted the idea and worked with students to put together evidence and maps to show that conserving these 190 acres would build connectivity with additional nearby protected parcels including a watershed, state forest, and wildlife management areas.

All combined, Smith's conserved parcel would fit into a large, contiguous area of protected land. The land that Smith College owns is a crucial centerpiece in a resilient landscape that has the potential of supporting a wide variety of plant and animal species. Smith College's conserved land, along with neighboring lands conserved by Northampton Watershed Department, Massachusetts Department of Fish and Game, Conway State Forest, and Franklin Land Trust together total 5,000 contiguous acres of conserved land (Figure 1).

As the project progressed, students and faculty learned from Ruth Constantine, Vice President for Finance and Administration, that they would have to convince both the Board of Trustees and the college's senior

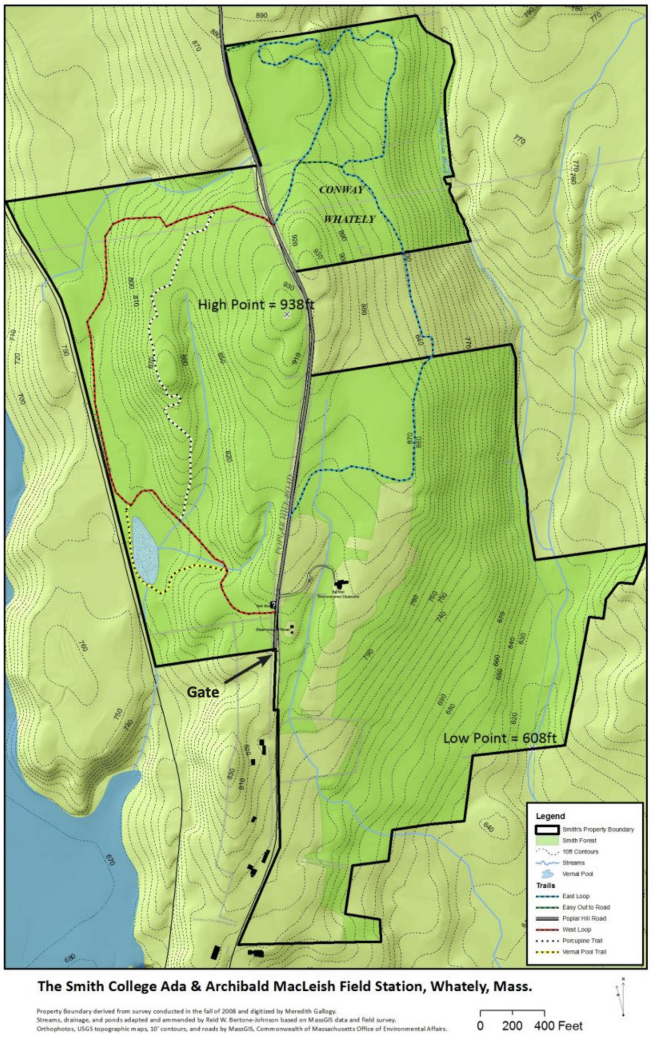

Figure 1. A map of the Ada and Archibald MacLeish Field Station at Smith College. Credit: Smith College

administration for the project to proceed. In particular, they would need to show the Board of Trustees sufficient information that the land was not of high development value. Therefore, students and faculty worked together to map out all areas of the Field Station that could not be used for building construction. They found that these 190 acres of land were parts of wetlands, vernal pools, and steep slopes, and thus were not suitable for construction. Finally, in 2013, with the leadership of Constantine and Bretone-Johnson, the Smith College Board of Trustees agreed to conserve the 190 acres of land through the Kestrel Land Trust and donated a fund for stewardship and maintenance along with the land.

Putting a piece of property under permanent conservation, with a restriction on any future development, was a difficult decision for the Board of Trustees, as they were concerned with the future development of the college. However, as a result of the collaboration between environmentally conscious faculty, students, and administration from the college and the

support and collaboration of the Kestrel Land Trust, the conservation project was approved. In conserving this land, Smith College added to a substantial and diverse acreage of conserved lands in the region.

Additional Land Negotiation

When the conservation easement was set on 190 acres of the Field Station, a mix-up related to the land was discovered. The college realized that there were twenty acres of land incorporated in the MacLeish Field Station that, in reality, belonged to a neighboring property, while the land in the backyard of the neighbor belonged to Smith College. This circumstance was created by a lawyer's mistake. To remedy this, the college sold twenty acres in closer proximity to the neighboring property to the neighbor for a low price, but did not sell the twenty acres within the Field Station. To further settle the mix-up, in 2017, Smith College decided to also trade seven acres of buildable land that was also close to the neighboring property in exchange for ownership of the twenty acres within the Field Station. As a part of the deal, both parties would conserve the land that they had traded. Therefore, Smith College placed an additional twenty acres under permanent easement through the Kestrel Land Trust, and the neighbor placed another seven acres under a conservation easement through the Franklin Land Trust. This brought the total conserved land area at Smith College to 210 acres.

Education and Research

Included in the conservation easement is the stipulation that Smith College still maintains the right to use the land for educational purposes and that faculty and students can conduct projects and experiments on the conserved property. This is an important component of the conservation effort because, since the land supports a diverse ecosystem with a variety of plants and animals, the MacLeish Field Station provides a platform for students to explore their scientific and artistic interests, conduct hands-on projects, and simply enjoy nature.

Many classes make use of the MacLeish Field Station, a 250-acre property owned by Smith College, of which 210 acres are conserved with the Kestrel Land Trust. Credit: Smith College.

The Field Station is a valuable educational resource that hosts classes and field trips. Encompassing the principle of interdisciplinary education, a variety of classes—including science classes such as geology and biology and also architecture, landscape design, and music classes—all use the Field Station as an educational resource. There is also a program, called Arts Afield, that encourages and increases the creation of artwork in promoting the development of environmental consciousness.

Approximately 210 acres of the 250-acre Ada and Archibald MacLeish Field Station was conserved with the Kestrel Land Trust. Credit Smith College

Recently, Arts Afield joined the national Long Term Ecological Reflections Project (LTERP), a consortium of academic field stations that take a two-hundred-year look at ecological changes on field station grounds. As a part of the program, Smith College has developed ten carefully selected reflection plots where students can engage in their artistic, literary, and philosophical pursuits while exploring the MacLeish Field Station. Artistic work related to these plots will be added to an online database in the form of story maps that enable viewers to see artworks inspired by each site, simply by clicking on a map.

In addition, students have the opportunity to conduct hands-on projects and research at the Field Station, thereby helping to grow the functionality of the Field Station. Facilities such as campsites, a rope challenge course, permeable parking lot paving, apple orchards, and bridges are all constructed by students as a part of their projects. Students are also actively engaged in research related to the hemlock woolly adelgid, groundwater quality, precipitation, the mitigation of invasive species such as multiflora rose and oriental bittersweet, and historic use of the property.

Overall, the MacLeish Field Station is a truly interdisciplinary place that exemplifies Smith College's value of stewardship and education. In the future, the college will continue to explore the opportunities brought by the MacLeish Field Station.

Key Takeaways

Smith College took a unique approach to land conservation. From the Living Building Challenge to playing a part in a larger land conservation project, and by going from the initial mandate of conserving twelve acres to eventually conserving over two hundred, Smith College truly demonstrated their environmental commitment.

There are three important takeaways from the example of Smith College:

- Conservation of the MacLeish Field Station was only possible with cooperation and leadership from the faculty, students, and administration.
- Having a relationship and working in partnership with a local land trust.
- One key factor in successfully persuading the Smith College Board of Trustees to conserve land was to prove that much of the land was not able to be developed in the future. The decision to permanently conserve college-owned land is a hard decision for many boards of trustees to make, given that land is seen as a valuable asset for the future development of any institution. Therefore, the argument that the majority of the land was not able to be developed was the deciding factor for the board at Smith College.

From green building construction to land protection, the conservation story of Smith College demonstrates a unique way to not only connect living buildings with living lands, but also to connect people to the environment around them.

More Information

- Bechtel Classroom Case Study, International Living Future Institute https://living-future.org/lbc/case-studies/smith-college-bechtel-environmental-classroom
- Sustainable Smith https://www.smith.edu/about-smith/sustainable-smith/ceeds
- Living Building Challenge, a program of the International Living Future Institute https://living-future.org/lbc
- Arts Afield Program https://sophia.smith.edu/arts-afield/ars-172/

References

Smith College. "Mission and Values." Accessed November 1, 2020. https://www.smith.edu/student-life/residence-life/about/mission

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