Abstract

In 1998, there were no outdoor environmental programs or trails specifically for the blind, visually impaired, and multiply-impaired population in central New Jersey. When the Forest Resource Education Center was in the developing phase (1998–1999), none of the original trails were “inclusive” trails. There were no opportunities for these individuals to experience nature, the environment, and the outdoors. There cannot be a relationship to the environment or an appreciation of the environment without experience interacting with it. As a teacher of the visually impaired and a certified orientation and mobility specialist, I consulted with the Forestry staff in the development of the trail. The Sensory Awareness Trail, the physical aspect of the Multi-Sensory Outdoor Education Program, provides a multitude of learning experiences in a safe outdoor environment. Orientation and mobility skills are encouraged and developed best in the natural environment. Independent travel and exploration are integrated into the overall program. The Sensory Awareness Trail also provides for direct contact with natural features of the environment through guided experiences utilizing all of the senses. The Trail has become a success and is available for all ages, developmental levels, and physical abilities, together and barrier-free.

Keywords: basic orientation and mobility concepts, independent travel, inclusive activities, sensory awareness, real-life experiences

The Sensory Awareness Trail was developed at the New Jersey Forest Resource Education Center, located in central New Jersey. The original purpose of developing a sensory trail was to provide visitors of varying abilities with access to the diversified ecology of the New Jersey Pine Barrens. Through the development of interactive, hands-on activities, visitors of all abilities are encouraged to discover, examine, and investigate trees, forests, and the environment.

Some outdoor education programs provide wheelchair accessible buildings and trails, as well as braille and large print signs. However, many outdoor education programs do not use the specific curricula and teaching styles necessary to include visitors who are blind or visually impaired. The uniqueness of this project is not the trail, but the trail in conjunction with a complete environmental education program designed to include all visitors. This holistic approach to sensory awareness combines the physical aspects of trail safety, accessibility, and ease of maintenance with guided multi-sensory forest experiences.

In 1998, an application was made to the National Recreational Trails Act Project, and subsequently a grant for $10,000 was received to initiate the project. The Trails Grant funded the crushed stone, talking trees, and lumber and building materials (Table 1). The trail, consisting of a raised walkway and informational “talking tree” kiosks, was designed as a 1.5-mile loop through an ecologically diverse area. It presents various environmental themes through the use of three informational “talking tree” kiosks and a
self-guiding brochure. The themes promote forest exploration through sensory awareness using listening, smelling, touching, and tasting activities. For visitors who are blind or visually impaired, a guide rope is also provided. Guided tours provide multisensory lessons along the trail in an outdoor classroom format.

**Design**

The project design was completed by a team of creative planners of the New Jersey Forest Service staff, members of the Forest Resource Education Center Planning Committee, local school and environmental commission members, and the Project Learning Tree Steering Committee (Table 2).

**Labor**

The New Jersey forestry staff completed the physical layout and construction of the trail. This included the raised walkways, posts, guide rope, informational kiosks, benches, display table, trail signs, and outdoor classrooms. Volunteers assisted forestry staff with the installation of the interpretive stations and crushed stone trail utilizing scheduled community volunteer events (Table 2).

**Key Elements of Finished Project**

- Guided tours by New Jersey forestry staff provide lessons at each learning station. “Talking tree” kiosks are used to provide individualized lessons with hands-on experiences (acorns, pinecones, trees, leaves, animal pelts, etc.). Some of the concepts taught include: the sounds of running water and animals; the smell of bark, leaves, berries, and other forest scents; and the feel of the sun, wind, inclines and declines, and soil textures. Tours can be flexible to meet the needs of the group.
- Well-defined, 5-foot wide crushed stone trails are more natural in this environment than asphalt, concrete, or other man-made products. Construction impact on the land was also a major consideration. With asphalt, heavy equipment would be needed, whereas the crushed stone was hand-installed using wheelbarrows. This had minimal impact on the land. Crushed stone is porous and allows for drainage while controlling soil erosion and soil compaction. It compacts sufficiently and provides a stable base for wheelchair users and those with balance issues while minimizing the impact to the forest environment. It provides for a clearly defined path with textured under-footing and auditory/tactual feedback. New Jersey forestry staff members believe that using natural elements such as locust posts and crushed stone protect the natural setting while maximizing accessibility and meeting the needs of visitors. The grade of incline/decline was designed to provide ease and safety in travel.
- Benches in various locations throughout the trail provide for resting and listening areas for outdoor classrooms.
- A 36-inch high cable serves as a guide rope with tactile indicators on the locust posts, which are set every 10 feet along the trail, and with breaks at kiosks and outdoor classrooms. The guide rope is made of 500 feet of plastic coated steel cable. It is a gray color and of
low visual contrast blending into the environment. Originally, a bright yellow 12-strand polyester rope was used to give visual contrast for low vision visitors. This rope was cut and subsequently stolen, so the plastic coated steel cable was installed. Visitors are encouraged to follow the guide rope using the “OK” sign with their hand. Using this technique, the posts and tactual signs can be easily located. Sighted visitors are encouraged to close their eyes as they walk along the guide rope, just as they are encouraged to use their other senses to gain information along the trail.

- All kiosks with “talking trees” are solar powered with an underground cable connection run to the solar panel at the forest’s edge, located in sunlight. The wiring and electronic boxes are hidden under the kiosks. The activation buttons are flush against the “tree,” minimizing vandalism. There were some problems with squirrels, mice, or chipmunks chewing the wires, so to protect from rodent damage, the electronic equipment has been enclosed in secure wire boxes.

- The multi-sensory curriculum was developed to correspond to New Jersey Core Curriculum Content Standards. Project Learning Tree is an existing environmental education program used throughout the United States, as well as in several other countries. Project Learning Tree activity guide and environmental lessons were correlated to New Jersey State Standards by the New Jersey forestry staff. This team of professionals consisted of foresters, New Jersey State certified teachers, environmental educators, and forest technicians. The diverse group joined together and took basic information from the Project Learning Tree program, adapted it to New Jersey standards, and made it site-specific to the location. Once the Project Learning Tree curriculum was correlated to the New Jersey Core Curriculum Content Standards, specific activities and lessons were chosen for use on the Sensory Trail. The Project Learning Tree curriculum could be adapted by any state to meet its site-specific environmental education needs.

Use of the trail began in 2001 and today, approximately 2,500 children and adults per year are able to enjoy this program, including school groups, families, scouts, and special interest groups. Families of children with visual impairments are encouraged to interact every summer during Family Event Days on the Sensory Trail.

For more information or to schedule reservations for your group, contact:
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