

Sauble Beach

Fall 2003

Sand Dune Management Planning

Current State of the Dunes

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- Presented in this summary are some possible options for addressing the conservation issues concerning the dunes at Sauble Beach. The Friends of Sauble Beach are looking for some input from the community as to the direction it should take in developing a dune conservation program.

During the summer of 2003, the Coastal Centre conducted a preliminary inventory of the beach and dunes with the objective of identifying the characteristics of the beach-dune ecosystem. This involved looking at (1) the physical attributes of the dunes (their form and structure), (2) the biology of the dunes (plant communities and primary species), and (3) the 'cultural', or human, impacts to the dunes. For the purposes of this study, we have divided the beach into the north (6th St. to the river) and south beach (6th St. to Main St.)

Generally, the dunes along the northern portion of the beach are in greater health than the dunes to the south. The north dunes exhibit a much greater biological diversity, and are impacted much less by human interaction. The south dunes (from 6th St. south) are more extensively impacted by people crossing over them to get to the beach. This is not surprising, as the commercial district at the south end tends to focus much of the human



Dunes at Sauble Beach are being impacted by the sheer numbers of people crossing over the dunes to get to the beach. Angle parking adjacent to the dunes mean people typically cross over in front of their vehicles. This has led to hundreds of trails being cut into the dunes—each of which is a potential erosion point.

activity to that area.

People crossing the dunes, which leads to vegetation destruction, is the most significant concern. The nature of dune vegetation is, that it is hardy enough to withstand rigorous conditions, like temperature extremes, lack of nutrients, drought and sand burial. However, it does not tolerate trampling very well. Only a few passes can kill the vegetation, and without this vegetation, the dunes are vulnerable to wind erosion. Erosion of sand from

the dunes represents a permanent loss from the dune system.

How do we reconcile the need for people to get across the dunes to the beach, and the need to minimize our impacts to the dunes? There are a number of conservation techniques that have been tested around the world that help to achieve both. Presented in this summary are some options to be considered for Sauble Beach.

Ecology of the Dunes

A few of the plant species found at Sauble Beach include:

- Sand Cherry
- Little Bluestem
- Big Bluestem
- Indian Paintbrush
- Baltic Rush
- Wormwood
- Beach Pea
- Silverweed
- St. Johns Wort
- Bearberry
- Yellow Lady's Slipper
- Long-leaved Reed Grass
- American Beachgrass

The dunes at Sauble Beach vary in size and shape from south to north. At the south end, the dunes are narrow and the high level of human activity there has contributed to their current condition. Numbers of dune species in the south part of Sauble Beach is limited, and this is partly due to the amount of stress that the dune system is under.

To the north, the dunes are significantly wider and less impacted. These wider dunes possess an impressively diverse number of dune species. This greater diversity of plantlife is indicative of a more healthy, sustainable dune system.

Greater biodiversity helps the dunes recover more quickly from external stressors, like human activity. At Sauble Beach, the north dunes have a much greater capacity for self-repair than the south dunes. The north dunes are also more capable of capturing and retaining wind blown sand. The fact that fewer people cross the dunes along the north beach has been a key factor to the greater health, and more stable condition of the dunes there.

Perhaps one of the most important dune plants at Sauble Beach is Long-leaved Reed Grass (*Calamovilfa longifolia*). This beach grass is a Provincially rare species. It can also be considered a

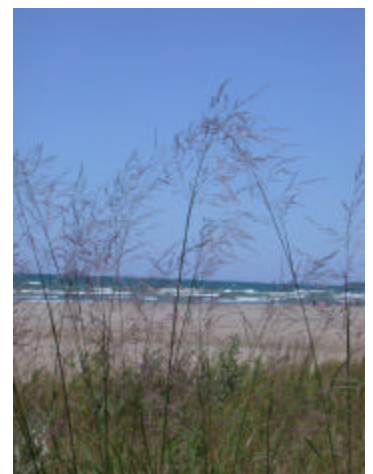
uniquely “*Lake Huron*” dune plant since, in Canada, it is only found along the shores of Lake Huron. Long-leaved Reed Grass grows in abundance at Sauble Beach, and is the primary dune stabilizer.

American Beachgrass (*Ammophila breveligulata*), which is a much more common dune plant in other parts of the Great Lakes, has a limited range at Sauble beach. Here, it occurs only on the beach and front of the dune, forming colonies that expand and contract according to wave activity and lake levels. This beachgrass is an extremely important sand stabilizing plant. Mechanical raking of the beach, however, has limited the expansion of these colonies and compromised their ability to control sand erosion.

One of the biggest threats to the stability of the dune system at Sauble Beach is the damage to key stabilizing plants. A major factor is the trampling effect caused by people crossing over the dunes on their way to the beach. Damage to these species can remove the protective function of the plants, leaving the dune vulnerable to wind erosion. As sand erodes, blowouts, or deep depressions in the dune, can occur. A number of blowouts can be seen along the dunes at Sauble Beach.

Since the beaches and dunes of Sauble Beach are a non-renewable resource, the loss of sand from the dune system has long term implications to the integrity and sustainability of Sauble Beach.

Maintaining the dune vegetation at Sauble Beach will be critical to the Beach's future. Efforts to limit the impact to dune vegetation, restoring degraded sites and focusing peoples access to the beach through designated access trails, will greatly contribute to the protection of the core functions of the beach-dune system. Learning to recognize and become familiar with key dune species will foster an appreciation for their role in shaping Sauble Beach.



Long-leaved Reed Grass is a dominant dune species at Sauble Beach. It is considered Provincially rare, and is restricted in Canada to the shore of Lake Huron.

Beach and Dune Management

Managing Sauble Beach's dunes is more about what we don't do to the dunes rather than what we do to them. Sand dune conservation efforts around the world focus on one key objective—letting the dune vegetation perform its ecological function. That means keeping people's contact with the dune vegetation to a modest level.

The Coastal Centre has developed a model for dune conservation work on Lake Huron based on three approaches:

1. Education;
2. Managed Access;
3. Restoration.

The order of priority of the three can be modified depending upon the condi-

tions at the site, but for Sauble Beach, the above order is appropriate.

The success of this model relies on a local "champion" to implement (like Friends of Sauble Beach), and a cooperative and involved municipality.

Management Approach

Education

Educating people about the importance of dunes underlies the whole conservation process. Awareness building and education must be multi-faceted (taking a number of different approaches), and sustained over the long term. Some examples to use at Sauble Beach:

- Posting signs that both educate and inform beach-goers about the fragile nature of dunes;
- Interpretive signs at all major entrances to the beach;
- Dune stewardship fact-sheets and handouts;
- Workshop on dune ecology;
- Interpretive tours of the dunes;
- Articles in media and tourism brochures;
- Field trips for local students to learn about coastal ecology and geology.

Managed Access

Managed access refers to beach access pathways and trails that are designed to handle large numbers of people with as little impact to the dunes as possible. Currently there are nearly 400 pathways cut into the dunes. Re-directing people to a few managed access routes would help the dunes to recover and minimize impacts in the future. This can be accomplished by:

- Developing boardwalk or railed pathways over the dunes at strategic locations;
- Ensure that there are "Beach Access" signs advising people where it is appropriate to cross the dunes. Signs must be posted on the roadside and the beachside;
- Railed barriers along the road side of the dunes to prevent people from crossing dunes.

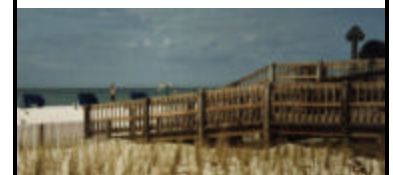
Restoration

Dune restoration is only recommended when a dune has been severely degraded and its ability to recover is in question. In a strictly natural setting, most dunes can recover on their own. Along some portions of Sauble Beach, however, the large numbers of beach users crossing the dunes to get to the beach make it impossible for natural recovery to take place. Techniques can be used that mimic nature and prevent the erosion of the dunes.

- Planting of trial plots of specific dune species in areas of degradation;
- Strategic use of sand fencing during the off-season to limit erosion where vegetation planting is not possible;
- Change current beach management rituals.



Steep dunes are difficult to cross and people scaling these features can do considerable damage to the dunes in their attempts to cross over to the beach.



Boardwalk cross-overs are often used in circumstances where pedestrian traffic is high.

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The Beach Raking Issue

The Town of South Bruce Peninsula currently embarks on a regular program of beach raking, ostensibly as a means of keeping the beach smooth and comparatively soft to walk on. Claims that holes and ruts caused by children digging in

the sand pose a liability to the Town if someone injured themselves appeared not to be well founded. Raking tended to fill in these holes with soft sand, and some people were observed tripping and falling, with at least one injury reported to the Town.

Environmentally, raking has the effect of aerating the sand, causing it to dry out more quickly. The fine, dry sands are then prone to erosion, even under moderate breeze conditions. If left unraked, the normally damp beach would provide some natural cohesion, making the beach more resistant to erosion.

Raking also has the effect of

destroying any plant species which would normally help to anchor the sands from wind effect erosion. Raking is especially problematic adjacent to the dunes, where normally, dune species would be growing and capturing wind blown sand. Dunes normally expand lakeward during low lake level conditions, building up sand reserves to protect against the next high lake level condition.

Beach raking needs to be re-evaluated with the practice either being discontinued, or substantially modified so that the impacts to the beach-dune system are mitigated.

