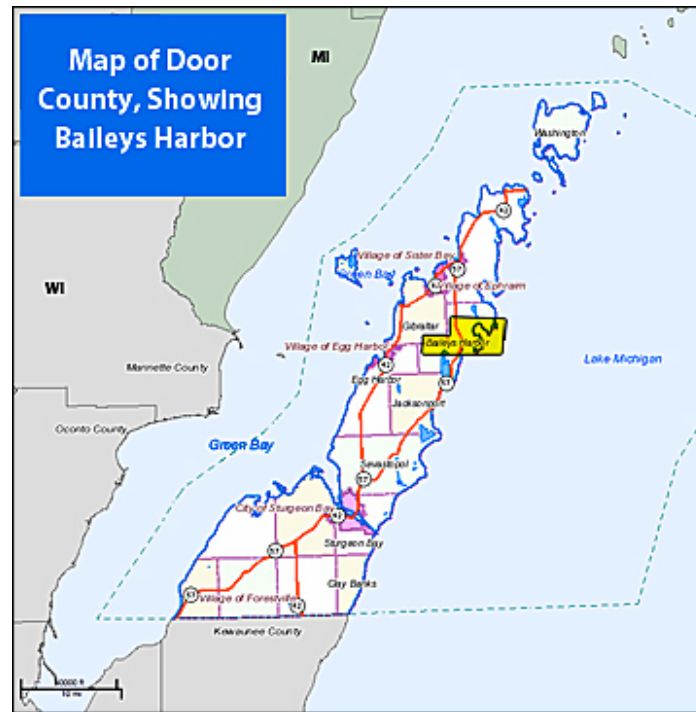


**The Ridges Ecosystem: Thirty Ancient Shorelines of Lake Michigan**



Abstract

Today we think of conservation of fragile ecosystems as a common practice, but this was not always the case. The thirty ancient shorelines of Lake Michigan that now form ridges and swales weren't of any importance to anyone in the 1930s; but then Albert Fuller (and Aldo Leopold and Jens Jensen and others) came along and changed everything. The history, landscape, unique flora and fauna, and the positive impact of the creation of The Ridges Sanctuary are the topics of this presentation. Due to the cooling winds off Lake Michigan at Baileys Harbor, the ecology of The Ridges has preserved a pocket of climate that was prevalent when the last glacier began to recede. The plants and boreal forest of that pocket do not appear anywhere else on the planet except in northern Canada and at the Arctic Circle. There is even a patch of virgin forest remaining, which has almost completely vanished from the American landscape.



### **The Ridges Ecosystem: Thirty Ancient Shorelines of Lake Michigan**

#### **Introduction**

In 1935 Albert Fuller began exploring the unique ecology of the Ridges in Baileys Harbor, WI. Discovering to his horror that the U.S. Lighthouse Service was planning to put a trailer park there, he advocated for two years, and in 1937 The Ridges Sanctuary — Wisconsin’s first land trust — was established.

After the last glacier receded, the cool winds off of Lake Michigan maintained much of the glacial ecosystem. The boreal forest (consisting mainly of white spruce and balsam fir) existing here contains plants that do not appear again until northern Canada and the Arctic Circle. Over the centuries, thirty shorelines of the Lake have been created with swales in between them, giving the land its unique “ridges”. Within this complex, over 475 plant species, including the rare ram’s-head orchid and the dwarf lake iris — as well as the federally endangered Hine’s emerald dragonfly — have been preserved, along with some of the last remaining virgin forest in America.

Today the Sanctuary encompasses 1600 acres and remains true to its original mission of preservation, education and research. The founding of The Ridges led to the creation of other important conservation organizations over the decades, and today the Wisconsin State Natural Areas Program includes “653 sites and more than 358,000 acres of land and water, protecting more than 90% of the plants and 75% of the animals on Wisconsin’s list of endangered and threatened species” (The Ridges Sanctuary, 2014).

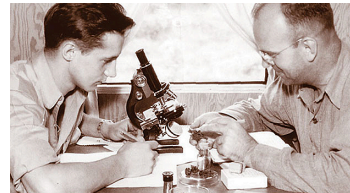


**History**

In 1935, when Albert Fuller was Curator of Botany at the Milwaukee Public Museum, he fell in love with the unique ecosystems found in Door County. He soon discovered that there was a climate pocket in Baileys Harbor that featured rare flora and fauna and began a lifelong study of what came to be known as The Ridges.



Dr. Albert Fuller



Jens Jensen

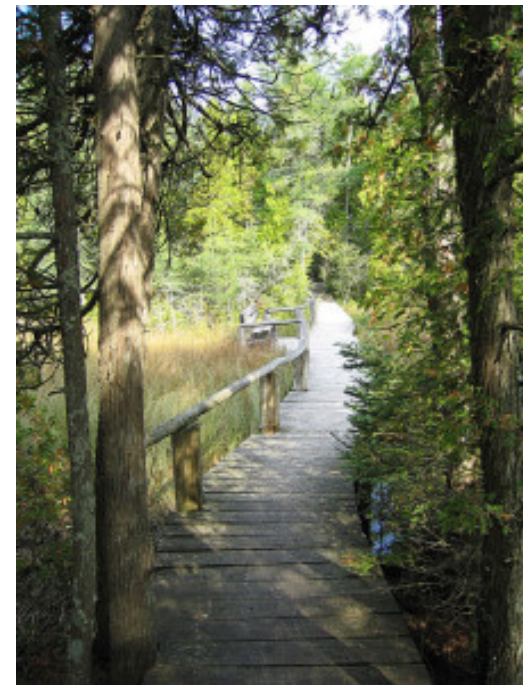
The U.S. Lighthouse Service owned the land, as two range lights had been built on the property in 1869, typical of the Great Lakes at that time. Range lights are two lighthouses with lights that must be kept aligned by a captain to keep a ship on its safest course. To his horror, Dr. Fuller discovered that the USLS was planning to put a trailer park in of the forty precious acres that hosted this unique ecosystem. Joining forces with Jens Jensen, Aldo Leopold, Emma Toft, Olivia Traven and other early conservationists, Dr. Fuller was able to create The Ridges Sanctuary in 1937: Wisconsin's first land trust; and (in 1966) the first Natural Landmark in Wisconsin.



Inspired by The Ridges, other conservation efforts took off in Door County and the state of Wisconsin. Today the State Natural Areas Program "... encompasses 653 sites and more than 358,000 acres of land and water, protecting more than 90% of the plants and 75% of the animals on Wisconsin's list of endangered and threatened species" (The Ridges Sanctuary, 2014).

Today, The Ridges Sanctuary itself has grown to 1600 acres, and continues its mission of preservation, education and research. In the 1970s in a pioneering effort, trails for the blind were added, along with many miles of boardwalks, which preserve the fragile ecosystems that flourish between the ridges and swales comprising 30 previous shorelines of Lake Michigan.

(Pictures courtesy of The Ridges Sanctuary, 2014)



**Ecology**

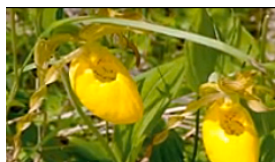
Over the past 1400 years, thirty shorelines of Lake Michigan have risen and fallen on this site. As the Lake has receded, ridges marking the original shorelines have remained, with swales (or indentations) between them, that often have remained wet and swampy. Within these wetlands — and cooled by the Lakes onshore breezes — rare flora and fauna have flourished.

In fact, after the last Ice Age ended and the glacier began to recede, the cool climate that could sustain a boreal forest has remained, due to these cooling winds. The Ridges therefore features rare species of plants that are only otherwise found in northern Canada and at the Arctic Circle; as well as unique and endangered species, including dwarf lake iris, insect-eating pitcher plants, over 25 species of native orchids — such as the showy lady’s slipper — and other wildflowers; plus the Hine’s emerald dragonfly and other insect and animal species indigenous only to The Ridges habitat. It even contains one of the last remaining stands of virgin timber in the U.S.

(Pictures courtesy of The Ridges Sanctuary, 2014)



Showy Lady’s Slipper Orchid



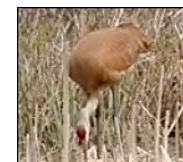
Yellow Lady’s Slipper Orchids



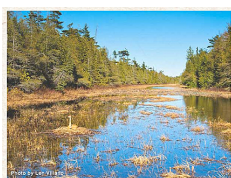
Dwarf Lake Iris



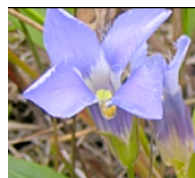
Hine’s Emerald Dragonfly



Crane



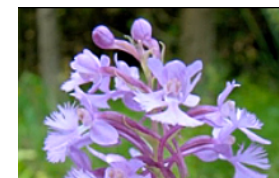
Crane Nesting in Swale



Fringed Gentian



Pitcher Plants



Purple Fringed Orchids

**Impact of The Ridges Sanctuary**

The landscape of The Ridges Sanctuary has mercifully been left alone by human habitation over the centuries, perhaps due in part to its swampy, sandy soil which is not good for farming. Even the U.S. Lighthouse Service has had little impact on the land, its two range lights containing only one small habitable lighthouse.

However, by 1935, the range lights had outlived their usefulness, and the USLS was considering turning the site into a trailer park, which would have had devastating effects on the fragile ecology of the area. Fortunately, Dr. Albert Fuller and his conservationist colleagues managed to thwart that plan, and today the State Natural Areas Program includes “653 sites and more than 358,000 acres of land and water, protecting more than 90% of the plants and 75% of the animals on Wisconsin’s list of endangered and threatened species” (The Ridges Sanctuary, 2014).

Multiple educational and research programs have furthered the cause of The Ridges, and public support and awareness is at an all-time high. The UW-Green Bay is sponsoring an ongoing study of watershed quality in the neighborhood of The Ridges, as swampland especially depends on maintaining a good balance of nutrients and metals to sustain its indigenous species. Setting a baseline now will ensure that any future changes will be monitored and (if possible) corrected. Studies of Door County’s flying squirrel population are also being conducted at The Ridges Sanctuary. Ospreys and yellow-bellied flycatchers, which are endangered in most of Wisconsin, are also protected by the work of “Citizen Scientists” who assist in collecting valuable data that will help both the region and its native species to flourish; while volunteers handle various jobs, including invasive species control.

(Picture courtesy of The Ridges Sanctuary, 2014)



Grass of Parnassus

Above all, wildflowers abound, and many people flock to see them in bloom. Special boardwalk trails protect both tourists and wildlife, and growing awareness and appreciation of this unique habitat has had the effect of spawning numerous other preservation efforts statewide and nationwide.



Partnering with local and national communities — through events such as the Ride for Nature, the Door County Festival of Nature, winter snowshoe hikes, family and children’s activities, and “citizen scientist” programs — has also increased the amount of research being done, enhanced outreach programs, raised public awareness and provided educational opportunities that lead to donations and further protection of the Sanctuary. An ongoing program of land acquisition is also part of their strategy, and in 2013 a \$1 million bequest kicked off a successful fundraising campaign.

In short, the future of The Ridges Sanctuary looks bright!

(Pictures courtesy of The Ridges Sanctuary, 2014)



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