Improving and Preserving Langdon Woods and Fox Pond Park

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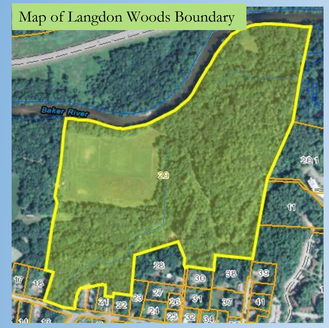
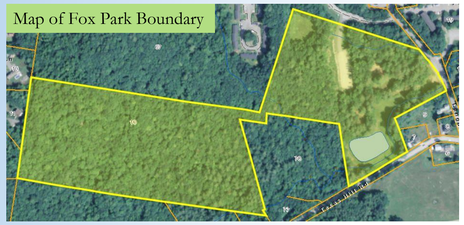
Introduction

Langdon Woods and Fox Park are two community forests located near the Plymouth State University campus which provide numerous ecosystem services for students and residents. The goal of this project is to evaluate these services and propose future courses of action which will improve and protect these areas.



Map of Langdon Woods Boundary



Map of Fox Park Boundary

Ecosystem Services of Community Forests

Carbon storage	Pollution control
Nutrient cycling	Wood resource
Erosion control	Flood control
Wildlife habitat	Spiritual, emotional, mental well being
Water and air purification	Sense of community and connection
Recreation	Field site for PSU classes

Value to Plymouth

These community forestry parcels provide numerous ecosystem services as listed above and add to the rural character of Plymouth.. The Plymouth Master Plan specifically mentions the value of having accessible natural areas such as these two parcels. Having a community forest so near to campus and center of town provides access for residents to immerse themselves in the forest, reap the benefits of ecosystem services, and develop a stronger sense of place and community.

Evaluating Tree Species

The prevalent tree species of Langdon Woods and Fox Park include red maple, silver maple, white ash, beech, red pine, American elm, red oak, sugar maple and Eastern hemlock. Red maples tend to be prevalent because of their resilience in wet or dry soil, sun or shade, and their adaptable roots can grow deep or wide. Langdon Woods is very wet in areas but also has higher elevations with well drained soils. Beech and pine trees are found near each other on the higher elevations and slopes of the park because they both require well drained soil. Many oak trees, which thrive in wetland environments, can be found on the lower elevations of the park where more frequent flooding occurs.

Preventing Pests and Invasive Species

Maintaining the health of these forests is vital to continue receiving benefits from them. Some of the most damaging pests include the Asian Long-horned beetle, Emerald Ash Borer, Hemlock Wooly Adelgid, and Eastern Hemlock Scale. None of these have been detected in Plymouth so far but they do exist to the south and with natural spreading and climate change, their arrival is virtually inevitable. Monitoring and early detection is the best way to combat the impact these pests will have. Education and monitoring efforts could be implemented both through PSU courses and kiosks placed in the forests (discussed below).

Invasive species are another threat to forest health. They have the potential to take over and push out plant species that are naturally occurring in the environment. The NH Fish and Game Department identified the Norway Maple and the Perennial Pepperweed as the two invasive species in need of monitoring and management in Plymouth.

Emerald Ash Borer


Asian Long-horned Beetle


Hemlock Wooly Adelgid

Building Kiosks

A kiosk would be a very effective way to educate visitors. According to the Appalachian Trail Club (ATC), "the value of informed visitors is less waste, more reverence, and an understanding of volunteer efforts". Kiosks could be built at key entry points to both Langdon Woods and Fox Park. They would include information about the trail system, a brief history of the land and its use, information about citizen science initiatives and monitoring programs, and writings that encourage a deeper understanding of the forests. Information on pests and invasive species could include pictures of what to look for (such as the D-shaped exit hole of the Emerald Ash Borer) and a number to contact to report sightings. Also, information from the book The Hidden Life of Trees by Peter Wohlleben could be added to inform visitors about the ability of trees to communicate and help each other through mycorrhizal fungal connections. The ATC offers a variety of schematics for these kiosks and the costs range from $800 to $1900 dollars depending on size and build quality.

Sources

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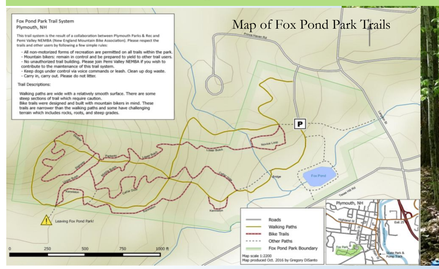
Improving Trails

Angel Ekstrom has proposed a cluster project to build and advance the current bike trails in Fox Park over to Langdon Woods and other areas in Plymouth. Angel's goals for the project are to:

- Expand outdoor recreation for a wide range of ages;
- Improve the local economy through cooperative efforts; and
- Increase education on ecosystem services and stewardship.

Expanding the trails could increase tourism and community involvement within the area. Bike shops, convenient stores, restaurants and food stands would benefit from increased traffic and trail operations. Proper maintenance and education could increase current trail conditions. The cluster project could incorporate a variety of majors/minors offered at Plymouth State, including Adventure Education, Marketing, Environmental Science and Policy, GIS mapping, and more.

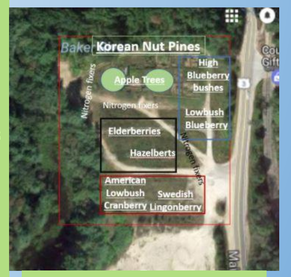


Map of Fox Pond Park Trails


Volunteers building wood bridge

Permaculture Site

Permaculture is not only a course/certificate offered through PSU, but an important practice toward sustainable living. Perennial fruits and nuts could be planted in spaces that get sunlight for 3/4's of a day; with plants arranged so the tallest trees are in the north and shortest plants are in the south. Short plants could include American Lowbush Cranberry, Swedish Lingonberry and Lowbush Blueberry (~6-8 in. high). Next, High Blueberry bushes, and farther to the north Hazelberts and Elderberries, with a few apple trees. A Korean Nut Pine could be the tallest plant. All of this will attract songbirds. Nitrogen fixers, like pea plants, could be included to ensure soil nutrition and a complete system.



Proposed layout of plant type and location

Conservation Easement

Conservation easements protect land for future generations and constitute a legally binding agreement with a private landowner, that limits certain types of uses or prevents development from taking place on the land being protected. This type of conservation agreement would be ideal for Langdon Woods because it could efficiently and effectively protect the public's access to land. The Conservation Commission could acquire these easements through the Land Conservation Investment Program.