A GUIDED WALK THROUGH THE LIVINGSTON NATURE PRESERVE

LIVINGSTON NATURE PRESERVE

Introduction

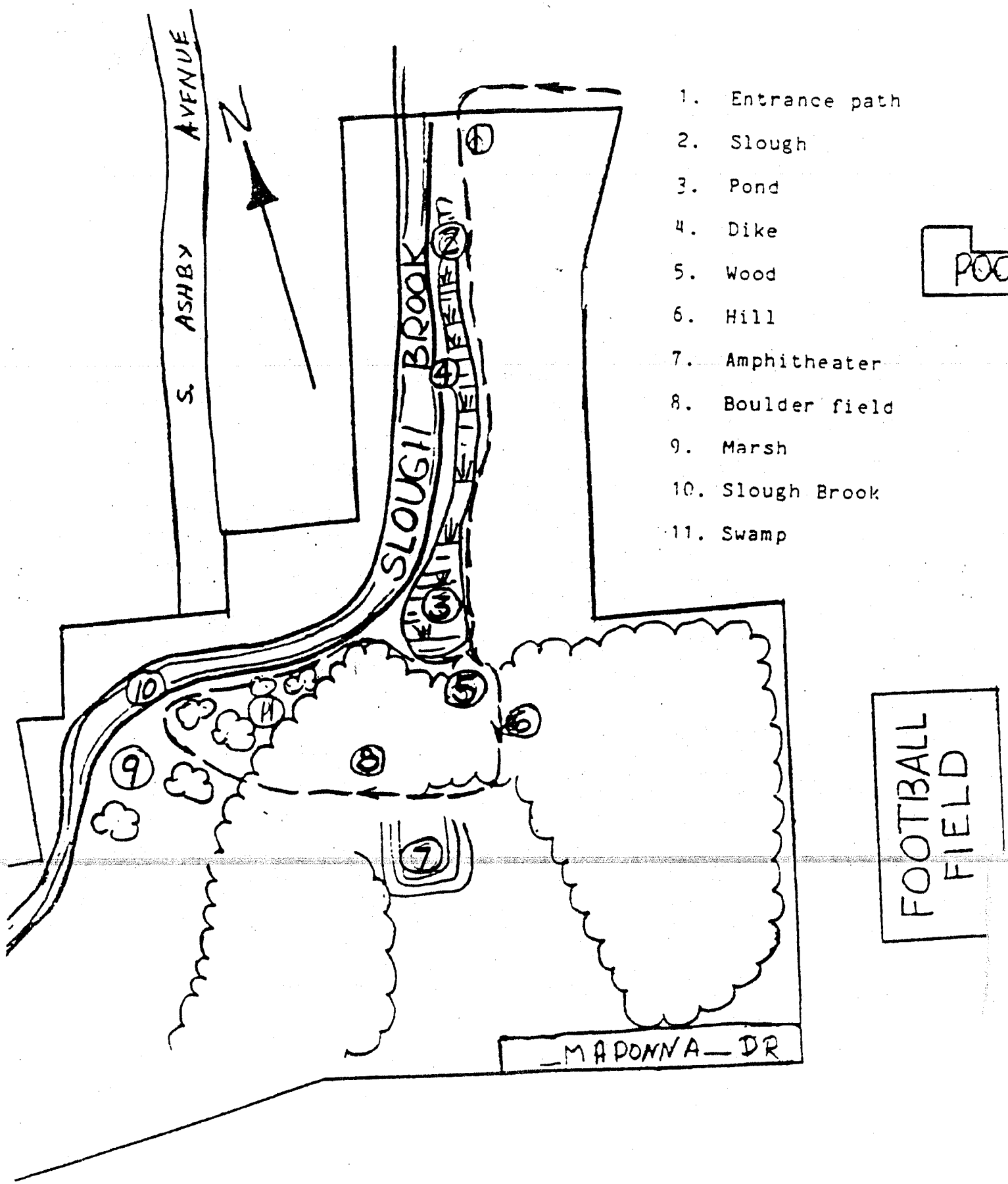
In the center of Livingston, New Jersey is Memorial Park on which are situated the high school, library, swimming pool, tennis courts and other recreational facilities.

Some ten acres of this park remain in a nearly natural condition. In 1976 the Township Council set aside this section as a nature preserve. The ordinance protects the area by the following special restrictions:

> "It shall be unlawful for any person, firm, corporation or agency of government to dump or dispose of any garbage, refuse, junk or waste material upon a nature preserve or to remove any natural material therefrom, alter said area, or except in an emergency, operate any motor vehicle thereon with approval of the Township Council."

The preserve is intended for the enjoyment and enlightenment of all Livingston's citizens. At the same time, it was seen as a particularly rich resource for the education of our children. To this end you will find a series of questions at the end of the text.

A Project of the Livingston Environmental Commission
and the Livingston Conservation Council


1. Entrance path
2. Slough
3. Pond
4. Dike
5. Wood
6. Hill
7. Amphitheater
8. Boulder field
9. Marsh
10. Slough Brook
11. Swamp
S. ASHBY AVENUE
SLOUGH BROOK
MADONNA DR
FOOTBALL FIELD
POOL

Beyond the tree is a mini-MARSH (9) with cattails and other distinctive marsh plants. Water stays here most of the time, retained behind a dike of dredging spoils from Slough Brook. There are plants growing in the brook also, but they are different species. They must be plants that will survive the drowning floods of water after long rains or melting snows, and also live through summers when it doesn't rain for months on end.

To your left the bank of the brook is high, with tree stumps and a little other vegetation. The forest once came to this edge. The brook curves here, and, as the water slowed down, this stretch silted up badly. A contract was let to have the brook deepened. The contractor threw the dredged material up on the bank. The new depth of soil prevented air from reaching the roots of the trees, and they died in a short time.

Turning right, you head back to the starting point of your walk. Here, too, are dead trees, but they did not die at once. The dike caused this area to be under water more of the time. Periodically this deprived the tree roots of the oxygen they need, and they slowly failed. Young tree, capable of surviving in wet places, are gradually replacing them.

The old tree-trunks reveal nature's recycling processes: fungi grow under the bark, beetles bore their tunnels, woodpeckers live on the beetles nad other insects, and the rotting heights offer nest-sites for birds of various sizes and tastes.

Walking along the dike we reach the drain ditch from the pond (3) we skirted early in our walk. Turn right through a mini-SWAMP (11) (a swamp has trees, a marsh doesn't). Skirt the little pond and you're back on the trail to the parking lot.

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QUESTIONS FOR STUDY AND DISCUSSION

You can make your walk through the Preserve an educational tour by using the questions below to stimulate observation and thought in almost every area through which you walk. The emphasis is on biological communities and their relationships, on succession, and on human inpact. YOu may find the Golden Guide "Ecology" (Golden Press, New York, 1973) a useful little book. The questions we suggest as a focus of attention are these:

1. What is the predominant characteristic of the particular little area before you?

2. Of what kind of life forms does the bio-community consist?

3. Classify various items as actively living, dormant, dead, decaying, natural inorganic, or artifacts.

4. What is the non-living substrate? Hcw did it develop or get here in its present form?

5. What signs of animal life do you see? What problems must

A path on the right side leads up the HILL (6) through the woods. Shortly the land is higher and better drained. A clue to the history of this place is the old birches. Quite probably this was a pasture about 30 years ago. No trees could grow, for cattle eat the seedlings of most trees (except red cedar). Once the cattle were gone, the seedlings of trees had a chance. Of these, the birches are among the fastest to take hold. Then slower-growing types, mainly oaks, came in. Gradually these created such dense shade that young birches, which need full sun, didn't have a chance. Finally the susceptibility of older birches to fungus disease brings their role in the succession of plant species to a close. But this is still a young forest. Count how many kinds of trees you see. Later you can compare this number to the variety in an older forest.

This wooded area has many more small animals than you see, for it is probably the home and sanctuary of the neighborhood rabbits, raccoons, possums, skunks, squirrels and small rodents. Most of these are afraid of humans and hide until it gets dark and quiet at night.

The birds of the neighborhood -- blue jays, robins, chickadees, titmice, downy woodpeckers, starlings and sparrows no doubt use it as a home base also. In the winter the weedy areas supply food for the seed-eating finches, sparrows, whitethroats, juncos, goldfinches, and house finches.

After you have walked about 100 yards, the woods thin out. Turn at the path to the right, into a sort of small AMPHITHEATER (7). On the ground are probably the most durable signs of human occupation on the tract: concrete pavement. The hill was hollowed out here for a police target range. What does the size and species of trees tell you about this history?

Continue across the amphitheater into the forest again. How many different kinds of trees are growing here? The trees are somewhat larger and older. Knowing that hardwoods grow between 1/8 and 1/4 inch in diameter per year in this area, you can estimate their age. Why does the older forest also have more different species?

Among the trees is a BOULDER FIELD (8). The large, rounded rocks are an assortment of kinds; some must have been transported from distant places. Their size tells you they must have been moved by a powervul force, and the rounded shape must be the result of a rolling, tumbling, dragging journey. Together, these clues tell us that the rocks were brought by a great sheet of ice that came down from the north. The end of the ice sheet melted back leaving these rocks and, in fact, this hill of sand as well.

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Along the ENTRANCE PATH let your eyes scan across the scene: closely trimmed athletic fields, in the distance to the left a wood; nearer, a lumpy area with slight overgrowth; ahead of you a fringe of light-green trees; to the right a neat circular pool.

The irregular rough area to your left was a marsh until it was filled with debris. It supports young weedy vegetation. The parts that were filled with vegetable matter such as leaves or wood chips grow in more quickly than where the fill is black-top or concrete rubble. In time, soil will also drift into these, allowing plants to take root and grow. With the passage of time the types of plants will become more diverse, as seeds are blown in from distant places, or carried in by birds. Gradually even oaks, which grow a mere inch or two a year, will establish themselves and eventually take over.

Turn left before you reach the SLOUGH (2) (pronounced " slew"). This is a remnant of the old marsh. During rainy periods, it is a bit of a pond, with algae and other water plants, but it usually dries up each summer. At the near (northern) end the bottom is black, mucky soil, formed largely from plant matter that decays. Further on, the slough widens into more of a little POND (3). Its bottom is flat and filling in with silt washed down from the sandy hillside beyond. Being mostly sand, with little organic (vegetable) matter, this bottom is light colored. The level of the pond is established by a drain into Slough Brook at the far end.

Along the slough on your right is a DIKE (4) made of "spoil" -- sand and gravel dredged out of Slough Brook a few years ago to improve its carrying capacity for major rainstorm runoffs. On this recently-established poor soil the variety of plant life is very limited: mainly a tall annual briar.

Across Slough Brook is a row of willows, tall and large. They may not be very old; however, for willows grow very rapidly if they have a good water supply. Yet they must be on a drained site; they are found along streams but not in swamps.

Beyond the pond, to the south, is a WOOD (5). The edge of it is low and drains so poorly that few trees other than swamp maple can grow.

The path turns left a few yards. The forest edge has a thick growth of foliage down to the ground. Under the trees there is much less vegetation, for the tall trees block the sunshine. Here and there you will find a tree such as dogwood or hop hornbeam ("ironwood"), "understory" trees that can grow in part shade.

the animals solve in order to survive here?

6. What kind of bio-community was here before? What kind is likely to follow?

7. How did human activity influence the bio-community?

8. Discuss the life-cycle of various forms and how they relate to seasonal change.

9. How diverse are the life-forms in this habitat? How does this diversity change with the passage of time?

10. Try to estimate directions of water drainage. Where is water held? How does wetness vary over the year? How does the hydrology affect or determine the membership of the bio-community?

11. If this tract were larger you might see large hawks, wolves, or bobcats. What food chains would they head in this kind of place?