THE RIDGES SANCTUARY

MASTER PLAN REPORT

May 2023

SMITHGROUP

pros consulting

WHY THIS PLAN, WHY NOW?

For decades, The Ridges Sanctuary has been committed to protecting the Sanctuary and inspiring others to conserve nature for future generations. Through educational experiences, land protection and management, and ecological research, The Ridges has been a resource for our community and has worked diligently to merge an impactful visitor experience with the preservation of one of the most biodiverse ecosystems in the Midwest.

The introduction of the Cook-Albert Fuller Nature Center in 2015 was monumental for The Ridges Sanctuary. Opening the doors of a visitor center brought incredible opportunity. It fostered growth in education and programming, research, and capacity to further protect the Sanctuary and inspire the next generation of conservationists. While the Nature Center has increased our ability to deliver on our mission, it has also become a limitation in our programming, research, and administrative growth and needed to be reevaluated with a fresh, holistic perspective that considered the highest and best use of all our facilities and identified potential gaps that must be filled.

In 2021, The Ridges was approached with a once in a lifetime opportunity to purchase Ridges Inn and Suites. Within two weeks, The Ridges Sanctuary Board of Directors committed to the acquisition in order to expand our opportunities and to protect and preserve a significant segment of Hidden Brook. Recognizing the magnitude of this new opportunity, we knew our best path forward was one informed by our community. We also recognized the need to focus on the strategic and sustainable growth of the organization.

With the help of SmithGroup and PROS Consulting and the input from Ridges Board, staff, members, donors, volunteers and neighbors, we have developed an inspirational roadmap that will guide the strategic growth of the Sanctuary. This plan outlines a vision for the next 20 years that is centered around protecting and managing the Sanctuary. Demand for Ridges programming has never been greater and our opportunity to engage in meaningful research and citizen science comes at a critical time. This plan serves as a comprehensive blueprint for the future and ensures we continue to deliver on our mission.

As we finalize this master plan, know that this isn't the first time The Ridges has explored its opportunities. In 1941, just four years after the formation of the organization, Jens Jensen wrote to approximately 200 members, "The Ridges Sanctuary is passing through its first crisis, that of making its true purpose understood." In many ways we are exploring that very same question – what is the purpose of The Ridges? How do we effectively deliver on our mission? What can we do to inspire the next generation of leaders? This plan answers these questions and will ensure that we proceed with strength. In order for this plan to be successful, we need YOU. Just like this plan was informed by your input, implementation will only be made possible through your support.

Andy Gill

Katie Krouse

To our Board, staff, volunteers, donors, members, partners, and neighbors:

We would like to take a moment to thank everyone that has helped The Ridges Sanctuary get to where we are today. You have committed your time, thoughts, donations, and support to The Ridges and the master planning process. Together we have built a future that we can all be proud of, and we cannot wait to continue to work with you to deliver on our mission. The Ridges is strong because of **YOU**.

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**All figures are created by SmithGroup unless otherwise stated in the caption*

"This area not only belongs to Door County but it also belongs to the people of Wisconsin, and above all it belongs to future generations."

Albert Fuller, 1937

SECTION 1.0

INTRODUCTION

1.1 PROJECT OVERVIEW

In May 2022, The Ridges Sanctuary (TRS) kicked-off a twelve-month planning process at the Festival of Nature dinner underscoring a commitment to fulfill their mission while sustaining their resource and organization for decades to come. Through this mission to promote positive environmental behaviors through impactful educational experiences, land protection and management, and ecological research, TRS has protected over 1,600 acres of land throughout Baileys Harbor and Jacksonport. As the first comprehensive master plan for TRS in its 85-year history, the scope of this study was broad and deep, responding to the evolving nature of the organization in the context of recent property and facility additions and changing member and community expectations, all through the lens of climate resiliency while honoring TRS' storied legacy. At its core, the plan seeks to preserve the Ridges that we know and love, while allowing for changes to buildings and programs that respond to the sustainable growth of the organization.

As a 20-year vision for the future, this plan is intended to guide enhanced programming, research, and outreach, as well as inform land acquisition and conservation practices. As TRS has established itself as a leader in conservation, demand for programs and education has increased and new opportunities to advance research and land preservation have come to light. The overall goal of developing a 20-year master plan is to secure these opportunities and solidify the presence of The Ridges as a critical Door County landmark and institution.

The study area encompasses the entire TRS property extents at both the Baileys Harbor and Logan Creek locations with more detailed land planning occurring for the core facilities of Baileys Harbor. To fully describe the master plan's physical recommendations as well as operational and organizational considerations, the plan is organized into a main report document with several detailed appendices, including the following primary components:

- **Overview of Process and Vision Statement –** This section describes how the master plan is grounded in a deliberate process merging creative ideas with science, seeking feedback at all stages from staff, members, volunteers, partners, and other stakeholders. Key to this initiative is an introspective look at both vision and mission statements, ensuring that this plan reflects the values of the organization and establishes a common purpose.
- **Environmental Framework –** The master plan began with extensive study of the facilities and natural resources. This summarizes key findings from the analysis, identifying opportunities and limitations for future development.
- **Site and Facilities Recommendations –** This section focuses on site and facility programming and planning at a site and district level, reuse potential of existing structures, and concepts for improved connectivity to and within the Sanctuary. Brief summaries of recommendations for land management and climate resiliency are included in this section, with further detail in the appendices as described below.
- **Implementation Strategy –** This encompasses capital costs and project phasing strategies, market and communication plan, and an update to TRS Strategic Plan.

Figure 1: Boardwalk through a Ridges swale

- **Appendix A:** Land Management Plan – This addresses TRS policy related to land management, and outlines activities to be overseen by the Land Committee, including but not limited to, survey protocols, citizen science programs, vegetation management, herbivory management, trail and maintenance access improvement, and land acquisition.
- **Appendix B:** Climate Resiliency Plan – This includes a climate vulnerability and risk assessment, discussion of a general resiliency framework and best adaptation practices from the latest regional studies completed by leading research organizations, specific targeted adaptation recommendations for two critical species at TRS, and climate strategies specific to existing and future built structures.
- **Appendix C:** Business and Operations Plan – This section includes plans for core programs and services, management and governance, and a recommended financial plan.
- **Appendix D: Market Analysis and Communications Plan:** This identifies and delineates target audiences for programming, key messages, communication platforms and venues, implementation recommendations, and desired outcomes to strengthen TRS' brand and improve outreach.
- **Appendix E: Strategic Action Plan** – This section lays out implementation strategies specific to programming, operations, management, and governance.
- **Appendix F:** Site Inventory Maps - This is a compilation of inventory data gathered during the project kickoff site visit in June 2022. The team visited several of the Ridges properties including satellite properties as well.
- **Appendix G and H:** – These sections summarize meetings and stakeholder feedback throughout the planning process.

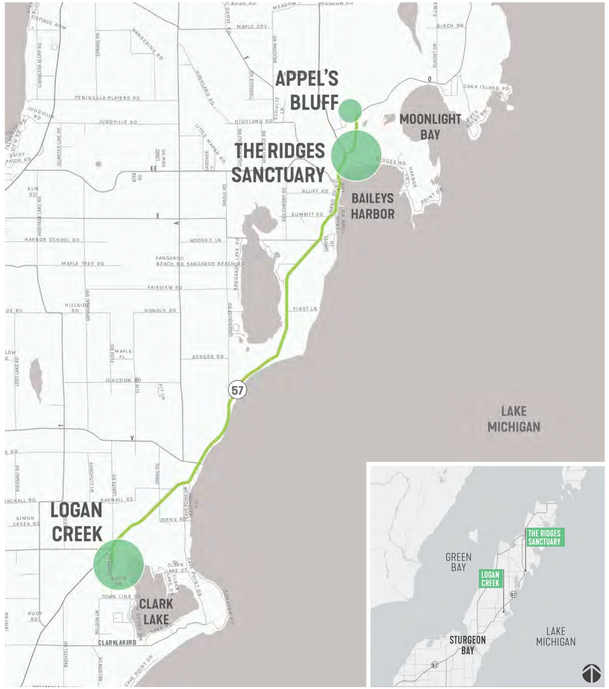


Figure 2: Regional context of TRS properties

1.2 PROCESS

The Ridges Sanctuary is like no other place or organization and required a customized planning process to guide its path forward through this master plan. This is an important moment in its storied history, with once-in-a-generation opportunities that needed to be embraced through an intentional process blending vision and scientific rigor, leveraging this moment as a springboard for the next 100 years. Great care was given to create a plan that is both forward-looking and informed by TRS' unique past and journey.

The planning team recognized the importance of a research-based, action-oriented roadmap to guide this evolution in a sustainable way while strengthening TRS' relationship with the surrounding Baileys Harbor and Door County community. TRS committed from the start to a process that was grounded by and responsive to the members and visitors who have been foundational to their success since the earliest days of the organization. Many voices make up The Ridges Sanctuary community. It was critical to deploy an inclusive and transparent process with the flexibility to engage participants that were both locally based and regionally dispersed, sometimes varying by season considering Door County's population and tourism dynamics. Further, TRS stakeholders and partners varied greatly depending on their focus on the individual mission pillars of research, education, and preservation, and required a nuanced approach to listen and share ideas with them.

As illustrated on the facing page, this led to an intentional cadence of focused workshops and engagement as the process advanced from early listening, inventory, and analysis into programming, planning concepts and ultimately this final master plan. Important engagement activities and milestones were carefully aligned with scheduled TRS events and local programs during the primary tourist months, including the Festival of Nature, educational camps, and the annual member meeting. This maximized in-person engagement, especially for early site-based tours and on-site visioning. Virtual technologies were also utilized during non-peak times to maximize member participation as alternative concepts and recommendations were shared and evaluated over winter months. Online surveys and innovative data gathering tools augmented in-person events throughout the process to broaden the member and stakeholder reach. Board members participated in many of the workshops and meetings, and a Steering Committee of the Executive Committee and senior TRS leadership provided feedback and guidance at each stage of the process, leading to final Board approval at the conclusion of planning.

Figure 3: Retreat participants review draft plans in December 2022

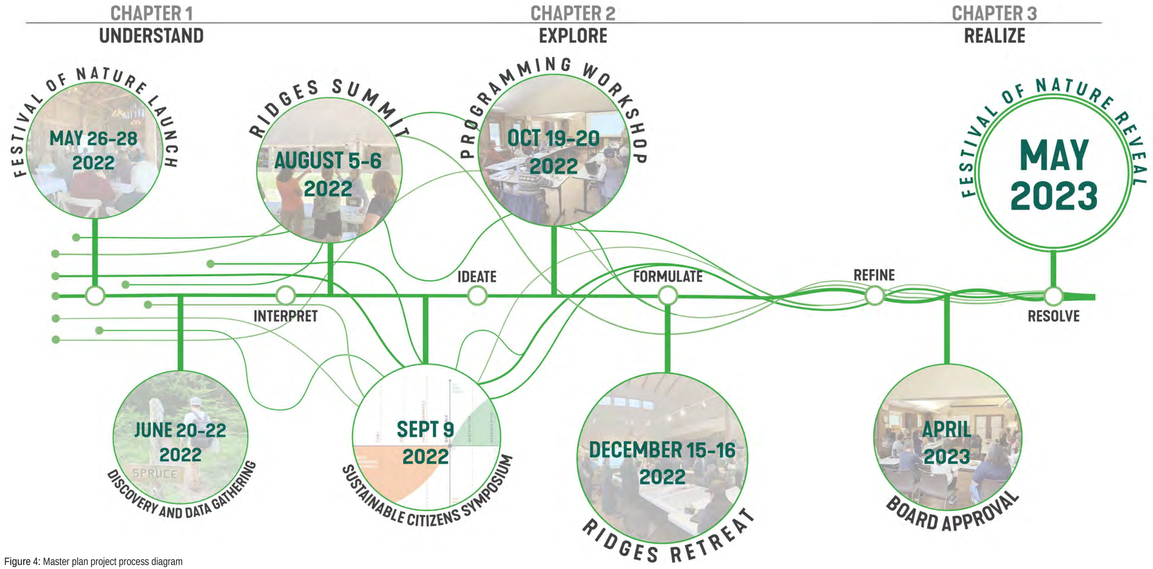


Figure 4: Master plan project process diagram

1.3 VISION, MISSION, AND GUIDING PRINCIPLES

TRS has been mission driven since its inception in 1937, consistently aligned with the pillars of preservation and education in its earliest years, with research emerging later as the organization and land holdings grew. The original Articles of Incorporation papers listed three purposes for the organization as follows:

1. "To acquire by gift, purchase or otherwise, part or all of the real estate in the area in the Town of Baileys Harbor, Wisconsin known as 'The Ridges' or 'The Bog' and to protect the native plant and animal life on the same and to preserve the same in its natural or aboriginal state; to erect fences, place signs, and make other improvements necessary to protect the property of or deemed desirable to advance the purposes of the corporation."
2. "To acquire and hold other pieces of real estate in Wisconsin and elsewhere, and to protect and preserve the native plant and animal life found thereon."
3. "To carry on educational and scientific activities which will promote the cause of conservation and preservation of wild plant and animal life and natural scenery, and to use and transfer its moneys and properties for these purposes."

As articulated in these statements, TRS has provided a voice and venue from its start to advance the pillars of preservation, education, and research in Door County and beyond. Since the original charter, this has been conveyed through articulated vision and mission statements that have changed many times over the decades to better reflect the organization as it evolved, but each iteration has consistently aligned with the three core pillars.

Through this master plan process, the vision and mission statements were extensively scrutinized and revised to communicate the purpose clearly in a way that can best serve the organization by attracting more support and resources to do its work. For context, a vision statement is intended to convey what an organization wants to be known for in the future, including existing qualities to build on, while a mission statement describes how the organization intends to accomplish that vision.

VISION

Inspiring the conservation of Nature.

MISSION

The Ridges Sanctuary promotes positive environmental behaviors through impactful educational experiences, land protection and management, and ecological research.

GUIDING PRINCIPLES

Heritage:
We honor our land and our heritage. Our lands are a unique place, a sanctuary, upon which all our actions are based. Our organizational heritage is recognized as well as the cultural histories of all those who lived on these lands before us.

Inclusivity:
All persons are welcome at The Ridges, are treated equally and with respect. We are dedicated to inclusiveness and accessibility. The Sanctuary is a place for all that supports personal reflection and wellness.

Commitment to Science:
We work as a reliable partner and voice for conservation action based on science. We proceed with integrity, honesty and objectivity rooted in the scientific process.

Community:
Board, staff, members, donors, volunteers, neighbors, partners, and visitors are all part of The Ridges family. We recognize the contributions of all people and work in a collaborative manner to achieve the vision of The Ridges. Through responsible stewardship, educational experiences, and ecological research, we build strong connections between nature and the community.

Accountability:
We are accountable to our community and our heritage. We innovate to deliver on our mission for future generations.

Figure 5: Tiny Trekkers activities at TRS

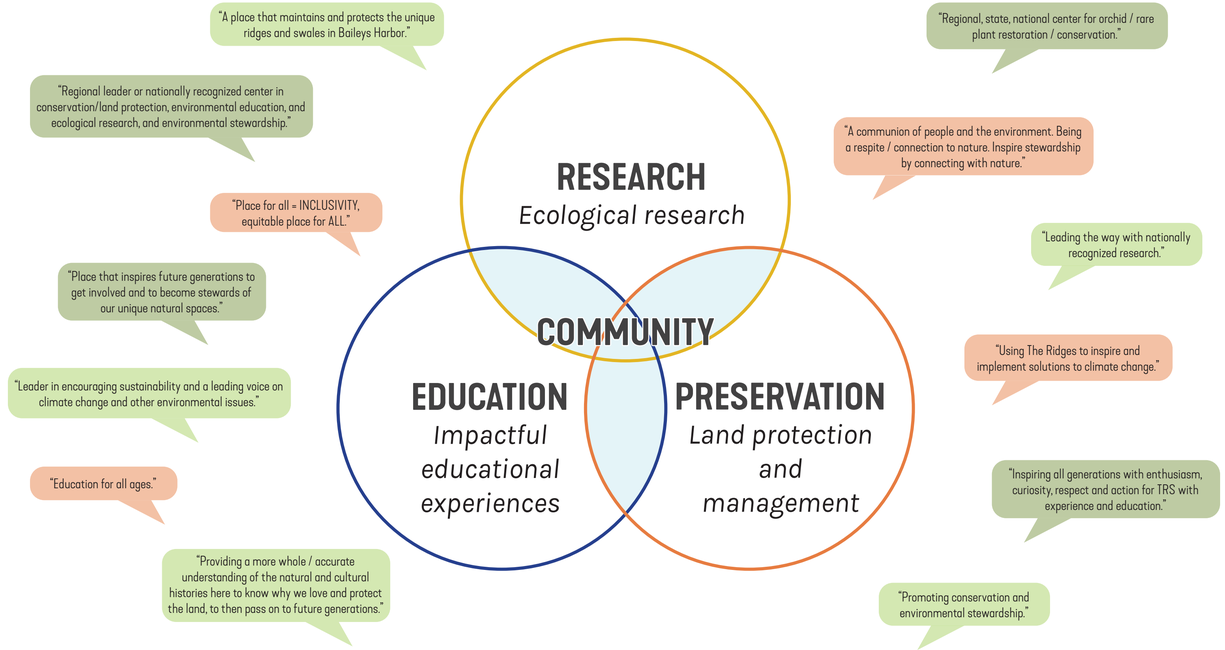


Figure 6: Diagram aligning the key pillars of the organization with themes heard through the process

1.4 MASTER PLAN OBJECTIVES

As the team advanced into more detailed planning and design, the following objectives were developed to inform this planning process and provide evaluation criteria for the recommendations in this master plan. They are also intended as a tool to be utilized by TRS as recommendations in this plan are implemented and new ideas are considered.

LISTEN TO THE LAND

Ecological capacity determines development and use intensity.

LEVERAGE DISTURBANCE

Utilize previously developed or disturbed areas for development.

LEAVE HANDPRINTS, NOT FOOTPRINTS

Employ restorative design practices on all new and renovated facilities and development.

LISTEN TO THE EXPERTS

Consider experience-based operations, maintenance, and capacity of TRS staff, volunteers, and stakeholders.

FOCUS ON PROGRAMMING OUTCOMES

Work toward measurable outcomes while remaining aligned with TRS' mission and covering costs of delivery when and where possible.

REMAIN REGIONALLY UNITED

Consider community and partner context.

Figure 7: A master plan tour group discusses the Range Light corridor during the August 2022 members meeting

Figure 8: Staff and community engage in various TRS programming

"The ever-changing plant and animal populations of The Ridges make it mandatory for us to learn more about what exists within The Ridges, what factors cause changes in numbers of rare species, and how to maintain desirable vegetation and animal numbers in all Ridges habitats."

Roy Lukes, 1988

SECTION 2.0

ENVIRONMENTAL FRAMEWORK

2.1 SITE AND FACILITIES ANALYSIS

Before programming, site, and facilities planning commenced, the planning team worked closely with TRS staff to review existing maps, data, and previous studies to identify gaps and build an inventory of both the Baileys Harbor and Logan Creek properties and facilities to be further assessed and analyzed. This data was augmented with information gathered through field visits and tours led by TRS staff and volunteers. This, coupled with parallel efforts relating to land management, programming, operations, and governance collectively provided the planning team an updated technical foundation and needs assessment for subsequent planning and design phases. This section highlights the findings from this effort.

REGIONAL CONTEXT

TRS was founded in 1937 as a non-profit corporation to protect unique wetland habitats in Baileys Harbor, in northern Door County. From the original 30 acres surrounding the Range Lights, TRS now protects over 1,600 total acres, including the main land holdings in Baileys Harbor and the Logan Creek property on Clark Lake near Jacksonport. This biologically diverse landscape consists of alternating upland ridges and wetland swales formed over 1,400 years by rebound of the Earth's crust after glaciation and receding water levels in Lake Michigan. Cool, humid breezes off of Lake Michigan sustain an isolated pocket of boreal forest with nearly 500 documented plant species including 25 species of native orchids. Over 60 species of breeding birds call TRS home, and the site is recognized as a key migratory stopover point. The site also hosts 12 threatened and endangered species, including the Hine's emerald dragonfly.

Acknowledging the ecological significance of this biodiverse habitat, TRS is part of 11,443 acres of the Door Peninsula Coastal Wetlands complex listed as a Ramsar Wetland of International Importance. Immediately east of TRS' property in Baileys Harbor is Toft Point, a 732-acre State Natural Area owned by the University of Wisconsin-Green Bay and The Nature Conservancy. Also bordering TRS to the north is the Mud Lake Wildlife Area, a 2,290-acre State Natural Area owned by the DNR. The Ramsar Wetland extends further up the coast to the tip of the peninsula, including Newport State Park, the Mink River Estuary, Rowleys Bay, North Bay, Spike Horn Bay, Cana Island, and the Ephraim Swamp, with landholders including Door County, The Nature Conservancy, the Door County Land Trust, and the State of Wisconsin. Similarly, TRS' Logan Creek property shares the shoreline of Clark Lake with Whitefish Dunes State Park, as well as the members of the Clark Lake Advancement Association. The strong partnership of these various public and non-profit organizations creates a network of collaboration for advancing regional land management and protection of the natural resources

TRS has been honored with several titles recognizing its regional and worldwide significance, including the following designations:

- Wisconsin's first Land Trust (1937)
- Wisconsin State Natural Area (1953)
- National Registry of Natural Landmarks (1967) – TRS was the first National Natural Landmark in Wisconsin, and is now jointly listed with Toft Point and Mud Lake.
- Range Lights listed on the National Register of Historic Places (1989)
- National Audubon Society Important Bird Area (2007)
- Logan Creek State Natural Area (2007)
- Wisconsin Wetland Gem (2009)
- Certified by the Organization of Biological Field Stations (2013)
- Ramsar Wetland of International Importance (2015)
- LEED Gold Certification for Cook-Fuller Center (2017) – The Nature Center was the first LEED certified commercial building in Door County.
- In partnership with Town of Baileys Harbor, TRS is recognized by Bird City Wisconsin.
- Logan Creek is also designated as an Outstanding Water Resource.

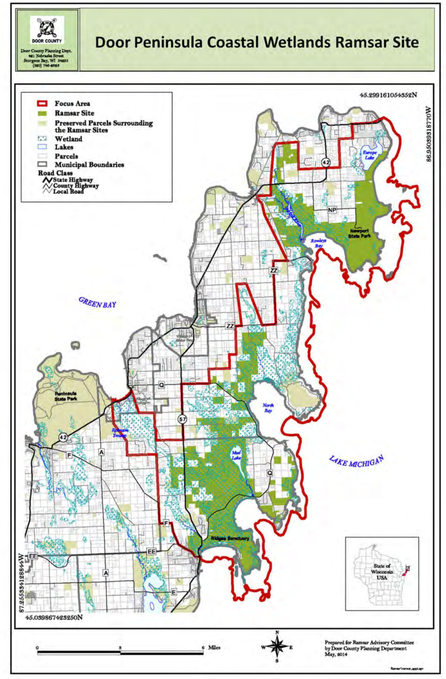


Figure 9: TRS is a key part of an internationally recognized biodiverse natural area

A BRIEF HISTORY OF THE RIDGES

The Ridges Sanctuary today represents a brief moment in time built upon a rich legacy over 150 years strong. The timeline below highlights key milestones and developments that helped shape TRS as it is today.

The Range Lights were constructed in 1869 to aid navigation into Baileys Harbor. In 1935, in an effort to disperse surplus property to local hands, Congress deeded a 30-acre property surrounding the Range Lights to Door County. The County initially sought to develop this property into a trailer park, but public outcry led concerned citizens to establish TRS to preserve the ridges and swales in their natural state for perpetuity. When TRS was founded in 1937, Door County determined that their deed from Congress could not be transferred to another party. Thus, Door County retains ownership of the original 30-acre parcel, while TRS operates it under a long-term, 99-year lease, officially established in 1990. The lease excludes the Ridges County Beach and parking lot, which are still maintained by the County.

The original entrance to the trail system in the Heart of the Ridges was from Ridges Road near the Lower Range Light. In 1973, a parking lot and entrance was constructed off Highway Q, and the Kaye Cabin was moved to the property to open as the first Nature Center in 1975. Development of the North Campus continued with the construction of the restroom building in 1976, the relocation of the Marshall Cabin to the site in 1983, and the addition of the Workshop in the early 1990s. The 1990s also saw the initial purchase of the Logan Creek property with assistance from The Nature Conservancy and the DNR Stewardship Grant program.

Over the past two decades, the Baileys Harbor campus has expanded to include the Family Discovery Trail located just west of Highway 57 as well as the Appel's Bluff Trail north of Highway Q. As these properties are more highly disturbed by previous human use, they offer different opportunities to expand program offerings that may not be appropriate in the Heart of the Ridges. In 2015, TRS constructed the Cook-Fuller Nature Center as the gateway to the Sanctuary, followed by the Hidden Brook Boardwalk connecting the Nature Center to the historic Range Light corridor with an accessible path. TRS also recently completed a project to restore the Range Lights. This process began in 2013 with the relocation of the Lower Range Light 15-feet further from the edge of Ridges Road to protect it from traffic, continued with restoration of the Upper Range Light and outbuildings, and finished with reconstruction of the path connecting the lights with an accessible boardwalk in 2022. In 2022, TRS added the adjacent Ridges Inn and Finell properties to their land holdings.

SITE AND FACILITIES INVENTORY

Over a four-day workshop in June 2022, the planning team conducted an inventory of TRS' properties and existing facilities. In conjunction with the program assessment, the compiled notes from the inventory tour were validated against previous studies, stakeholder interviews, an online survey, and mapping exercises, in order to assess strengths and weaknesses of the existing facilities. The main facilities are as shown on Figure 11 on Page 12, with maps showing the results of the full inventory included in Appendix F.

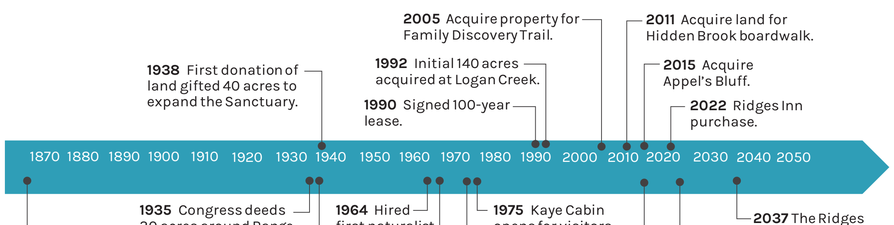


Figure 10: The recorded history of TRS spans over 150 years

Credit: Top photo by The Ridges Sanctuary

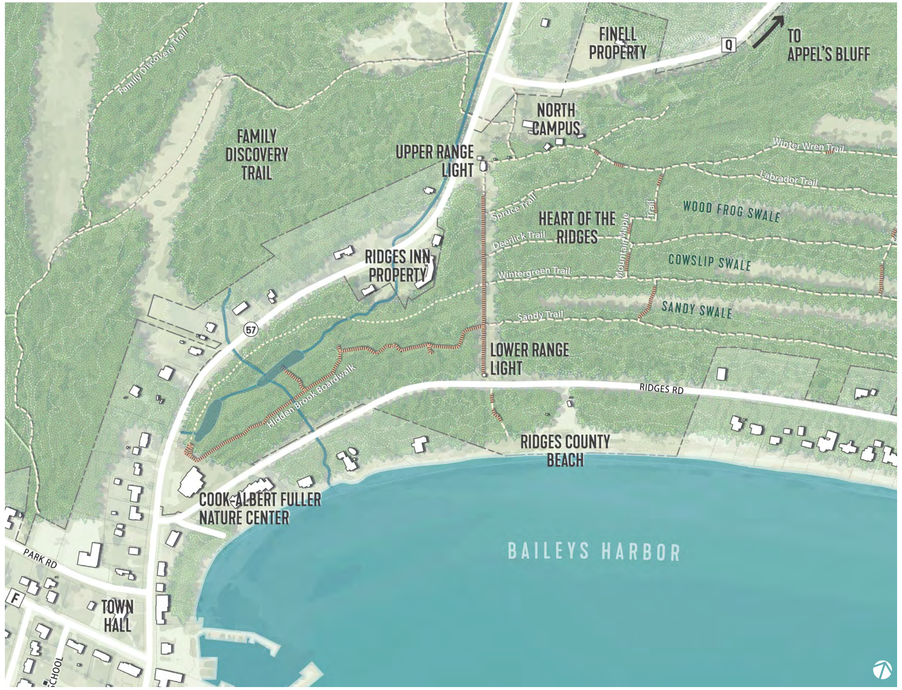


Figure 11: Primary facilities at the Ridges at Baileys Harbor

KEY CONSIDERATIONS

The inventory identified several key considerations for the master plan regarding future facility placement:

- There is no public water service available, so all facilities are served by on-site wells. A well located at the North Campus serves the restroom and the Upper Range Light, with individual wells serving the Finell property, the Ridges Inn, and the Nature Center.
- Public sewer service is available on Ridges Road and along Highway 57 as far north as the Upper Range Light, including the Ridges Inn property. The North Campus and the Finell residence are currently on private septic systems.
- Internet service can be intermittent at the Nature Center. Cellular phone service can also be challenging in many of the remote areas of the site, including the trail network in the Heart of the Ridges.
- Parking remains a challenge in the summer months. The Nature Center lot is often full. However, there is nearby parallel parking along streets in Baileys Harbor. The Ridges Inn has two separate small parking lots, but does not have enough room to accommodate large events at this location.
- Door County zoning ordinances restrict redevelopment of the Ridges Inn. Given required setbacks from Highway 57, Hidden Brook, and wetlands adjacent to the property, horizontal expansion of the existing buildings may not be feasible. However, zoning does allow for remodeling or reconstruction within all of the existing building footprints, as well as vertical expansion for portions of any buildings currently located outside the highway setback.
- The Nature Center administrative space is overcrowded, lacks an appropriately sized staff conference room, and has challenges with mitigating noise transfer between spaces.
- The Discovery Room in the Nature Center is undersized and poorly configured to host larger group events. Although the exhibit space is larger, it lacks proper acoustics and flexibility for table configuration, and the lack of controlled access necessitates closing the Center to visitors during an event.
- Additional facilities at the Family Discovery Trail, Logan Creek, and Appel's Bluff require negotiation with the DNR to amend the Knowles-Nelson Stewardship Grant restrictions for these properties.
- Improvements within the original 30 acres will require negotiations with Door County, as outlined in the 1990 lease.

Figure 13: Stakeholder feedback was solicited throughout the planning process from members, visitors, staff, and volunteers

2.2 STAKEHOLDER FEEDBACK

In addition to the above mentioned technical inventories and analysis, extensive outreach throughout the process gathered input from project stakeholders, including TRS members, volunteers, Board members, and staff, as well partner agencies and individuals. This was done through in-person meetings and tours as well as online and paper surveys. All meeting notes and comments received through these conversations and engagements are included in Appendices G and H, and several quotes received from participants are highlighted on the following page.

Figure 12: Word cloud generated from online survey responses on issues to consider during the planning process

Figure 14: Illustrative photo of the Range Lights at night

"Keep the ecological significance of TRS at the forefront of the project."

"The Ridges is a confluence of history, ecology, and education. There are so many opportunities for the organization to be a state and national leader in areas such as research, education, accessibility, conservation, etc."

"Be open to change, but don't lose core values."

"Connect people with nature."

"We planned to spend an hour. It turned into three. Then we came back two days later for a tour. Completely changed this vacation and all future Door Co vacations."

"As a member and volunteer we have a sense of ownership."

"It is a sanctuary, not a crowded tourist attraction. The atmosphere should be quiet, respectful and even reverent."

"Inspire the next leaders."

"Be financially frugal so the Ridges doesn't incur more debt than it can handle."

"Work with landowners along your borders. Monitor the flora and fauna and your water quality closely and look for solutions for any declines. Encourage research."

"Be sure to address climate change vulnerabilities and resilience and adaptation strategies and the challenges of stewarding the land. Also address the potential adverse impacts of likelihood increased visitors, use of trails and off-trail incursions."

"Acquire key parcels that are important to protect the lands we already have."

"Expand outreach virtually."

"Let some land be - not everything has to be open to the public."

"Think 'Orchid Research Center' for the western Great Lakes region when making plans for the Ridges Resort."

"The high need for seasonal housing for researchers and field stewardship staff has been a common priority amongst the conservation and research organizations in northern Door County for years."

"Model green energy."

"Keep our boreal forest BOREAL!"

"Encourage community level climate action."

"Leverage existing relationships at the professional, volunteer, and community levels."

"These projects require, in fact depend upon, input and support from multiple conservation partners working collaboratively to achieve success on projects that are beyond what any one group can achieve."

"Advocacy! Taking a stance and educating the public on environmental issues in our community and in Wisconsin."

Credit: Diagram: SmithGroup, Photo: Paul Lurie

Figure 15: Context diagram of TRS facilities at Baileys Harbor

2.3 OPPORTUNITIES AND LIMITATIONS

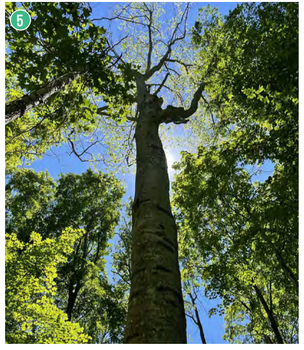
Findings from both the site and facilities analysis and the stakeholder input efforts were summarized for review and input from TRS Board, staff, volunteers, and members at meetings scheduled around the annual member meeting in August 2022 (See Appendix F). This timing also provided the opportunity for the general public to comment on the findings and provide ideas for the master plan during the primary tourism season. Observations from the analysis were organized into five categories, with the following major takeaways with keyed images outlining opportunities and limitations to consider during the master plan:

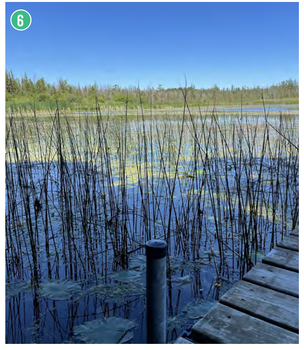
EDUCATION AND PROGRAM

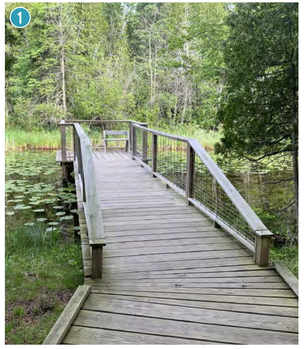
1. Assess and validate the best uses for the Nature Center, North Campus, Ridges Inn, and Finell property facilities, given the over-crowded conditions in the Nature Center.
2. Revisit the land acquisition strategy, including policies, priorities, and practices for purchasing land or accepting donated parcels.
3. Consider additional trail loops at Family Discovery Trail.
4. Evaluate the program for Logan Creek: Expand with additional facilities, maintain the current status, or assess whether to embrace an outside partner to jointly manage the property.
5. Establish shoreline management strategies and demonstration projects.

RESEARCH / ECOLOGICAL HEALTH

1. Organize records of past land management activities and establish procedure for future management efforts.
2. Provide Citizen Science and research programs with their own space, instead of being constrained in the Nature Center offices and the Upper Range Light shed.
3. Determine frequency of monitoring visits for all areas of the Sanctuary.
4. Coordinate land management with adjacent efforts at Toft Point and other neighbors.
5. Assess and manage the impacts of canopy openings from tree loss due to beech borer, hemlock disease, emerald ash borer, and other threats.
6. Further integrate lake and creek shorelines into research and management activities.
7. Develop "caution" signage for research areas near trails.

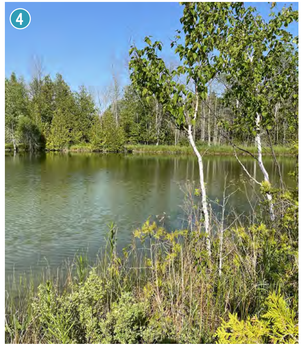


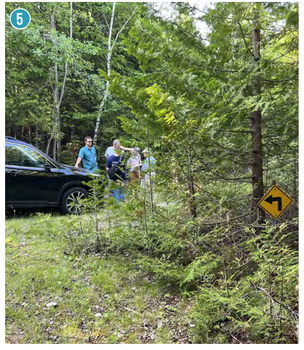




WAYFINDING AND ACCESS

1. Integrate connection to the Ridges Inn from Hidden Brook / Range Lights / Nature Center.
2. Consider highway signage to note "Entering The Ridges Sanctuary."
3. Improve wayfinding issues noted at:
   - Family Discovery Trail,
   - Appel's Bluff Trail,
   - Lower Range Light Entrance,
   - North Campus vs Nature Center exit.
4. Decide whether to open new areas to public access or to limit use, such as Peil Pond, Appel's Bluff quarry ponds, Moonlight Bay, etc.
5. Confirm access easements for TRS to access parcels through property owned by others, and other's easements for continued use of parcels owned by TRS.
6. Determine access for land management of remote areas.





FACILITIES CONDITION

1. Establish a boardwalk replacement program, including design standards for different hierarchies of trails.
2. Evaluate alternatives for non-skid surfacing of boardwalks.
3. Review accessibility issues at North Campus Cabins, the Workshop, and restrooms.
4. Repair or replace restrooms at North Campus.
5. Assess physical condition of Finell Property and the Ridges Inn to determine the appropriate future use of structures.

SAFETY AND CODE ISSUES

1. Address crossing Highway 57 and Q to the Family Discovery Trail.
2. Assess safety of parking lot exits to Highway 57.
3. Establish safe pedestrian connectivity around the TRS periphery and between adjacent facilities.
4. Understand emergency access points to the trail system.
5. Recommend safety protocols and training for volunteers to use the Workshop and other tools.
6. Develop design standards to replace guardrail infill panels with code compliant material.
7. Assess hunting policies, including requirements created by grants used to acquire property.
8. Evaluate the need to address hazard trees along trails.

"It should not be hard to understand why The Ridges should be saved. We must save them for future generations. They cannot be manufactured...For its importance to mankind, for its beauty and for the story it tells."

Beverly Anclam, 1937

SECTION 3.0

SITE AND FACILITY RECOMMENDATIONS

3.1 PROGRAM PLAN SUMMARY

Programs and the educational experiences they offer are an integral part of TRS. They are the open door through which TRS can amplify impact, add volunteers, increase membership, and strengthen relevancy within the community and region. The three pillars of TRS' mission - Education, Research, and Preservation - all offer opportunities for programs to build on. This study analyzes TRS' existing programs and provides recommendations to better define the most impactful programming TRS may offer to align with the mission, vision, and guiding principles of the organization.

Through implementation of this plan, programming will deliver inclusive and inspirational educational experiences, support land protection, and establish strong connections to ecological research. Partnerships will work to strengthen programs and amplify the voices in the community for conservation action based on science and the principles of climate resiliency. In addition, programming will provide increased income, increased membership, and increased beneficial impacts at TRS and in the region.

Focused on lifelong learning, programs aim to cultivate a commitment to improving the environment and reducing the impacts of climate change by engaging with all ages through partnerships, participation, and memberships.

The following summarizes key program and educational recommendations. A full copy of the Program Plan is included as part of the Business and Operations Plan in Appendix C.

KEY PROGRAM RECOMMENDATIONS

The following key recommendations (see pages 21-22) are the prevailing prospects noted by the Consultant Team given the current operating circumstances and the potential opportunities at TRS. Considering TRS' mission to promote positive environmental behaviors through impactful educational experiences, land protection and management, and ecological research, the programs will be a clear mechanism for TRS to be a reliable partner and voice for conservation action based on science and the principles of climate resiliency. Note, please refer to Appendix C for additional recommendations not referenced in this summary.

Credit: The Ridges Sanctuary

Credit: The Ridges Sanctuary

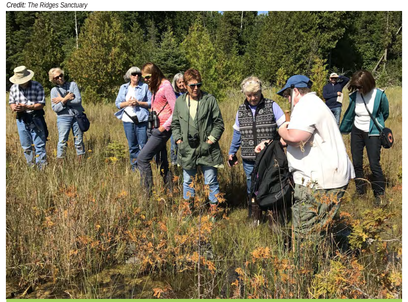
Credit: The Ridges Sanctuary

Figure 16: Youth programs at TRS reach children of all ages

ALIGN ORGANIZATIONAL STRUCTURE AROUND OPTIMAL PROGRAM DELIVERY

While the existing program areas and types provide a well-rounded and diverse array of programs, a clear organizational structure would help streamline the efficiency of the delivery of the programs. A department structure with clear responsibilities will help TRS provide more consistent programming to its community and relieve staff loads.

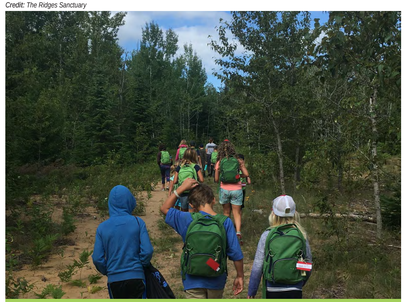
Credit: The Ridges Sanctuary



EVALUATE PROGRAMS ACROSS MULTIPLE PERFORMANCE METRICS

TRS can use the opportunity offered by the master planning process to reinstitute a comprehensive program evaluation process for all TRS programs in the future. Through a formal process of evaluation internally and externally by partner leaders and participants, TRS will have the information needed to deliver the most impactful programs that support its vision, mission, and guiding principles. Annually reviewing the full suite of programs offered will allow TRS to hone programs to meet community needs, design them for maximum impact and analyze those programs in terms of their lifecycle and impact.

Credit: The Ridges Sanctuary



FORMALIZE CURRICULA FOR SCHOOL PROGRAMMING

TRS can better serve local schools with formalized curricula for school programs. Using national models and adhering to State of Wisconsin science curriculum requirements will ensure that students attending programs meet all their learning needs. Sharing the development of scholastic programming with teachers and having a formal structure for volunteer 'Teacher Naturalists' will increase the commitment of partners and the value of the programming.

Credit: The Ridges Sanctuary

DIVERSIFY PROGRAMMING ON MULTIPLE DIMENSIONS

Currently, TRS often provides its program participants with a variety of 'one-off' programs. Many of these are specifically geared toward younger participants. Throughout the engagement process, a need for a diversification of programming both to a larger variety of participant age groups and the length and intensity of the programs was noted. There is a great potential to diversify programming on multiple dimensions that range from adding opportunities for school children through high school and university partnership programs to immersion programming for adults.

Credit: The Ridges Sanctuary

FOCUS ON OUTCOMES VERSUS OUTPUTS

TRS staff assembled the list of programs offered and there are many. After reviewing the number of programs as well as the types, it is clear that there has not been enough focus on the actual outcomes of the programs. The impact of specific programs on the community, their connection to the Vision and Mission of TRS, and the direct conservation impacts they provide needs to be an integral part of the program development. Focusing on the outcomes of programs will help TRS decide what programs are most impactful and which programs to continue to offer, as well as potentially expand on those programs' potential for diversification and opportunities to increase their dimensions.

It is critically important to work toward measurable outcomes in alignment with TRS' mission. TRS' programs should be intentional toward:

- Educational experiences,
- Land protection and management,
- Ecological research,
- Being a voice for conservation action, and
- Being based on science.

Credit: The Ridges Sanctuary

PROGRAMS AND COST RECOVERY

With assistance from staff, a classification of programs and services was conducted that showed that the majority of the programs offered fell into the 'essential' and 'important' categories for TRS. As TRS continues to evolve to better meet the program needs of the community, expand to a diversity of audiences, and add dimensionality to programs, there will be an added benefit to managing the program loads and audiences if cost of service and cost recovery for those programs are included. Tracking true program costs and identifying specific cost recovery opportunities will be critical to the financial health of TRS going forward .

PROGRAM OPPORTUNITIES

The following program areas are identified as future growth programs for TRS. Each of these will incorporate the areas TRS has focused on in this plan, will use the expanded facilities, and will increase income for TRS through direct fee charges, grants, and donor support.

Credit: 1-5:The Ridges Sanctuary, #6 Doorcountypulse.com

YOUTH SERVICE PROGRAMS

There are many examples available for youth service programs across the country. Wisconsin has a Youth Congress that is active in Sturgeon Bay and Egg Harbor. Developing a formal partnership with DNR to make TRS a site would be a possible opportunity.

IMMERSIVE CONSERVATION FIELD EXPERIENCES

Immersive conservation field experiences can include student groups such as the members of ecology clubs. It can also be a program that connects to technical programs in schools such as forestry, land management, or agriculture. When these students need credits for community service, they can learn from TRS' land management team and assist with land management.

CITIZEN SCIENCE

Everyday citizen participation in 'crowd sourcing' data is being used across the globe to assist in gathering information on all kinds of projects. TRS can expand their current offerings in citizen science programs. Opportunities abound from bird counts to wildlife monitoring, to rain and weather data gathering as well as adding to the national database of iNaturalist.

SPECIAL POPULATION PROGRAMS

To even more deeply engage diverse participants in environmental immersion and education, there are many opportunities to craft specific programs that are specific to a particular population's abilities. Designing connections to non-traditional learning that is a way to bring more diverse audiences to TRS.

CONSERVATION EXCURSIONS FOR MEMBERS AND ECO-TOURISM

Conservation excursions and eco-tourism can work both from TRS and to TRS. As we can tell from the survey completed for this Master Planning project, folks who become members of TRS do so for several reasons. Specific excursions and larger eco-tourism opportunities can be developed that specifically relate to the Vision and Mission of TRS.

LANDOWNER ENGAGEMENT PROGRAMS

TRS can design and implement many different opportunities for landowners that are specific to Door County and TRS' ecosystem. Landowner engagements typically focus on both educating landowners on land management for their specific properties and general principles of good habitat management including invasive control and principles of managing for a diversity of species.

3.2 OVERALL FACILITIES STRATEGY

USER PROFILES

During initial land planning efforts, the site and building programs were considered in the context of typical daily users. Creating user profiles to represent specific groups that interact with TRS facilities allows the planning team to better understand different users' experiences and behaviors. Each user's unique needs and patterns of how they view TRS were considered, as well as considerations of synergies or relationships between the user groups that could drive the location and configuration of facilities within the Sanctuary. To demonstrate this process, the user profiles illustrated in this report include a typical visitor, educator, temporary resident researcher, administrator, and Wednesday Crew volunteer. Given the complexity of TRS, there are multiple additional users that were considered during the planning process, ranging from a front desk volunteer to a guided hike leader, and a Tiny Trekker to a citizen scientist stream monitor. The following diagram and images show just a few examples of the movements and experiences analyzed during the user exercise.

Figure 17: User profile diagram

Credit: The Ridges Sanctuary

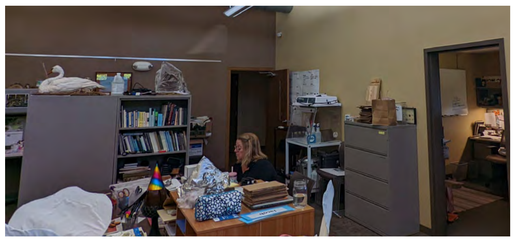
EDUCATOR

Credit: The Ridges Sanctuary

WEDNESDAY CREW

Credit: The Ridges Sanctuary

RESEARCHER



ADMINISTRATOR

VISITOR

SITE AND BUILDING PROGRAM

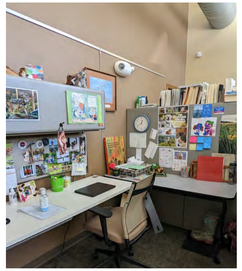
The before-mentioned information on programs and users was utilized to develop a site and building program that quantifies the number and size of spaces and facilities that will be required to accommodate TRS' future needs, including the future program and educational offerings described above. This is generally organized into the following categories that were used for land use and conceptual planning, as illustrated on the master plan diagrams:

- **TRS Staff and Volunteers**, inclusive of office and administrative space, and associated meeting and support needs.
- **Community/Outreach**, including the Nature Center and other visitor amenities, and supporting meeting spaces for larger scale community engagement and programs.
- **Educational Programs**, inclusive of indoor and outdoor classrooms and related support amenities.
- **Research,** including laboratory and lodging, citizen science, and related support space needs.

Based on future projections, the most critical space needs were analyzed and became the land planning drivers that guided the concepts described later in this chapter. These include:

- The need for additional administrative and support space to accommodate projected TRS staff and volunteer growth.
- Office, lab, and support space to properly accommodate research and citizen science, including the potential for partnership resident research programs requiring lodging.
- The need for dedicated and flexible indoor and outdoor education space, including storage and restrooms.
- The need for a larger multi-purpose community room that is properly sized, flexible, and adaptable to changing demands throughout the seasons to accommodate more than what the Nature Center Discovery Room is currently capable of.

COOK-ALBERT FULLER NATURE CENTER



Administration
(2) - Permanent Workstations
(6) Flex Workstations
(1) Conference Room
(1) Kitchenette
(1) Storage Area

Retail
(1) Nature Store [existing]
(2) Storage Rooms [existing]

Educational Programs
(1) Multipurpose Community Room
(1) Catering Kitchen
(1) Interpretive Space [existing]
(1) Gallery Space [existing]
(1) Reception [existing]
(2) Gendered Restrooms [existing]
(1) Unisex Restroom [existing]

NORTH CAMPUS

Educational Programs
(1) Indoor/Outdoor Classroom
(3) Unisex Restrooms
(1) Educational Supply Storage Room
(2) Cabins [existing]

Maintenance
(1) Workshop
(1) Storage Area
(1) Outdoor Work/Demonstration Area

FAMILY DISCOVERY TRAIL

Educational Programs
(1) Outdoor Education Pavilion
(3) Unisex Restrooms
(1) Storage Room

THE RIDGES INN

Administration
(20) Workstations
(2) Conference Rooms
(2) Private Meeting Rooms
(1) Break Room, includes Kitchen
(1) Storage Room
(1) IT Room
(2) Unisex Restrooms [dependent on final Sq. Ft.]

Lab
(1) Flexible Lab Space
(1) General Lab Storage
(1) Citizen Science Lab
(1) Chemical Storage
(1) Garage

Lodging
(8) Rooms [varying room types]
(1) Group Dining Hall
(1) Group Living Room
(1) Reception

RIDGES COUNTY BEACH

Educational Programs
(2) Restrooms [existing]
(1) Flexible Interpretive Space

Figure 18: Program spaces listed by proposed future location

COMMUNITY EVENTS

The range of TRS meeting and event types and sizes vary throughout the seasons, necessitating a community-scale approach to best accommodate anticipated activities at the Sanctuary. As mentioned above, the team's analysis suggests that the current meeting spaces in the Nature Center are undersized and lack the flexibility to accommodate many of the larger or simultaneous events TRS wishes to host without significant disruption or closing the Nature Center. As the primary community portal, it is recommended that the Discovery Room multi-use space be upgraded to accommodate groups up to 75 to 100 people, augmented by an adjacent open-air shelter as envisioned in the original 2013 TRS Interpretive Master Plan for additional outdoor programming and activities. For larger groups, it is recommended that TRS continue to partner with the Town of Baileys Harbor for use of Town Hall, and other suitable Door County venues for groups above the Nature Center's capacity. Plans for the North Campus complement the Nature Center by including a pavilion with classroom space that can flex in warmer seasons to accommodate larger groups.

Figure 19: Festival of Nature dinner, 2022

SUSTAINABLE BUILDING STRATEGIES

ADAPTIVE REUSE

As voiced throughout the planning process, the greenest building is one that already exists, so in this context the team placed a priority on adaptive reuse of existing structures, including recommended renovations to TRS buildings like the Nature Center and recent acquisitions like the Ridges Inn. This approach requires due diligence to address feasibility of adaptive reuse versus new construction. Highlights of potential adaptive reuse to explore include:

- **Cook-Albert Fuller Nature Center –** The Nature Center is a wonderful facility and relatively recent addition to TRS that elevated the community presence and capabilities of the organization. As a LEED Gold certified building, it set a high bar in Door County for sustainable design that this plan applauds and attempts to build upon, as TRS aims even higher as an environmental leader and voice for regenerative design. Recommendations in this plan do not scrap the Center's original design, rather they illustrate an informed approach after a decade of use data to make the building even more sustainable and effective at fulfilling its core community functions within its current footprint. A particular focus is adapting the building to accommodate a larger, more flexible version of the existing Discovery Room and gallery space to accommodate the wide range of programs and events to be hosted by TRS. The plan seeks to integrate this multipurpose space without impacting simultaneous educational, retail, or other daily functions, and avoid the frequent shutdown of the Nature Center for larger events that occur in its current configuration. The larger capacity creates the opportunity to host additional community functions that increase awareness and potentially bring new members into the organization, as well as opening TRS to expanded revenue-generating activities that help financially support operations and other critical functions.
- **The Ridges Inn –** A two-pronged approach is planned at this property. The majority of buildings outside a 50-foot buffer to protect Hidden Brook are recommended for adaptive reuse as part of the Research Campus described later in this section, while buildings within the brook buffer are recommended for relocation and reuse elsewhere at TRS or other complementary Door County locations.
- **Finell Property –** Further analysis is needed to determine the adaptive reuse potential of the existing Finell house and garage. Should their reuse potential be minimal as preliminary study suggests due to structural and other impairments, this property could be a logical recipient of relocated Ridges Inn structures that could be adapted to meet the lodging and other programming outlined for this property in the Education Campus later in this section.

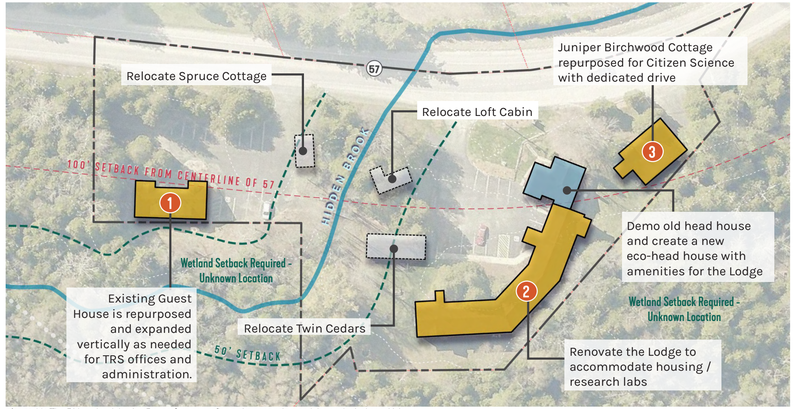


Figure 20: The Ridges Inn Adaptive Reuse Strategy reflects site constraints and the ecological sensitivity of Hidden Brook

Figure 21: Adaptive reuse opportunities with existing structures at Ridges Inn and Finell Property

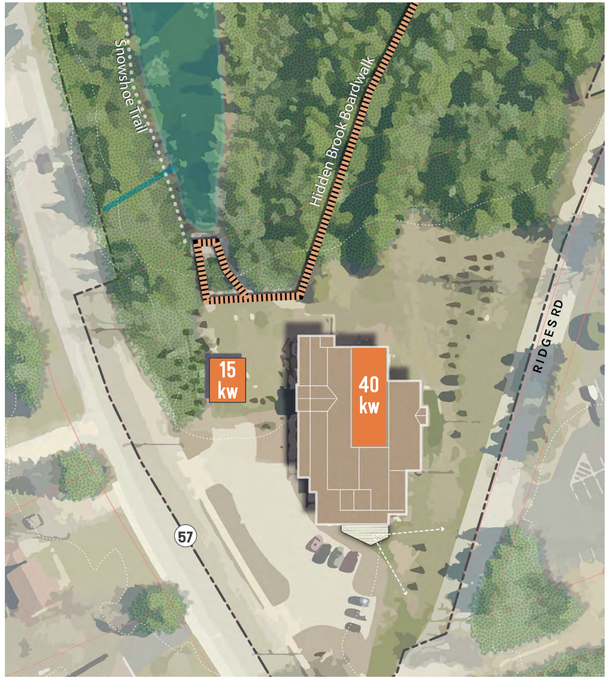


Figure 22: Concept for photovoltaic array at the Nature Center

REGENERATIVE DESIGN

Regenerative design goes beyond doing less harm, instead crafting solutions that repair natural and human systems, creating restorative, net-positive impacts that result in improved social and environmental conditions. Some of the standards associated with regenerative design include:

- Meet entire energy needs through on-site renewable energy.
- Meet entire water needs through captured rainwater or wastewater.
- Treat all wastewater and stormwater onsite.
- Enhance human health.
- Enhance habitat and local ecology.

As the team applied these strategies to TRS facilities, the following summarizes key recommendations, with additional details provided in Section 3.6:

- Bird-Friendly Glass – All improvements to buildings at TRS will use bird-friendly glass to reduce strikes, including the Nature Center, Ridges Inn, North Campus cabins, and other new facilities. To a bird, reflections on glass look like a continuation of habitat and they try to fly right through. Since birds do not perceive glass as an object, bird-friendly glass has a pattern or design on the glass itself to alert them of the solid barrier. TRS should highlight these window replacements as a demonstration project to educate visitors about changes they can make to their own properties to protect our feathered friends.
- **Cook-Albert Fuller Nature Center –** The master plan highlighted the following enhancements that could be made to the existing nature center to build upon its existing collection of sustainable strategies associated with its LEED status:
  - **Net Zero Energy**: Add photovoltaic arrays that meet all power needs for the building.
  - **Net Zero Water:** As part of photovoltaic installation, consider changing a portion of the roof to standing seam metal, to enhance rainwater harvesting.
  - **Enhance Human Health:** Replace certain windows as appropriate to be operable and allow for natural ventilation while also providing a better connection to the water.

- **The Ridges Inn and other new building facilities –** The master plan establishes a goal for the renovation of the Ridges Inn property and all other planned new structures to meet the Living Building Challenge℠. According to Living Building Challenge 4.0, Living Buildings are:
  - Regenerative buildings that connect occupants to light, air, food, nature, and community.
  - Self-sufficient and remain within the resource limits of their site.
  - Create a positive impact on the human and natural systems that interact with them.

The Living Building Challenge℠ is an attempt to dramatically raise the bar from a paradigm of doing less harm to one in which we view our role as a steward and co-creator of a true Living Future. The Challenge defines the most advanced measure of sustainability in the built environment today and acts to rapidly diminish the gap between current limits and the end-game positive solutions we seek. Projects that achieve Living Building® certification can claim to be the greenest anywhere, and will serve as role models in their communities for redefining the future of the built environment. Whether the project is restorative, regenerative, or operates with a net zero impact, it can meet requirements of the Living Building Challenge℠.

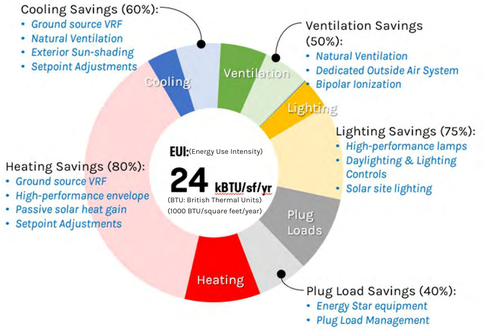


Figure 24: Living Building Challenge potential energy savings

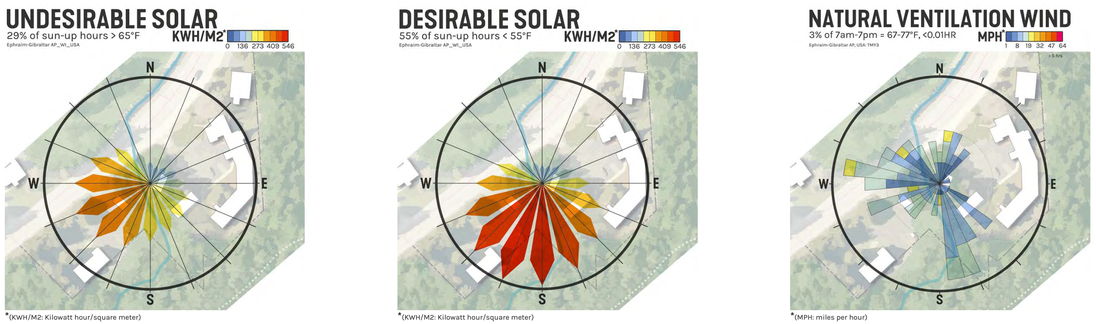


Figure 23: Climate data for Ridges Inn

HISTORIC STRUCTURES

This plan builds on TRS' legacy of serving contemporary staff and visitor needs while respecting a fabric of natural and cultural landscapes and the setting they provide to their collection of historic buildings. It seeks to balance TRS' historic significance while striving for forward-looking strategies to ensure its legacy as a living landscape serving its community. This master plan responds to the need to adapt over time to serve TRS visitors and users. It also recommends that TRS continue to embrace its existing and historic structures through regular maintenance, rehabilitation, and adaptive reuse in ways that serve the organization and community now and for the future. Specific recommendations of this master plan include:

- **Upper and Lower Range Lights –** While the historic range light structures remain architecturally intact thanks to ongoing volunteer restoration efforts, the surrounding landscapes have evolved significantly as farming and logging ceded to natural vegetative succession and associated educational interpretation. This plan recommends continued regular maintenance, rehabilitation, and adaptive reuse of these historic structures, including ongoing accessibility enhancements to the Upper Range Light, and restoration of its original and remaining lawns, gardens, walks, and ancillary structures.
- **Marshall and Kaye Cabins –** Both cabins are historically significant architecturally, but are not original to their location as they were moved to TRS in the 1970-1980's. Similar to the range lights, this plan recommends continued regular maintenance, rehabilitation, and adaptive reuse of these historic structures, including accessibility and infrastructure enhancements, while adapting their surrounding sites to meet contemporary staff and visitor needs.

Recognizing that TRS intends to make future changes to their sites and structures as outlined in this plan, it may be prudent to commission an update to existing Cultural Landscape Reports (CLR) to document the history, existing conditions, and historically significant landscapes, and offer recommendations for future treatment. Proposed changes to TRS facilities should be evaluated in the context of the CLR to understand potential adverse effects and determine the appropriate preservation, restoration, rehabilitation, or reconstruction strategies in accordance with U.S. Department of the Interior standards. It is also recommended that TRS work with the State Historic Preservation Office (SHPO) regarding changes to TRS landscapes, buildings, structures, or objects.

Credit: The Ridges Archives

Figure 26: Historic view showing the fence at the Upper Range Light

1. Upper Range Light

2. Lower Range Light

3. Marshall Cabin

4. Kaye Cabin

Figure 25: Historic structures at TRS

3.3 A CAMPUS APPROACH TO SITE PLANNING

During the Ridges Retreat, and subsequent review meetings with TRS staff, members, and Board, the planning team applied the above analysis, programming considerations, guiding principles, facilities strategies, and desires heard throughout the process, and developed a series of diagrams, sketches, and planning concepts to illustrate site and building-specific recommendations. The master plan balances between recommended maintenance and enhancement of existing core area amenities and facilities in the Heart of the Ridges, Nature Center, and North Campus and steps to expand visitor offerings on more outlying properties like Logan Creek, the Family Discovery Trail, and Appel's Bluff. Recommendations ranged from the renovation of a single space within a building, to re-imagining an entire district within the Sanctuary. This section highlights the plan's campus framework recommendations.

Figure 27: Baileys Harbor concept plan

Figure 28: Logan Creek concept plan

Existing Trail Proposed Trail

The existing Nature Center and North Campus amenities, coupled with the addition of the Ridges Inn property, presented the opportunity to align TRS pillars of research and education, along with its historic role as a community partner and voice for conservation action, into three distinct and connected campus experiences in Baileys Harbor. Each campus contains the space, facilities, and support amenities to function independently and fulfill the needs and potential of each pillar while positively contributing to the preservation and management of TRS.

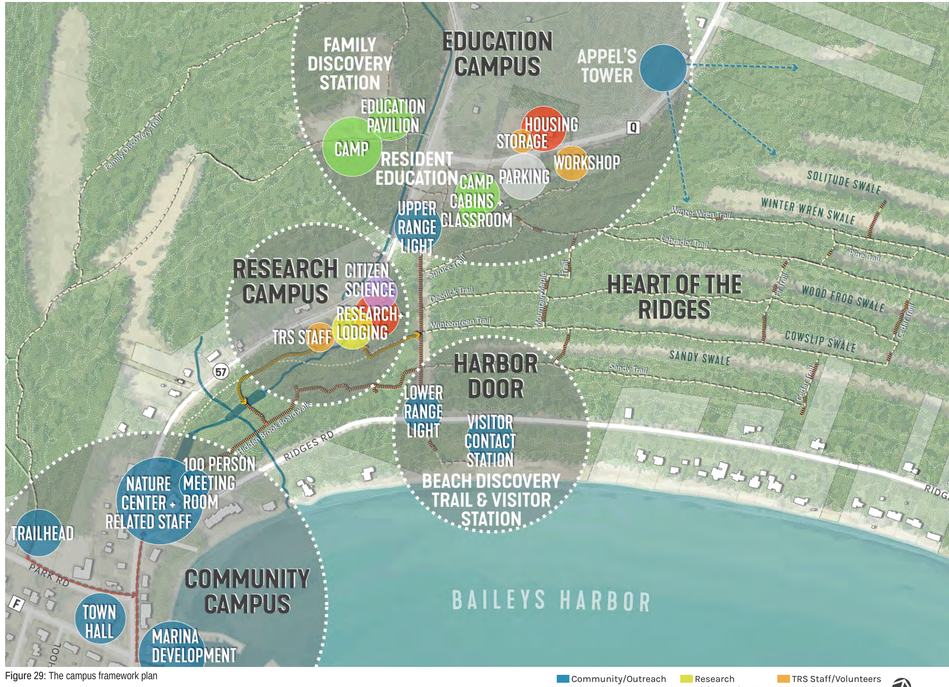


Figure 29: The campus framework plan

Community/Outreach Research TRS Staff/Volunteers
Education Citizen Science Lodging

COMMUNITY CAMPUS

During the planning stages for the Cook-Albert Fuller Nature Center, various building configurations were considered to address space needs for education and research, but the decision was made to build an interpretive Nature Center that would serve as a gateway to the Sanctuary. Plans to address the additional space needs were put on hold until a later date.

When the newly constructed Nature Center opened in 2015, its prominent Highway 57 location and proximity to downtown Baileys Harbor gave more visibility to TRS, resulting in an unanticipated growth rate and demand for programs. Ridges leadership soon realized that additional space would be needed to accommodate growing staff and increased programs. A mere 7 years after constructing the Center, TRS seized the opportunity to develop additional space by purchasing the Ridges Inn and embarking on this master plan to facilitate the thoughtful, long term planning necessary to guide TRS into the future.

To accommodate increased space requirements for staff and educational programs as well as refresh the original interpretive exhibits, the plan reinforces the building's community function by rightsizing and relocating the administrative office space and other back-of-house functions and returns the building to the community where possible. The Community Campus as illustrated includes recommendations in and around the Nature Center, including reconfiguration of the multipurpose meeting room and common area, as well as the addition of an adjacent open-air shelter that provides a community portal when the Nature Center is closed and offers a space to organize groups for guided hikes. This shelter was originally envisioned when the Nature Center was constructed, and includes a masonry fireplace and room for equipment storage.

An at-grade deck or patio is also envisioned for additional indoor/outdoor gathering space adjacent to the reconfigured community room, while providing a visual connection to the lake.

The site plans approved by Door County for the 2015 construction of the Nature Center required a 25-foot building setback from the edge of the right-of-way for both Highway 57 and Ridges Road, and a 35-foot setback from the delineated wetland swales to the north. The proposed open-air shelter and deck are outside of these setback areas.

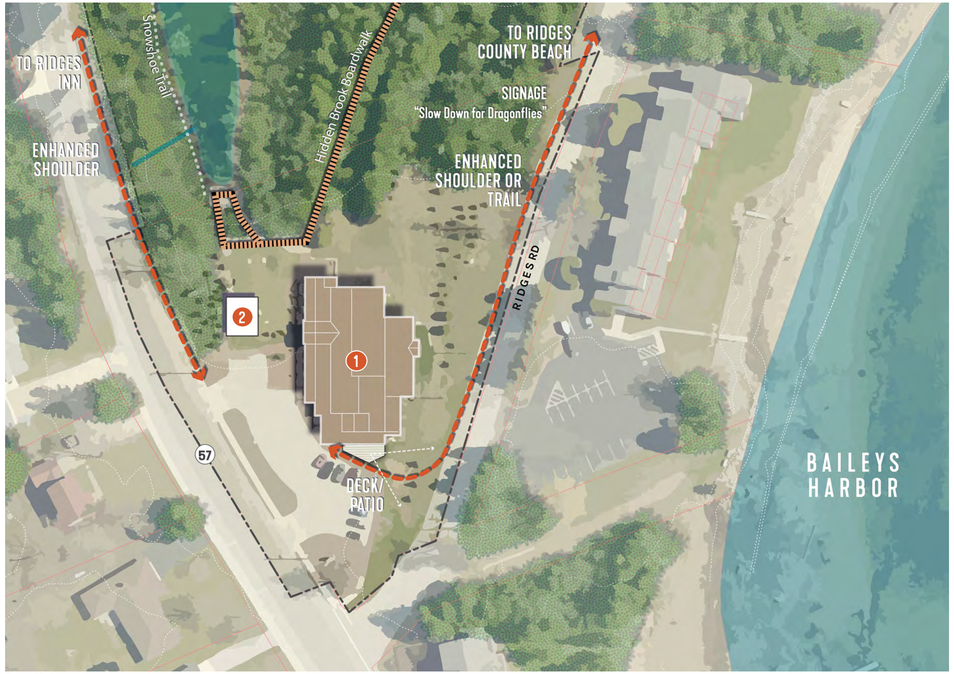


Figure 30: Community campus site plan

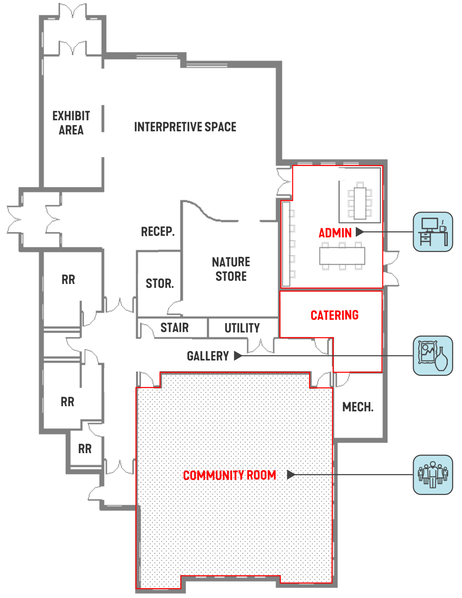
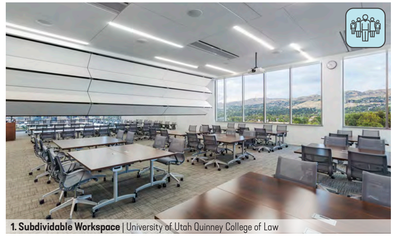


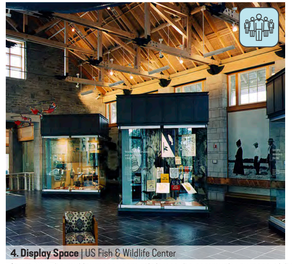
Figure 31: Nature Center renovated floor plan



1. Subdividable Workspace | University of Utah Quinney College of Law

2. Gallery | National Museum of African American History & Culture

3. Flexible Office Space | Caris Life Sciences



4. Display Space | US Fish & Wildlife Center

5. Multipurpose Community Engagement Space | Children's Museum of Phoenix

Figure 32: The multipurpose room reinforces the community purpose of the Nature Center by hosting diverse events

RESEARCH CAMPUS

The recent purchase of the Ridges Inn property and its collection of existing buildings along Highway 57 and Hidden Brook creates a once-in-a-generation opportunity for a consolidated Research Campus befitting TRS' nationally recognized orchid research program. Further, the prominent Highway 57 frontage elevates the visibility of this important research pillar. The Research Campus, as illustrated, includes office, lab, and support space for existing research programs, and the potential for cooperative research-in-residence programs with regional partners and institutions utilizing renovated, on-site lodging. Through adaptive reuse of these facilities, this campus can support the above programs in addition to providing a permanent base for citizen science in the remodeled Juniper-Birchwood Cottage, and housing the majority of TRS staff not associated with daily operation of the Nature Center at the former Guest House.

From a site perspective, the plan recommends restoring Hidden Brook on the property and establishing a minimum 50-foot wide native vegetation buffer along the stream free from development. Existing structures currently located within the buffer zone are recommended to be relocated, including the Loft Cabin, Twin Cedars, and the Spruce Cottage. A further study is necessary to determine if these buildings fulfill a need on the Finell property, or if they can be provided to another Door County partner or sold to a private end user.

The plan also illustrates strategies to sensitively connect trails from the Research Campus to the rest of the Sanctuary by extending a segment of Hidden Brook Boardwalk to link back to the Nature Center, and connecting though a disturbed corridor impacted by Emerald Ash Borer to link to the Range Light Boardwalk. Accessible links are also recommended to the Upper Range Light and North Campus by upgrading existing sidewalks to ADA standards.

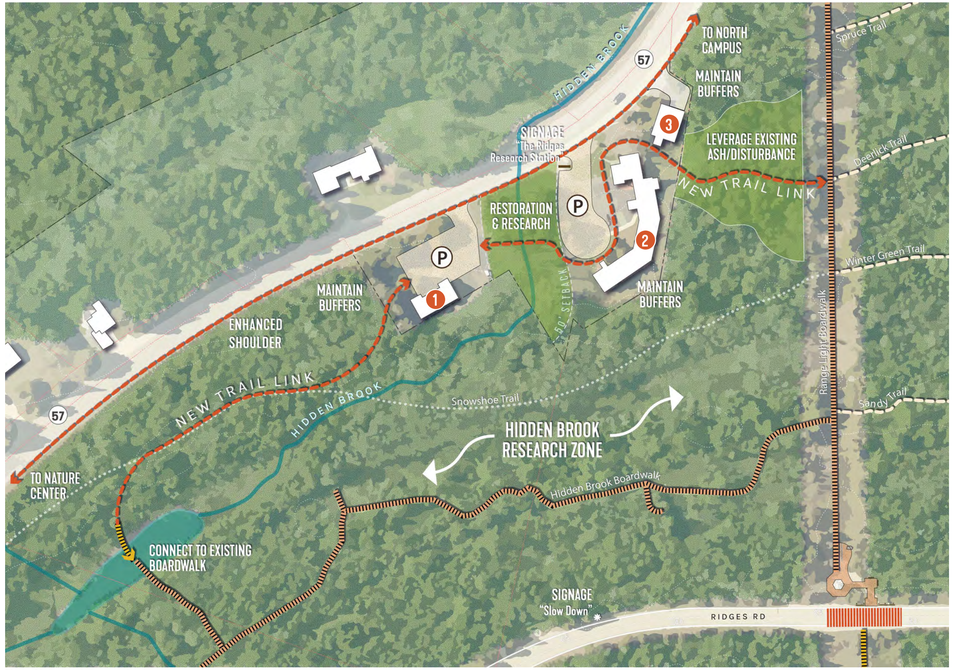


Figure 33: Research Campus site plan

Figure 34: Renovated Administrative Hub at Ridges Inn Guest House

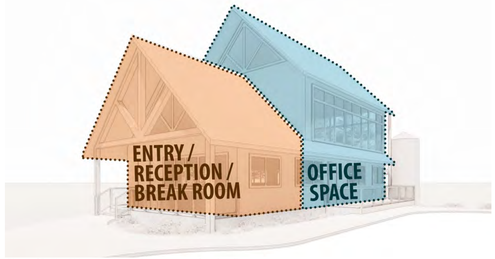


Figure 35: The Ridges Inn Guest House program function diagram

1. Flexible Office Space, Natural Ventilation | Brock Environmental Center

2. Shared Living Room/Dining | US Fish & Wildlife Conservation & Training Center

3. Multi-functional Indoor/Outdoor Space | Brock Environmental Center

4. Rainwater Collection Cisterns | CBF Philip Merrill Environmental Center

5. Constructed Wetlands | Bullitt Center (Credit: The Miller Hull Partnership)

Figure 36: Ridges Inn sustainable strategies precedent images

Figure 37: The Ridges Inn Renovation - Research Station

Figure 38: The Ridges Research Station

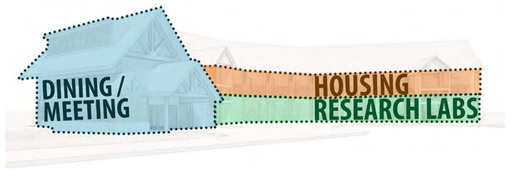
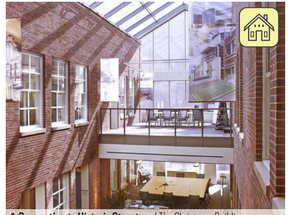
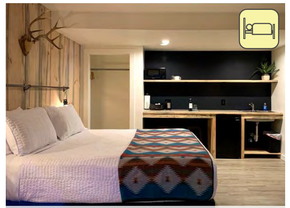


Figure 39: The Ridges Inn program function diagram



1. Connection to Historic Structure | The Christman Building

2. Exterior | Outdoors Inn, Sandpoint, ID (Credit: https://www.outdoorsinn.com/)



3. Interior | Outdoors Inn, Sandpoint, ID (Credit: https://www.outdoorsinn.com/)

4. Refurbished Inn Exterior | Lone Star Court, Austin, TX (Credit: https://www.lonestarcourt.com/)

5. Citizen Science and Research Labs | Lake Superior State University Center for Freshwater Research

Figure 40: Ridges Inn precedent images

EDUCATION CAMPUS

Based on the future direction of educational programs, the master plan took a hard look at the current location and support of these popular offerings and sought ways to make them more attractive to patrons, more effective to operate, and safer for staff and participants who were frequently crossing busy Highways 57 and Q to get between the Family Discovery Trail and building facilities. The team also considered how the recently acquired Finell property could support these or other programs. The resulting Education Campus better aligns age specific programs with self-sufficient sites and support amenities, reducing the frequency of road crossings and improving the quality of these educational experience. The Education Campus is made up of four distinct centers:

North Campus – The plan illustrates the potential to create a reconfigured North Campus, with the ability to provide resident education programming that is desired but not currently accommodated at TRS. This is accomplished by reconfiguring the existing parking and drop-off, relocating and upgrading the workshop to the east end of the existing parking lots, and creating an improved campus setting around the existing cabins with a new flexible classroom and events pavilion. The historic cabins will remain, and will be repaired with minor upgrades to lighting and windows. The new pavilion provides classroom space and amenities not possible in the cabins, with the ability to flex in warmer seasons to accommodate larger groups to complement offerings at the Nature Center. The pavilion also incorporates year-round toilets to replace the existing, seasonal structure and aging septic field that are past their useful life, and may explore connecting to the Town sanitary system. Housing at the Finell property north of Highway Q supports the resident program while also potentially accommodating much needed seasonal employee housing for TRS staff. Accessible trail connections would be made between the North Campus and Family Discovery Trail, as well as the Upper Range Light while safe crossing to the Finell property is established in collaboration with surrounding governmental transportation agencies.

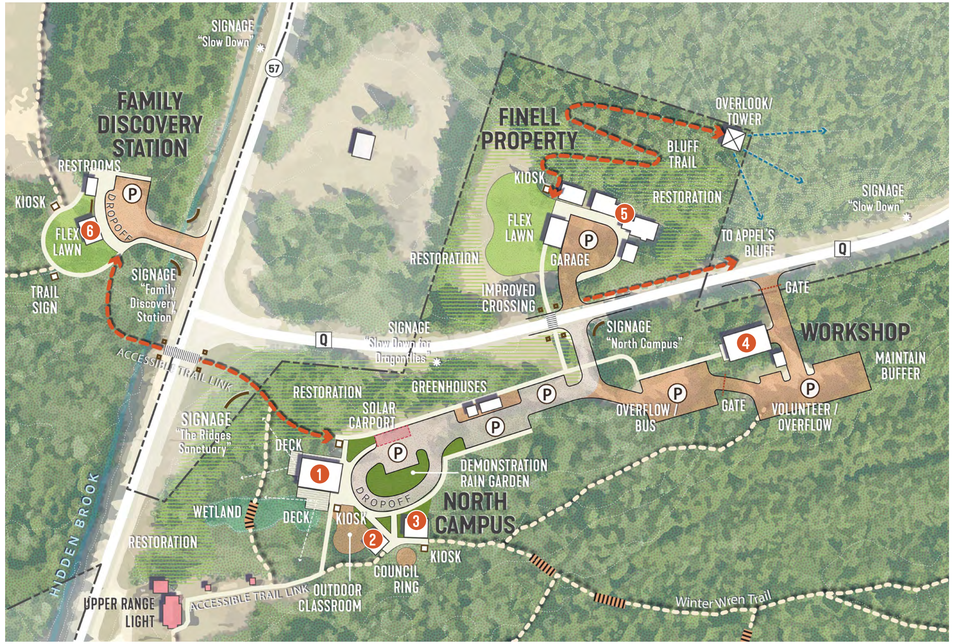


Figure 41: North Campus site plan

Figure 42: North Campus educational pavilion and plaza

Figure 43: North Campus Educational Pavilion program function diagram

Credit: Photo 2,4, & 5: The Ridges Sanctuary | Photo 3: https://timberhomesllc.com/our-work/outdoor-structures/vermont-solar-carport/

1. Indoor/Outdoor Connection | CBF Merrill Center

4. Educational Programming | TRS

2. Kaye Cabin during Natural Christmas | TRS

5. Council Ring fire pit | TRS

3. Solar canopy parking | Vermont Solar carport

6. Rainwater Cistern | Chesapeake Bay Brock Environmental Center

Figure 44: North Campus precedent images

Family Discovery Station – The plan explores a series of moves in and around the north Family Discovery Trail entrance and parking lot that will make youth camps more successful and safer. By locating a seasonal educational pavilion, coupled with toilets, storage, reconfigured drop-off and parking area, and improved visibility and access from Highway 57, this area can function independently as the Family Discovery Station without the need to constantly cross busy Highway 57 traffic for basic operational needs. Coupled with other improvements highlighted above and in the Land Management Plan, this will help TRS reach its full educational potential with this property. These proposed improvements will need to be discussed and approved by the DNR due to restrictions from the Knowles-Nelson Stewardship funding used to purchase the property. Archaeological resources may also be present at this site, which will require a cultural resources study by a Cultural Resource Management (CRM) consultant to be completed in the pre-design phase for the pavilion in order to determine the most appropriate placement of the improvements on the site. If archaeological resources are in-fact discovered, additional programming may be planned to interpret their significance for visitors.

Finell Property – The master plan envisions multiple uses at the recently-acquired Finell property that support the evolution of the North Campus described above and longer-term improvements planned at Appel's Bluff. In addition to the aforementioned housing, the plan illustrates potential new trailhead and bluff trails on the property to experience escarpment ecosystems not readily offered elsewhere in the Sanctuary, with the potential for overlooks and a viewing tower to visually connect with the ridges, swales, and shoreline below. Storage for maintenance equipment and materials is located on the property, including garage space for larger vehicles and chemical storage.

Figure 45: Family Discovery Station restroom structure and pavilion

Credit: Photo 1: The Ridges Sanctuary | Photo 2: https://www.archdaily.com

1. Programming at Family Discovery Trail | TRS

2. Open Air Pavilion | Tucson Audubon Paton Center for Hummingbirds Wildlife Pavilion

3. Outlook Tower | Peninsula Park, Eagle Tower

Figure 46: Family Discovery Station precedent images

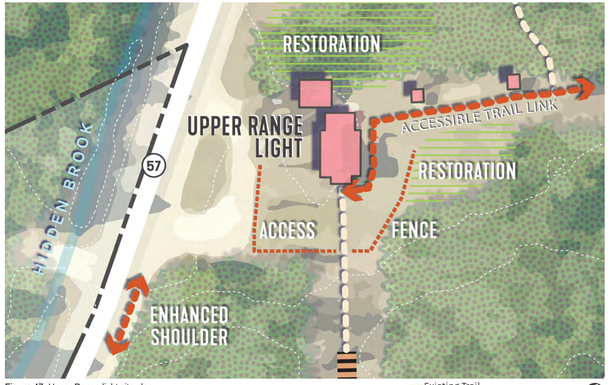


Figure 47: Upper Range light site plan

Credit: The Ridges Sanctuary, courtesy of Tina M. Gohr Photography

Figure 48: American Legion celebration during Range Lights 150th Anniversary

Credit: National Archives

Upper Range Light – The recent restoration of the Upper Range Light and accessory structures provide a tangible connection to the human history of TRS. To continue the story, the master plan recommends restoring the period-style fence to wrap from the parking area around the lighthouse yard to the south and east. Although a barn was also historically located southeast of the residence, reconstruction of this structure is not recommended as the landscape has regenerated with native vegetation where the structure was previously located, and zoning and required wetland setbacks restrict construction activities. As noted earlier, accessible trail connections are planned between the Upper Range Light, the Ridges Inn, and the North Campus. The small parking area remains in place to allow for Door County Trolley circulation, with additional signage improvements to more clearly define stalls for accessible and staff parking only with direction given to the Nature Center for other access.

Credit: The Ridges Sanctuary Archives

Figure 49: Historic range light photo and 1883 survey

CONNECTING THE CAMPUSES AND THE HISTORIC CORE

While the above improvements help each area function more safely and successfully as independent campus centers, it is important to maintain safe pedestrian and visual links between them as part of the broader goals of a more connected visitor experience. In some cases, these linkages can be made within existing TRS properties through improvements to existing trail networks or by filling gaps in them. But a collaborative approach with state, county, and local governmental agencies will be needed to address the crossing of Highways 57 and Q, which has the potential to be a model, gateway intersection that celebrates the northern arrival into the Sanctuary and the safe, walkable nature of Baileys Harbor. Bicycle facilities should be introduced to better accommodate visitors traveling by bicycle.

While not one of the three noted 'campuses', the Heart of the Ridges is the Sanctuary's historic core and was evaluated both independently and in the context of the adjacent, re-imagined campuses. The rustic trails in the Heart of the Ridges will retain the single-track, natural surface character that the founding members created. No trail expansion is anticipated in this area. All aging boardwalks are planned to be replaced, as each swale the boardwalks cross is highly unique and worth interpreting and the multiple trail loops the boardwalks create allow paths to recover as needed.

Additional benches scattered throughout the Heart should also be considered to increase opportunities for quiet enjoyment of the ridges and swales, and may provide an opportunity for member donations. Updating signage and wayfinding in this area as described later in this section should be a priority and systematically addressed as trail sections are repaired. There is also a holistic need to continue vegetative management in this area, coordinated with the adjacent Hidden Brook Research Zone. One of the larger efforts focuses on a research-based approach to maintaining the 50-foot wide clear zone between the Upper and Lower Range Lights required for navigation. This project will remove several large trees and understory vegetation to meet the legal obligation to maintain the easement, while thinning the canopy and implementing a multi-year Dwarf Lake Iris restoration project in the disturbed area. Thinning the canopy at the edges will allow for study of the ground vegetation response to available sunlight, and will create a more natural aesthetic for the corridor than maintaining an abrupt line of vegetation at the easement edge. See Appendix A, Land Management Plan, for additional detail.

Figure 50: Trail connections at Baileys Harbor

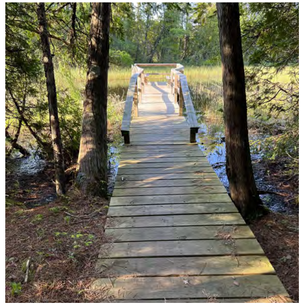


Figure 51: The Heart of the Ridges offers solitude and incredibly unique experiences

3.4 MAXIMIZE CURRENT INVESTMENTS

As TRS has expanded over time from the original 30-acre Heart of the Ridges area in Baileys Harbor, several large properties were added and opened to the public with minimal initial infrastructure or amenities. This is true in particular at the Family Discovery Trail and Appel's Bluff in Baileys Harbor, and Logan Creek in Jacksonport. While this was successful in providing initial visitor access, this plan suggests that TRS take the next step in investing at these locations with visitor and educational support amenities consistently requested by visitors and staff, aligned with the level of support and amenities that all visitors to TRS expect. Trail and facility improvements are summarized below, with additional detail outlined in Appendix A, Land Management Plan. Of special note, no new trails are planned beyond already developed or disturbed areas, given TRS' goal to protect and preserve sensitive habitats. Specialty guided hikes or remote technologies may provide unique ways to experience secluded areas such as Pickerel Pond, Moonlight Bay, and Peil Pond that limit significant traffic to these areas while allowing exploration and understanding of the resource.

Family Discovery Trail – As discussed in the Educational Campus description above, provide an improved drop-off and reconfigured parking at the north entry off Highway 57 for camp visitors arriving by car, as well as bicycle facilities for visitors traveling by bicycle. Also, provide a three-season educational pavilion with flexible space for programs, supporting storage, and seasonal toilets. Coordinate with the Town of Baileys Harbor to improve signage and pedestrian connections at the south trailhead near the fire station and establish areas at the south trailhead to keep clear for emergency response. Two new trail connections are proposed between the existing red and yellow trails, to provide shorter loop experiences that allow visitors to return to the trailhead parking. Finally, TRS plans to work with state and county transportation officials to improve the safety of trail crossings on Highway 57.

Figure 52: Family Discovery Trail plan for new trail connections

Figure 53: Family Discovery Trail trailheads and educational signage

Figure 55: Appel's Bluff signage and new spur

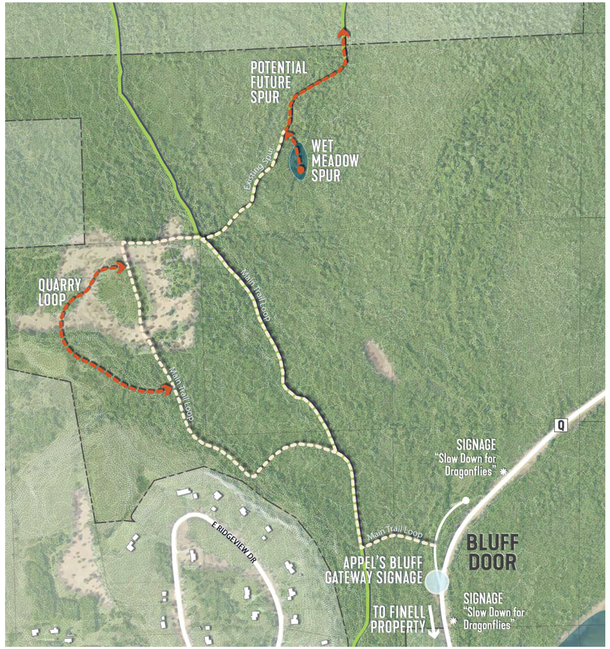


Figure 54: Appel's Bluff site plan

Appel's Bluff – Provide gateway signage, reconfigured parking, a portable toilet, and a permanent trailhead map at the existing Highway Q access point. Improve the southern entrance alignment and visibility from Q, selectively removing vegetation, creating a two-lane entrance, and clearly delineated parking with turnaround at the end. Permanently close the north entrance to limit historic dumping activities. Modify pedestrian traffic flow to remove the one-way designation on trail markers, and add another trail loop to interpret the reclamation of the old quarry southwest of the meadow. Leverage the recently purchased Finell property for trailhead amenities that activate new escarpment trails and overlooks on the property and explore future connections to existing Appel's Bluff trails to the north along Highway Q, including a small shelter to support programming. Coordinate with local and county entities for an improved Highway Q crossing to utilize north campus parking and drop-offs for access to the Finell property.

The Land Management Plan outlines new strategies to protect and potentially acquire additional upland properties on Appel's Bluff that would protect the watershed and valuable ecological resources. This would also provide the opportunity for additional, sensitively designed public access and educational opportunities including trails, overlooks, and a potential viewing tower that would provide aerial interpretation of the ridges and shoreline ecosystems below. This interpretive overlook could potentially return a once popular educational activity described in early Roy Lukes writings.

Logan Creek – Consolidate the trailhead to a single entrance at the south end of the existing parking lot and provide sustainable, seasonal restrooms and an open-air shelter with integrated storage and interpretive signage to create an improved visitor contact station. The shelter would provide additional educational programming opportunities, and protection for trail users and visitors during inclement weather. Converting a small portion of the adjacent, previously disturbed meadow to mown turf would create flexible lawn space that provides additional educational programming and event opportunities. Provide a trail spur to the historic gate south of the meadow, and name all the trails to promote better wayfinding. Add new kiosks with trail maps and rules at each of the water entry points along Logan Creek and Clark Lake.

Note, all improvements to facilities at Logan Creek require collaboration with the DNR to amend the Knowles-Nelson Stewardship Grant restrictions for this property.

Figure 56: Logan Creek site plan

Figure 58: Logan Creek offers different habitats than found at Baileys Harbor

Credit: Diagram: SmithGroup, Photo: Paul Lurie

Figure 57: Aerial diagram of Logan Creek

3.5 A CONNECTED EXPERIENCE

THE TRAIL SYSTEM

The Sanctuary's trails and boardwalks have always provided a linear educational experience where visitors are immersed within the ridges, swales, and unique local ecosystems. The fact that this experience is in close proximity to downtown Baileys Harbor poses both opportunities and challenges that were explored in this master plan. The team looked at both connectivity within TRS and along the Highway 57, Highway Q, and Ridges Road corridors that surround it. By looking comprehensively at existing Sanctuary trails and boardwalks, filling strategic internal gaps within and between the aforementioned campus and Heart of the Ridges amenities, leveraging community parking and surrounding paths and walkable shoulders on community roads, and collaborating with surrounding governmental entities to improve the quality and safety of roadway crossings, TRS visitors, staff, and volunteers can have a more connected, safer, and meaningful pedestrian experience. It is critical that TRS be an active, vocal participant and advocate for a more walkable experience in any planning for roads that surround and potentially benefit the Sanctuary. The plan also highlights opportunities to incorporate improved signage, wayfinding, and branding into surrounding streetscapes and gateway intersections to highlight TRS' presence as an environmental center in a community setting.

A similar evaluation was done at Logan Creek, where the existing parking and trail network was evaluated and recommendations for refinement were made. This was coupled with signage and wayfinding recommendations to increase the visibility of the property from Highway 57 for travelers, in particular at the Loritz Road and Highway I intersections. Recommendations are also included to better engage visitors who might access the property by canoe or kayak from Clark Lake or Logan Creek.

HARBOR DOOR

While TRS' origins are clearly traced to its ever-changing coastal setting in Nature Center exhibits and literature, this story is not prominently told or consistently experienced on-site as a Ridges visitor. For a number of valid reasons, it is not always apparent that waterfront properties south of Ridges Road are in fact a connected part of the

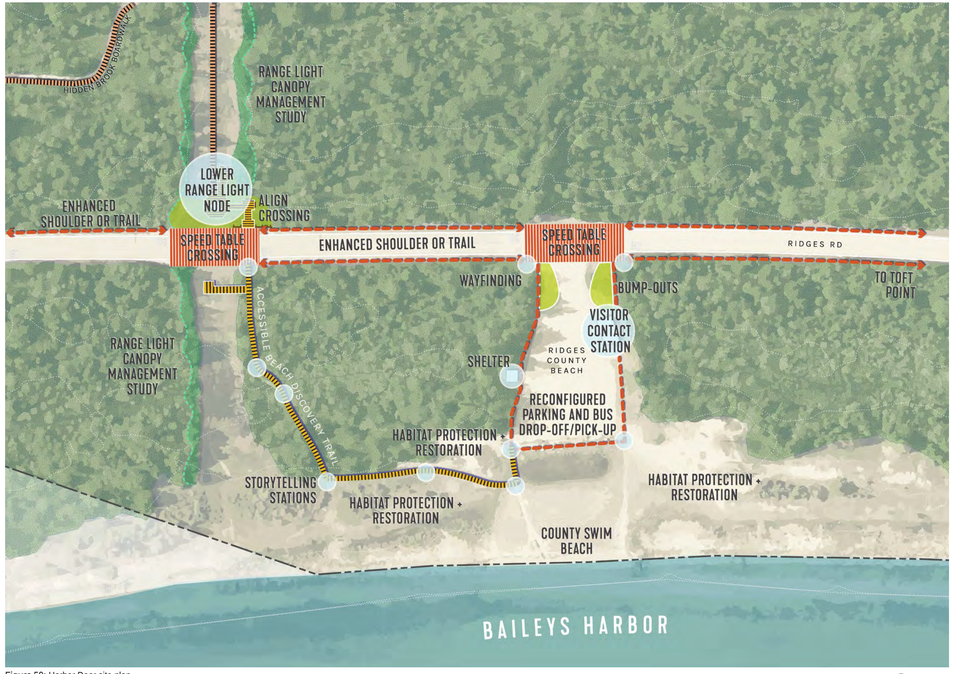


Figure 59: Harbor Door site plan

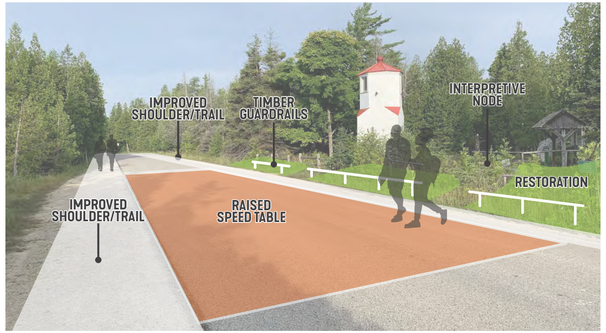


Figure 60: Diagram of improvements at the Lower Range Light

Credit: Michael Williams. Sight Distance for Edge Lane Roads, ITE Journal, August 2021, www.ite.org.

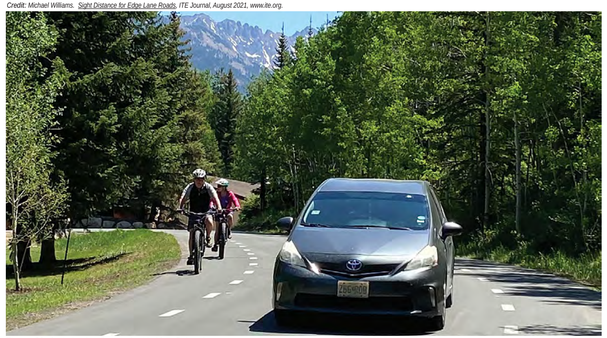


Figure 61: An 'edge lane' precedent in Vail, Colorado

Sanctuary and an essential part of its story. Recognizing challenges faced by complicated land ownership and barriers associated with crossing Ridges Road, the master plan highlights a collaborative, partner approach to turn these challenges into TRS' next prominent storytelling venture. The County's planned renovation of Ridges County Beach presents an opportunity for TRS to leverage these improvements to improve the experience for visitors to TRS, Toft Point, and other nearby ecological destinations and collectively tell this compelling story together at the water's edge. The master plan recommends a series of collaborative improvements at and around the beach for future consideration and coordination, including:

- Creating an accessible, interpretive trail link from the Lower Range Light and recently renovated Range Light Boardwalk to Ridges County Beach. This route includes an improved gateway interpretive node near the Lower Range Light, and storytelling stations along the existing pedestrian path and boardwalks to create a Beachfront Discovery Trail supporting guided tours and self-directed exploration when connected to existing trails and boardwalks north of Ridges Road. Careful evaluation should be given to the extents of boardwalk, using a Mobi-mat nonslip roll-up beach access mat or or other trail-edge containment measures, to balance the protection they give to adjacent, highly sensitive beach environments with the increased capital and maintenance costs associated with structured walkways.
- Coordinate with the Town of Baileys Harbor to install a concrete speed table pedestrian crossing zone on Ridges Road in line with the 50' range light clear zone, and walkable shoulders between beach parking and the Lower Range Light to emphasize this as a visible and intentional pedestrian zone for motorists. There is additional opportunity to extend these improved shoulders west to the Nature Center and east to Toft Point to encourage walkability and better leverage this shared public parking.

To keep pavement widths to a minimum, the partners may consider the potential to use an "Edge Lane" roadway configuration, which is a single center drive lane for two-way traffic with designated pedestrian or bike lanes at both sides. Vehicles share the center lane, but, after yielding to users of the edge lane, are allowed to move into the edge when approaching oncoming traffic. This type of lane has been successfully shown to reduce traffic speeds and address shared use of rural, low-volume roads, including an example in Wisconsin on Durst Road in the Town of New Glarus.

- Coordinate with the County's beach planning process to influence potential habitat restoration, green infrastructure enhancements, improved signage, parking lot reconfiguration, renovation of public toilets, and incorporation of a visitor contact station to provide trailhead amenities for those wishing to park at the beach and access TRS or nearby attractions by foot. TRS should embrace the opportunity to establish shoreline management strategies and resilient shoreline demonstration projects that illustrate best practices to the community and further integrate the lake and shorelines into their research and management.
- Emphasize a clear and visually connected open corridor across Ridges Road to the lake, using low plantings and visually unobtrusive timber guard rails where needed to manage undesirable vehicle parking and reinforce desired pedestrian crossing locations. As noted above, coordinate with vegetation management strategies for the 50-foot required clear zone between the Upper and Lower Range Lights to create a more natural, undulating edge for the entire corridor that may stimulate more diverse ground-layer habitats for further research and education.

The above recommendations illustrate what is possible with a collaborative spirit and aspiration. If completed, this would create an accessible, linear educational experience that links the Sanctuary's most prominent facilities and stories together, including its lakefront origins.

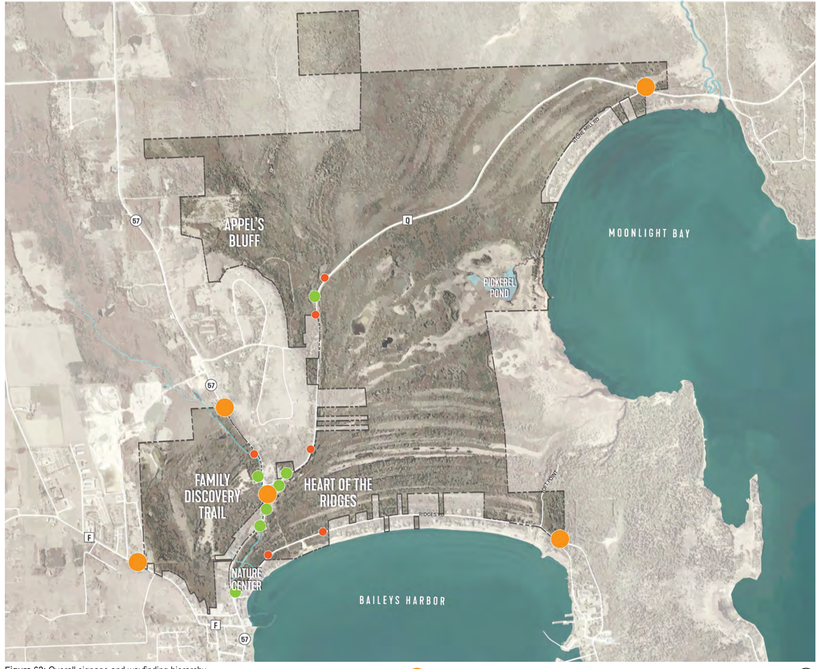


Figure 62: Overall signage and wayfinding hierarchy

WAYFINDING

While not a detailed wayfinding plan, the team did assess the condition and quality of the current signage and wayfinding throughout the Baileys Harbor and Logan Creek properties to systematically upgrade interpretive elements as capital projects outlined in this master plan are implemented and leveraged. The following recommendations build off the Interpretive Master Plan completed in February 2013:

- **Standardization –** As recommended by the 2013 Plan, recent boardwalks and trail improvement projects have incorporated a new generation of unified signage design standards, materials, and pull-off areas for interpretation that should continue to be systematically implemented throughout the Sanctuary to replace the previous generation of aging and sometimes outdated materials. Including this consideration in all anticipated capital projects will allow TRS to chip away over time if funds are not available for a holistic replacement.
- **Map Alignment –** One obvious finding during site tours was the existence of egress and other directional signage in the Heart of the Ridges that do not reflect the relocation of the primary visitor entrance from North Campus to the Cook-Albert Fuller Nature Center in 2015. Multiple visitors were encountered who were confused by this outdated signage and their inability to get back to where they started their journey. Updating this directional information as new, standardized signage is installed as described above is an immediate, high impact opportunity.
- **Milestone Markers–** Many trails are long and remote by design and would benefit from a regular occurrence of markers that better indicate a user's location on the trail. This is especially true on more primitive trails and during fall and winter periods where leaves and snow may obscure trails edges and alignments. This includes upgrading the markers at Appel's Bluff to support two-way traffic.

- **Trail Branding –** The successful branding and place-based naming of Heart of the Ridges trails should be expanded to all TRS properties, including Logan Creek and the Family Discovery Trail, to enhance wayfinding and increase educational connections between users and the environments they are traversing. Graphic symbols (like a bird, frog, snake, etc.) may be considered in addition to trail names, to assist with language and age barriers.
- **Technology –** The advent of phone-based interpretive technology creates an opportunity for TRS to incorporate QR and other technologies into future signage to further disperse the interpretive story by repurposing or potentially reducing the total number of traditional interpretive panels. Storytelling can be more easily updated and customized electronically without the need for costly interpretive panel replacement.
- **External Branding –** The master plan highlights a number of locations and conditions where signage, gateways, or other branding measures may be deployed around the Sanctuary's periphery to increase awareness of TRS brand externally. These include recommended locations for "Slow Down" signage at strategic locations approaching pedestrian crossings or TRS driveways, and known concentrations of Hines Emerald Dragonfly movements where "Slow Down for Dragonflies" signs are noted.

Updated Exhibits – As previously mentioned, the Nature Center's interpretive exhibits are original to the building and ready for a refresh, including new approaches consistent with contemporary industry standards and technologies. The master plan recommends that TRS update the Nature Center exhibits as part of building renovations highlighted in the Community Campus description above. Further, the plan recommends a virtual approach to augment the Nature Center experience, utilizing existing trail nodes and destinations for storytelling and incorporating technology as described above. Leveraging shared local sites such as Ridges County Beach and Town of Baileys Harbor properties as well as TRS website will expand the audience reach and impact. This approach also has the ability to provide virtual access to remote and inaccessible areas, allowing TRS visitors to fully explore the property while having no impact on these sensitive habitats. Combined, this approach could increase educational opportunities and influence without increasing visitation numbers or the public access footprint, protecting the Sanctuary from potential negative impacts on its rare and unique natural environment.

Figure 63: Existing signage and branding examples

3.6 FACILITY SPECIFIC SUSTAINABLE DESIGN

NATURE CENTER

The existing Nature Center is a highly sustainable, LEED Gold facility. Using regenerative design as a benchmark, additional strategies could be integrated into the building and site to increase its commitment to climate mitigation. Based on existing energy use patterns, a 55-kW photovoltaic array would generate enough power to allow the building to achieve net-zero energy. The highest roof form facing southeast is the best candidate for photovoltaic arrays and could provide two thirds of the required electrical output. An additional array on the new open-air pavilion envisioned west of the building would provide the remainder. The portion of the existing and new roofs to receive solar panels should be modified to a standing seam metal roof, allowing solar panels to be mounted directly to the metal standing seams and reducing roof penetrations. A metal roof would also support cleaner rainwater harvesting than asphalt shingles. To allow the existing building to provide natural ventilation, selective windows could be replaced with operable windows. This approach would expand the potential for views to the harbor.

RIDGES INN

The entire Ridges Inn facility will be reconfigured to be a model for regenerative design. Existing cabin structures within the brook buffer zone will be relocated to the Finell property or other off-site locations. This relocation will facilitate restoration of the existing brook, creating a more thriving, less disturbed ecosystem and habitat. East of the brook, the Ridges Inn will be transformed programmatically and renovated with high performance systems. A geothermal well field under the new parking area will provide a heat sink and heat source to support ground source heat pumps. New triple-glazed windows, improvements to the thermal envelope, high-performance lighting with daylight controls, waste heat recovery, and other innovative systems should be used to drive down energy use. The site is heavily shaded, limiting to provide photovoltaics to only the new entrance to the Ridges Inn. Net zero energy can be achieved at a campus scale by providing solar panels elsewhere, such as the North Campus. Rainwater from the existing and new roofs will be collected and treated to meet all non-potable water demand while the existing well will serve potable water demand, thus achieving net zero water. Composting toilets might also be considered to treat all waste on site, using the municipal waste infrastructure as a back-up system. The new parking lot to serve the research campus should use permeable paving systems to reduce stormwater volumes, promote infiltration, and reduce the heat island impact.

West of the restored brook, the existing Guest House will be transformed and vertically expanded to provide administrative offices, as horizontal expansion of the building footprint is restricted by wetland and stream setbacks. A separate geothermal wellfield will be provided in the west parking area, again supporting ground source heat pumps. Vertical expansion of the structure allows for redesign of the roof to collect rainwater for reuse and potentially houses solar panels depending on shade from the tree canopy to the south. The roof design can also provide a thermal chimney, which is a roof dormer that enhances natural ventilation inside the building. Operable windows, open planning, and vertical connections between the first and second floor will also enhance natural ventilation. Like the main lodge, the administration building can use similar energy conservation strategies, composting toilets, and rainwater harvesting, resulting in a net-zero energy, water, and waste design.

NORTH CAMPUS

The North Campus includes a collection of existing and new buildings and development. The new buildings include educational pavilion, new toilet facilities, as well as a relocated workshop to the east. While the energy use of these structures is minimal, the site provides a rare portion of the campus unshaded by existing trees, which could be leveraged for photovoltaics to supply not only the North Campus, but also meet the energy demand at the Ridges Inn site. Photovoltaics can be provided on the new pavilion roof, and can also create a solar canopy above the site driveway and parking area. Consider replacing the septic field, or using composting toilets to treat all waste on-site. Rainwater will be harvested from the new pavilion roof, where it can be treated and used for non-potable water demands and toilet flushing water (if composting toilets are not used). A constructed wetland may also be used to treat greywater or leachate on-site – as well as providing an educational opportunity to showcase the critical role wetlands play in the habitats at the Ridges. New parking areas and drive aisles should use permeable paving systems to reduce stormwater volumes, promote infiltration, and reduce the heat island impact. The workshop at the east end of the North Campus is nestled in a wooded area, so power should be provided from the solar canopy by the cabins. Rainwater can be harvested from the new workshop roof and collected in a rain barrel without any additional filtration, to provide non-potable water for maintenance needs.

FAMILY DISCOVERY TRAIL

Development at the Family Discovery Trail is envisioned to include a new outdoor pavilion with storage and toilets, as well as a reconfigured parking and vehicular drop off. Photovoltaics can be provided on the new pavilion roof. The new toilet facilities should use a new septic field or composting toilets to treat all waste on-site, or consider connecting to the Town of Baileys Harbor sewer system. Rainwater will be harvested from the new pavilion roof, where it can be treated and used for non-potable water demands and toilet flushing water (if composting toilets are not used). A flat roof over the toilet rooms could provide an opportunity to create a constructed wetland to treat greywater or leachate on-site. A similar approach should be used for the proposed toilet and visitor contact station proposed at Logan Creek. As with the other sites, the reconfigured parking area should use permeable paving.

FINELL PROPERTY

While the current residence on the Finell property is reportedly in poor condition, the site itself has been developed and has utility infrastructure that can be leveraged, including an existing well and septic field. The existing cabins currently in the Hidden Brook buffer at the Ridges Inn could be relocated to the Finell site, thus increasing residential capacity without building new, avoiding embodied carbon as well as creating demolition waste. The adapted structures should be renovated to improve energy performance, including new triple-glazed windows, improvements to the thermal envelope, high-performance lighting, waste heat recovery, and other innovative systems. The relocated structures should be oriented to maximize southern exposure to add roof-mounted photovoltaics. A centralized geothermal well field under the new driveway can provide a heat sink and heat source to support ground source heat pumps for the relocated structures. Rainwater can be harvested from each building roof and collected in rain barrels without any additional filtration, to provide non-potable water for irrigation and maintenance needs. New parking areas and drive aisles should use permeable paving systems.

RIDGES COUNTY BEACH

Development at the beach will be coordinated with Door County's planning process for the facility, but may include a new outdoor visitor contact station, as well as a renovated toilet facility. The contact station's small, open-air shelter can include photovoltaics on its roof to meet the small energy demand of the facility. Options for permeable paving may be limited by the potential for clogging from wind-blown sand, but parking areas should incorporate green infrastructure strategies to improve water quality and reduce beach impacts from drainage.

1. Photovoltaic panels | Indiana Toll Road Admin Building

2. Rooftop rainwater capture | Austin Community College

Figure 64: Precedents of sustainable strategies

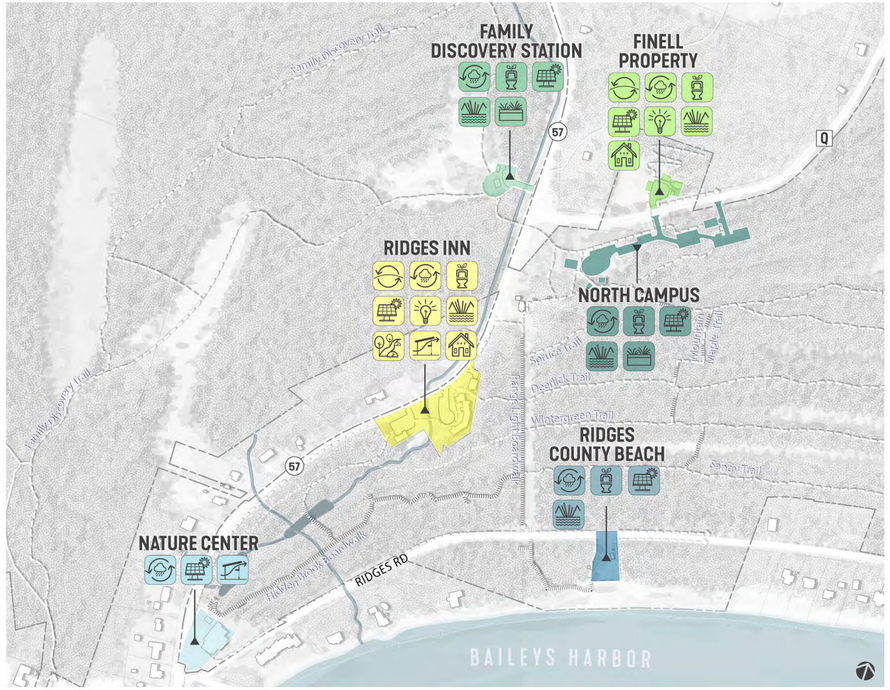


Figure 65: Proposed sustainable facilities throughout TRS

GROUND-SOURCE HEAT PUMP
with geothermal wells under parking

RAINWATER HARVESTING
from roofs, treated to serve all non-potable water demands

COMPOSTING TOILETS
or septic field to treat wastewater on-site

PHOTOVOLTAIC ARRAY
on south-facing roofs

MAXIMIZE ENERGY
efficiency strategies

INFILTRATION STRATEGIES
such as hardscape with permeable paving and vegetated swales

BROOK RESTORATION
at Hidden Brook

NATURAL VENTILATION DESIGN
by enhancing cross and stack ventilation

CONSTRUCTED WETLAND
to treat greywater on-site

ADAPTIVE REUSE
of existing structures

3.7 CLIMATE RESILIENCY PLAN

Although Earth's climate has varied throughout history, today's unprecedented rate of change threatens human health, infrastructure, and the global economy, as well as the survival of both individual species and natural systems. As noted by leading scientists, if the world exceeds a 1.5°C increase and continues towards 2°C, we risk passing several critical tipping points that would cause irreversible damage to our global climate system.

TRS is committed to renewable and sustainable practices that minimize our impact on the environment and our natural resources. At the same time, we recognize that even if the world collaborates to avoid going over the threshold 1.5°C rise, TRS needs to respond and adapt to climate impacts that have and will continue to occur, including severe storms, increased temperatures, and species migration. To meet this concern, TRS developed a Climate Resiliency Plan, which acknowledges the risks that climate change poses to the unique boreal habitat of the Sanctuary, identifies specific current and future vulnerabilities, and lays out strategies to mitigate impacts on biodiversity while also reducing the energy use and embodied carbon of our constructed facilities.

The full plan is included in Appendix B, and addresses the following topics:

- Define resilience as related to the climate crisis.
- Document a general resiliency framework, climate impacts, and best adaptation practices from a review of current literature.
- Assess climate risks and vulnerabilities specific to TRS' natural and built systems, and identify non-climate stressors that could exacerbate climate impacts at TRS.
- Share the results of a SWOT Analysis (Strengths, Weaknesses, Opportunities, and Threats) conducted with participants in the Ridges Sustainable Citizens Symposium in September 2022.
- Identify specific building strategies to reduce climate risks and address vulnerabilities for TRS' facilities.
- Provide adaptation recommendations for TRS' natural resources, focusing on two critical species – the Hine's Emerald Dragonfly and the Ram's Head Lady Slipper Orchid.

The overall conclusion of the plan is that without urgent action to both mitigate and adapt to the impacts of climate change, the unique species and ecosystems found at The Ridges Sanctuary will be lost. Traditional philosophies of protection, preservation, and restoration in land management are being upended by climate change impacts and the risks and vulnerabilities they pose. Nature will need a helping hand as conditions change and The Ridges' climate becomes less hospitable for the species who have inhabited it for over the past 500 years. This shift will require a more active role – a more broadly connected and collaborative role – than the preservation mindset that has guided the organization since 1937.

Key to this role is leveraging partnerships through the new research station at the former Ridges Inn to advance research programs providing data and assess adaptive management strategies to prevent habitat loss and assist climate migration of rare species. Through this research, combined with education highlighting TRS' integration of regenerative facility improvements and climate change mitigation efforts, TRS will advocate by example, providing climate leadership to the Door County community, Great Lakes region, and beyond.

Figure 66: The Lee Forrest memorial bench highlights the dynamic beach environment

3.8 LAND MANAGEMENT PLAN

As part of the master planning process, a Land Management Plan was developed to formally establish TRS policies for land management and acquisition. To preserve and improve the Sanctuary's resources, the plan establishes practical strategies which are expected to adapt over time in response to new opportunities or threats, including the following topics:

- State Natural Area Management Plan
- Land Management Zones
- Survey and Monitoring Protocols
- Research and Citizen Science
- Vegetation Management
- Trail and Maintenance Access
- Land Acquisition Strategy

This section briefly summarizes key recommendations of the Land Management Plan, with the full document included in Appendix A.

STATE NATURAL AREA MANAGEMENT PLAN

As a designated Wisconsin State Natural Area (SNA), a SNA Management Plan is required to be approved by both TRS and the Department of Natural Resources (DNR) Natural Heritage Conservation Bureau. The current SNA plan was approved in April 2007, and is required to be reviewed periodically with amendments made through written agreement with the agency. Elements from the existing SNA plans are incorporated into the Land Management Plan, including listed communities and species of concern and a discussion on permitted and prohibited uses of Sanctuary property.

LAND MANAGEMENT ZONES

The current land management unit diagrams were primarily developed to assist in orchid inventory activities, and do not necessarily follow natural community boundaries. The plan recommends the Land Committee update these unit categories and boundaries to reflect a more targeted approach to land management based on habitat types, while still consolidating large blocks of contiguous area into zones for tracking purposes.

SURVEY AND MONITORING PROTOCOLS

Monitoring is essential to effectively manage TRS property, including understanding current habitats and species population, documenting changed conditions, and assessing progress toward plan objectives. Only by understanding the current condition of ecosystems present on the landscape can TRS establish adaptive management goals targeted at preserving its rich biodiversity, and then follow up to study whether activities are having the desired effect.

TRS is implementing a robust plant inventory protocol as the first step in a larger, long-term effort to document current biodiversity across many biotic groups throughout the Sanctuary. Based on the habitat and plant community baseline data collected, surveys for other major groups such as birds, bats, amphibians, mammals, insects, and fungi will be added as the program progresses, with the goal of generating comprehensive species lists. The plan also recommends that the Land Committee develop specific procedures and training for each of the different natural communities, including survey field sheets for recording data and a safety program for field work. The Committee should also implement an Early Detection and Rapid Response (EDRR) screening program for invasive species, using ArcGIS Field Maps.

RESEARCH AND CITIZEN SCIENCE

Research has been a key pillar of TRS' mission since its establishment, continuing through Roy Lukes' careful notetaking to the establishment of the Director of Research staff position in September 2022. This position is responsible for coordinating the orchid restoration project, a multifaceted program to propagate, cultivate, and reintroduce key orchid species to restore threatened populations at TRS and other sites. Other research initiatives include the Hidden Brook Boardwalk living laboratory restoration, coordination with the US Fish and Wildlife recovery plans for Dwarf Lake Iris and the Hine's Emerald Dragonfly, and coordinating the multiple citizen science programs. As the formal research program is beyond the scope of this study, the land management plan focuses on the current status of the citizen science programs, recommends potential opportunities for expanding citizen science offerings, and outlines needed improvements for support facilities.

Credit: The Ridges Sanctuary

Figure 67: Research on orchids and pollinators informs land management activities

VEGETATION MANAGEMENT

As noted above, the primary goal of vegetation management at TRS is to preserve and protect biodiversity of the unique habitats. This management needs to respond to outside threats such as invasive species and climate change, as well as impacts from deer overpopulation. The Land Management Plan discusses four distinct focus areas for vegetation management, including changes to the existing forest canopy composition, maintenance of the range light easement, invasives species management, and herbivory management.

- **The Changing Forest Canopy –** Several diseases and insects are threatening to change the composition and structure of TRS forest canopy, including emerald ash borer, beech bark disease, and elongate hemlock scale. TRS' response to the changing canopy recognizes and respects that forest recovery occurs on a long time scale, as large trees decline and others grow to take their place. Trees that present a hazard to trails and facilities will be felled, while others will be left to come down naturally. Cut trees will not be removed from natural areas. The Land Protection Committee will need to evaluate participation in grant projects that experiment with regeneration of the beech forest, by planting one portion of the stand while allowing the rest to naturally regenerate. However, this must be balanced with the concern that installing nursery stock risks introducing a different genotype or invasive species. Options may be explored to raise trees from local genotypes for planting or to experiment with deer fencing at Logan Creek to encourage natural regeneration and succession.
- **Range Light Easement Maintenance** – To ensure the visibility of the range light alignment for boats approaching Baileys Harbor from Lake Michigan, the United States reserves a 50-foot wide easement centered on the range line to be kept clear of trees and other structures. Historically, the corridor had periods where it was more open, and the available sunlight may have allowed different plants to flourish than in the adjacent forested areas. The forest has now encroached on the range light corridor, requiring the removal of several large trees and understory vegetation in order to meet the legal obligation to maintain the easement. TRS is beginning a project to widen the corridor to the required 50-feet, and in the process, implement a multi-year Dwarf Lake Iris restoration project in the disturbed area as well as soften the forest canopy edges along the corridor to make it less abrupt.

Figure 68: Beech tree loss creating canopy openings at Logan Creek

Figure 69: Vegetation encroachment along the Range Light corridor

Credit: The Ridges Sanctuary

Figure 70: The plan covers topics including boardwalk repair, citizen science, and invasive species like Japanese barberry

- **Invasive Species Management** – Invasive species are non-native plants, animals, invertebrates and diseases which spread quickly when introduced to an area free from the predators and competition that controlled their populations in their native range. TRS has documented control efforts since 2012 for phragmites, Japanese knotweed, teasel, crown vetch, and black swallow-wort. The plan recommends that the Land Committee develop a proactive action strategy to address invasive species at TRS, including updating inventory maps for invasive species populations, creating a priority list to focus limited staffing resources, developing control plans for targeted species, working with partners to extend resources and cross parcel boundaries, and strengthening prevention efforts with education.
- **Herbivory Management –** TRS uses hunting and strategic deployment of exclusion fencing to reduce impacts of deer herbivory on natural communities. Deer overpopulation reduces numbers of herbaceous plants (including several orchid species), adversely impacts tree regeneration, and facilitates the spread of invasive species. Hunting is both a necessary strategy for controlling herbivory at TRS and a valuable outdoor recreation opportunity for the Door County community. The Land Management Plan recommends that the Land Committee review and update the TRS hunting policies to be more aligned with policies established by the Door County Land Trust. The plan also recognizes that TRS may use small-scale fenced exclosures to prevent deer browse in critical areas, as well as to protect sensitive habitats from foot traffic such as at the beach.

TRAIL AND MAINTENANCE ACCESS

The trail system at TRS allows both public enjoyment of the unique habitats and provides access for management and restoration activities. Thousands of visitors hike the trails annually, thus the system needs to be carefully monitored and managed to ensure that this intensive use does not degrade the resources. The Land Management Plan discusses maintenance access and easements, standard materials and details for trail construction, accessibility improvements, trail ambassadors, and procedures for evaluating trails and boardwalks for closures or replacements. Existing trails and proposed improvements to the trail system are summarized in the discussion above describing the planned facilities, and are further detailed in Appendix A.

LAND ACQUISITION STRATEGY

In keeping with the Founders' vision of land ownership to protect the biodiversity, property acquisition remains a major focus of TRS' land management strategy. The Land Management Plan recommends that TRS establish a process for targeting properties for acquisition, accepting donations from landowners, and pursuing alternative methods to protect properties where outright purchase is neither feasible nor desired.

- **Priority Parcels for Acquisition –** Priority properties may include parcels that protect either surface or groundwater flows that protect the water quality within TRS' wetlands and swales, parcels with unique plant communities, and parcels that reduce gaps and fragmentation within TRS current land holdings as well as between TRS and adjacent partners such as DNR. For expansion along the perimeter of current TRS property, focus should be on properties with more intact habitats based on limited resources available for restoration, and on larger parcels that protect greater acreage.
- **Donation of Property –** TRS is often approached by owners seeking to donate land, in order to secure tax advantages and protect the property they love for future generations to enjoy. TRS needs to establish a donation process to verify that accepting the land is favorable to the organization and to fully document the donor's intentions for long-term consequences and management of the property. Expressed donor intent may have ramifications for the ability of the donor to deduct the gift value from their taxes, and may also present challenges in TRS flexibility in managing the donated property in the future. Establishing a donation policy will help prevent TRS from accepting property that would waste time or money, or damage TRS' reputation.
- **Alternative Methods to Protect Habitats –** It is highly likely that priority properties will not be feasible for acquisition due to existing development and land values. The plan recommends that the Land Committee reach out to these existing landowners to offer assistance with management of natural areas on the property to further habitat protection objectives. Other options to consider include conservation easements and Right of First Refusal to purchase the property in the future.

> "Touch as much as you wish with your eyes but do not see with your fingers."
>
> Emma Toft

SECTION 4.0

IMPLEMENTATION

This master plan serves as a guide to future improvements, management, operations, and governance at TRS, looking forward to the next 10-20 years. It anticipates that changes will be implemented over time; some projects will break ground in the coming months and others may come years into the future. This plan establishes the organization's collective vision for the future of TRS and provides a method of evaluating changes through the vision, mission, and guiding principles. The following sections outline the market analysis and communications plan, strategic plan update, and implementation strategies for the master plan.

4.1 MARKET ANALYSIS AND COMMUNICATION PLAN

As TRS implements its 20-year vision for the future with this plan as its guide, the simultaneous pairing with a marketing plan will assist with the organization's long-term success. The Marketing Plan provides an in-depth analysis of TRS' current market position and identifies locations with similar populations of targeted visitors and members where TRS could broaden its impact. This section briefly summarizes the findings of the Market Analysis and Communications Plan, with the full document included in Appendix D.

KEY GROWTH REGIONS FOR TRS

Demographic analysis based on zip code data for significant membership and program attendance within a reasonable drive area of TRS identified the top five target regions listed below:

- Minneapolis region
- North shore Chicagoland north to Milwaukee
- Suburban Milwaukee north and west
- Upper Peninsula of Michigan
- Fox River Valley

The consultant team reviewed socioeconomic and demographic information of communities in these regional "hotspots" to identify the most common socioeconomic archetypes in TRS' current visitor base. The gathered information shows there is significant future potential for customer growth by expanding inside these regions. Within a 6-hour drive time to TRS, there are 767 distinct cities as well as 65% of Wisconsin and 21.68% of Illinois populations.

Note, the market analysis information is based on available data about sancutary visitors, program participants, and members. In order to add depth to this data in the future, TRS should consider improving visitor and participant data capture, which can inform the Communications Plan to reach people who may be interested in the programs TRS offers.

Key Recommendation: TRS actively gather consistent and detailed information for members and program attendees to continue to dive deeper into who is being reached with the messaging.

COMMUNICATIONS

The Community Tapestry builds on the collected zip code data from TRS' membership to better understand the characteristics of the members' communities, allowing TRS to both identify locations for outreach and communications and also to start to frame the content of those communications.

While the most frequently identified community type for current membership is similar to TRS' rural character and proximate to Door County, the remaining Community Tapestries are more urban and suburban in nature. These are the primary areas where TRS can grow their impact on environmental issues within the Great Lakes Region. Messages that resonate in these more urban and suburban communities will be different than those for the local membership, and may be more global in nature to include summer camps, online program series, tourism in Door County, the research center and its work, and climate change. Often in these communications, it may be beneficial to partner with another entity such as a university, extension center, The Nature Conservancy, DNR, etc.

One notable opportunity is a deeper connection with Minneapolis. While Green Bay, Milwaukee and the North Shore of Chicago have strong connections to TRS, Minneapolis contains similar associated socioeconomic typologies. Looking for partners in this community and perhaps planning outreach with Door County tourism entities will increase connections there. TRS can consider a strong marketing effort with Minneapolis and its environs to bring new visitors and members to its events and properties.

For these regional areas more distant from the TRS physical campus, alternate messaging can offer different opportunities such as:

- Family getaways and attendance at TRS events, hikes, and camps.
- Online courses offered by TRS staff that spread the Vision and Mission.
- Partnership with Door County businesses, such as a package deal with local hotels or other organizations like the Clearing.
- Partnering messages with State or County entities.

Messaging should be consistent over the years through TRS creating a "Branding Guide" that is closely followed in all communications. Branding is important to establish a recognizable identity, especially when reaching out to new audiences. Creating a consistent logo and style results in a clearer, more memorable message to an audience, leading them to become familiar with an organization.

Key Recommendation: TRS create a Brand Guide for communications and an annual outreach plan.

4.2 STRATEGIC PLAN UPDATE

The successful implementation of this Master Plan is focused around five strategic initiatives that correspond to organization's needs, priorities, and what was heard in the community and stakeholder engagement process. These initiatives reflect planning for both a series of potential capital improvement projects as well as more operational actions. The full Strategic Plan Update is provided in Appendix E, with recommendations bundled into the following buckets:

- Innovative Programming
- Optimizing Facility Usage and Performance
- Campus Planning and Connectivity
- Sustainable Resource Management and Research
- Organizational Excellence

Of note, these are not recommended as a linear action plan, but rather TRS should balance its efforts to advance each strategic initiative concurrently rather than focus on them consecutively. In the plan, specific strategic actions are identified within each initiative, on a temporal scale of "Short Term" (1-3 years), "Mid Term" (4-6 years), and "Long Term" (7-10 years).

Figure 71: A woman takes a photo from the Lower Range Light overlook, an area of opportunity for branded programming

4.3 CAPITAL COSTS AND PROJECT PHASING

The following information outlines conceptual opinion of probable construction cost (OPCC) for recommended capital improvement projects outlined in the master plan. Estimates represent total project costs, inclusive of hard contractor construction costs, design and construction contingency, and related soft costs for items such as survey and testing, permitting, design and construction services.

The plan does not outline a specific phasing schedule for individual projects. Rather, implementation of any single recommendation will occur as funding or volunteer support becomes available, depending on the project type. At that point, each project will proceed with design and any applicable local, state, or federally mandated review processes as generally described in the following section. Design of a specific project may vary from what is shown in the illustrative graphics within this document, but will be weighed against the vision, mission, and guiding principles to make sure they are in alignment with the master plan. As any design evolves, TRS will continue to engage with their members and the community.

The master plan identifies a number of small scale improvement and repair projects that will happen independently of the major capital projects. These include repairs identified in the separate 2022 Capital Asset Maintenance Study, North Campus cabin renovations, wayfinding signage improvements, new trail connections at Family Discovery Trail and Appel's Bluff, boardwalk replacement, and site improvements at the Upper Range Light. Estimated costs for these projects are not included in the OPCC, as TRS has established and partially funded a Capital Asset Fund to address them. As these improvements are scheduled for implementation, detailed costs will be developed based on the scope of work and TRS may engage either volunteers or professional contractors depending on the magnitude and desired timeline of each project.

The master plan anticipates that a significant capital campaign will be needed to implement the larger capital projects outlined in the master plan. As construction costs have fluctuated greatly with rising inflation and global supply chain variability following the 2020 COVID pandemic, it is highly recommended that TRS engage a professional cost estimator to validate the cost of these projects at the beginning of the capital campaign. The included OPCC includes a design and construction contingency of up to 50% additional cost, as recommended by the Association for Advancement of Cost Engineering International (AACE) for a project at the master plan level of design (Class 4 project deliverables maturity level). Also, while the master plan does not identify specific external funding, it does include design elements that align with potential grants and funding sources that could support both capital and operational needs.

The master plan describes future implementation of capital construction projects in the following two sections:

1. **Geographic Bundles -** Implementation of the master plan is expected to be developed over time as funding sources become available. Bundles of improvements, organized geographically in alignment with the plan's proposed 'campuses,' have been identified to allow for independent construction of different portions of the plan. The components and order of magnitude costs of these bundles are described at right.
2. **Sequencing Strategy** – Due to their interconnected nature, the sequencing of potential changes to TRS facilities is critical to their success, in particular recommendations for the campuses outlined in the plan. For example, if renovations to the Nature Center rely on programs or staff to relocate elsewhere in TRS, those future spaces must be ready and available for this move. Priorities for this sequencing strategy are identified on the following page.

Credit: The Ridges Sanctuary

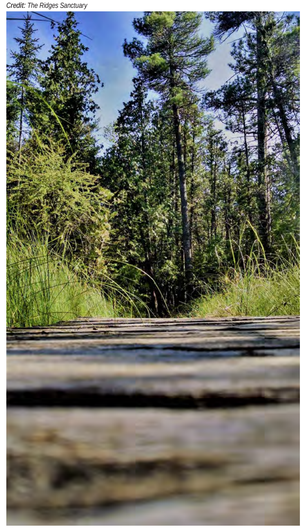


Figure 72: Boardwalk in the Heart of the Ridges

NATURE CENTER

Includes interior renovations and external sustainable strategies at the Cook-Albert Fuller Nature Center, new pavilion, and related site and pedestrian access improvements.

ORDER OF MAGNITUDE COST: **$3.7M - $5.6M**

RIDGES ADMIN

Includes the adaptive reuse of the Ridges Inn Guest House, and related site and access improvements to support administrative needs previously accommodated within the Nature Center.

ORDER OF MAGNITUDE COST: **$2.8M - $4.2M**

RIDGES RESEARCH

Includes the adaptive reuse of the Ridges Inn Lodge structure, new Head House, relocation of selected cabins, restoration of Hidden Brook, and related site and access improvements to support the proposed research campus.

ORDER OF MAGNITUDE COST: **$6.7M - $10.0M**

NORTH CAMPUS

Includes a new educational classroom and toilet building, workshop, greenhouse, related site and accessible pedestrian links to the Upper Range Light, and reconfigured parking and drop-off.

ORDER OF MAGNITUDE COST: **$4.2M - $6.4M**

FAMILY DISCOVERY STATION

Includes a new education pavilion and public toilet building, and related site and public access improvements to support the proposed Family Discovery Station within the education campus.

ORDER OF MAGNITUDE COST: **$1.4M - $2.1M**

FINELL PROPERTY

Includes the renovation of the relocated Ridges Inn cabins, renovation or reconstruction of a residence, a new garage, an overlook/tower on the adjacent bluff, and related site and access improvements to support staff housing needs and additional educational programming.

ORDER OF MAGNITUDE COST: **$1.8M - $2.7M**

APPEL'S BLUFF

Includes reconfigured vehicular entrance and parking with wayfinding signage.

ORDER OF MAGNITUDE COST: **$63K - $95K**

LOGAN CREEK

Includes realigned trails, gateway signage and wayfinding, improved visitor contact station, and flexible programming lawn.

ORDER OF MAGNITUDE COST: **$492K - $739K**

HARBOR DOOR

Includes an accessible trail link from the Range Light boardwalk to Ridges County Beach, with an improved Lower Range Light interpretive node, wayfinding, and habitat restoration. Costs exclude future collaborative site and building improvements at the beach and roadway crossing improvements on Ridges Road.

ORDER OF MAGNITUDE COST: **$212K - $318K**

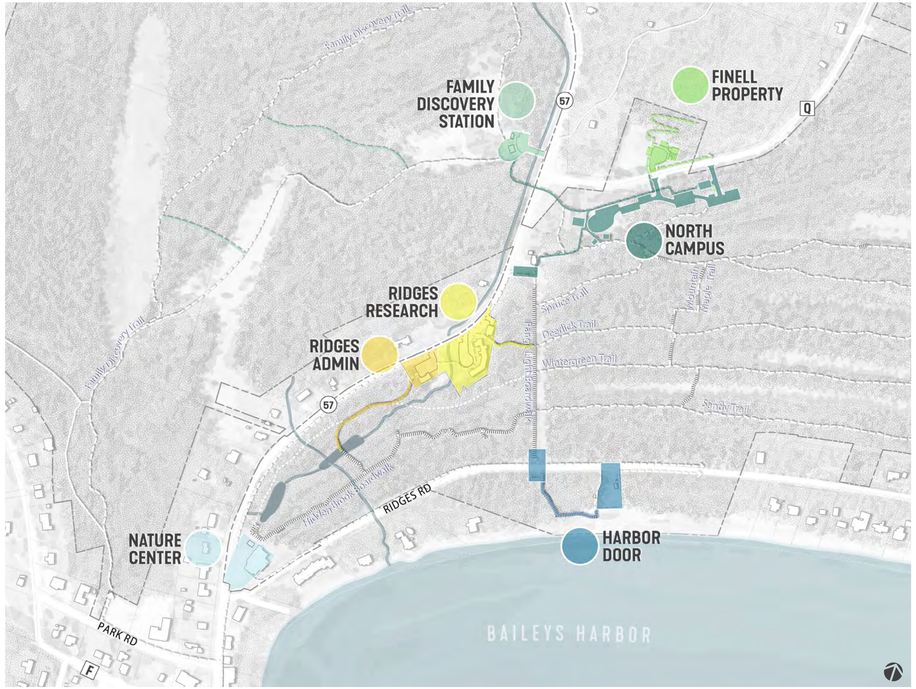


Figure 73: Implementation strategy for improvements

SEQUENCING STRATEGY

PRIORITY 1

The addition of the Nature Center in 2015 addressed many of TRS' community outreach needs. While this plan outlines important next steps for that facility to better serve this role and adapt to contemporary needs, it also recognizes the importance of a comparable investment in the organization's research, land protection and management, and education pillars. Key components of the proposed research and education campuses were identified by TRS leadership and staff as the highest priority.

- **TRS Research Station –** This includes the adaptive reuse of the former Ridges Inn Lodge into the proposed Research Station, as well as conversion and minimal initial upgrades of the Juniper Birchwood Cottage to provide a new home for citizen science. The relocation of the Loft Cabin, Spruce and Twin Cedars Cottages, along with related site work and Hidden Brook restoration, are included in this project. This would also include the proposed new trail connection to the Range Light Boardwalk.
- **Family Discovery Station –** This includes the addition of the Family Discovery Station pavilion, toilets, storage, and related site, vehicular access, and signage improvements. Early engagement with DNR due to restrictions from the Knowles-Nelson Stewardship Grant used to purchase the property will be a critical first step. Archaeological resources may also be present at this site, which will require a cultural resources study by a CRM consultant to be completed in the pre-design phase for the pavilion in order to determine the most appropriate placement of the improvements on the site.
- **North Campus –** This includes the new classroom pavilion, green houses, relocated workshop, and related site, vehicular access, and signage improvements. Relocating the existing workshop to its proposed location at the east end of the North Campus parking lot is a critical first step to clear the current site for the future classroom pavilion. The existing restroom can be removed or repurposed for additional storage when the new pavilion opens. Additional garage storage space at the Finell property is also included to protect sensitive areas adjacent to the proposed new workshop location. The roofs on the Marshall and Kaye Cabins should also be evaluated for replacement in this initial phase, as they are nearing the end of their useful lives.
- **Ongoing repairs and improvements –** A number of the smaller scale repairs and improvements to trails, boardwalks, signage, and other site amenities and structures as outlined in the 2022 Capital Asset Maintenance Study will continue to be completed by TRS staff or volunteers. This includes accessible trail projects around both the upper and lower range lights as outlined in the North Campus and Harbor Door descriptions, respectively.

PRIORITY 2

The following are important, large-scale capital projects with less immediate urgency than the above Priority 1 projects. While they could commence immediately if funding is available, it may be prudent to stage these projects later to minimize the disruption to both visitor and program operations, as well as allow capacity for staff oversight.

- **TRS Administrative Office –** The adaptive reuse of the former Ridges Inn Guest House is a critical step in the ultimate relocation of the majority of TRS staff from the Nature Center to the Research Campus to accommodate projected staff growth. This project would include the above renovation and all related site work, including the proposed new trail connection to the Hidden Brook Boardwalk.
- **Cook-Albert Fuller Nature Center Update –** Once staff accommodations are available at the new administrative office, the proposed interior renovations to the Nature Center may commence, including the reconfiguration of the Discovery Room to better accommodate TRS programming and event needs. As an interim step to allow the Nature Center and Guest House projects to proceed simultaneously, administrative operations could be temporarily housed in a portion of the remodeled Ridges Inn Lodge research space until the Guest House office renovations are complete. Exterior improvements at the Nature Center, including the proposed new outdoor pavilion and recommended sustainability enhancements could take place earlier as funds are available.

PRIORITY 3

The following projects designated as Priority 3 either rely on coordination with outside partners or are less urgent to support TRS programming.

- **Harbor Door –** This includes components identified in the Harbor Door area that are dependent on a collaborative process with local town and county agencies, including potential improvements at Ridges County Beach and the Ridges Road speed table and improved pedestrian shoulders.
- **Finell Property Housing –** This includes the potential renovation or reconstruction of residential housing pending further condition study, and renovation of the relocated Loft Cabin, and Spruce and Twin Cedars Cottages from the Ridges Inn property to provide seasonal staff housing and lodging for resident educational and research programs. Related sitework and signage would be included in this project, including proposed escarpment trails, viewing overlook, and related trailhead, signage, crosswalk, flexible meadow, and other amenities.
- **Marshall and Kaye Cabin Renovation –** Once the North Campus classroom pavilion and Family Discovery Station are added, the existing Marshall and Kaye cabins will be renovated as required by the 2022 Capital Asset Maintenance Study to support existing educational programming as well as potential resident programs. This work will likely be done by TRS staff and volunteers representing cost savings.
- **Citizen Science Renovation** - Following the initial minimal renovations to the Juniper Birchwood Cottage under Priority 1 that allowed use of the new space, a full renovation of this building is planned as a later phase to better serve an expanded citizen science program. While renovations are ongoing, citizen science may share space with the Research Station in the former Ridges Inn Lodge.
- **Logan Creek** - Similar to the Family Discovery Station, shelter improvements at Logan Creek require approval from DNR due to grant restrictions on the property. In the interim, TRS could place a portable toilet at this location to accommodate expanded programming.

4.4 NEXT STEPS

It is anticipated that smaller projects in this plan will continue to utilize TRS staff and volunteers for implementation while larger, more complex projects will be bid and constructed by professional contractors. As the larger capital projects move forward, it is essential to understand that implementing these improvements requires a multi-stage design process to complete plans for construction by professional contractors. Soft costs associated with design, testing, and permitting services may range from 10 to 20% of estimated construction costs, depending on the scope of the project and existing condition assessments required.

The following outlines a typical project workflow:

- Due diligence and base data collection, including topographic survey, architectural and structural assessments, geotechnical investigations, and other reports.
- Project scope and budget validation, engaging a professional cost estimator.
- Project funding, including capital campaign(s) and grant applications.
- Initial regulatory review as applicable.
- Schematic design. (15% of construction documents)
- Regulatory evaluation based on the refined schematic design and identification of required permits.
- Design development. (35% of construction documents)
- Permit applications and agency reviews.
- Final design and construction documents. (90% and 100% construction documents)
- Bid and construction award.
- Construction administration and observation.

Board and stakeholder review and confirmation of the project design and budget is required throughout the process, including after schematic design, design development, and 90% construction documents.

Credit: The Ridges Sanctuary

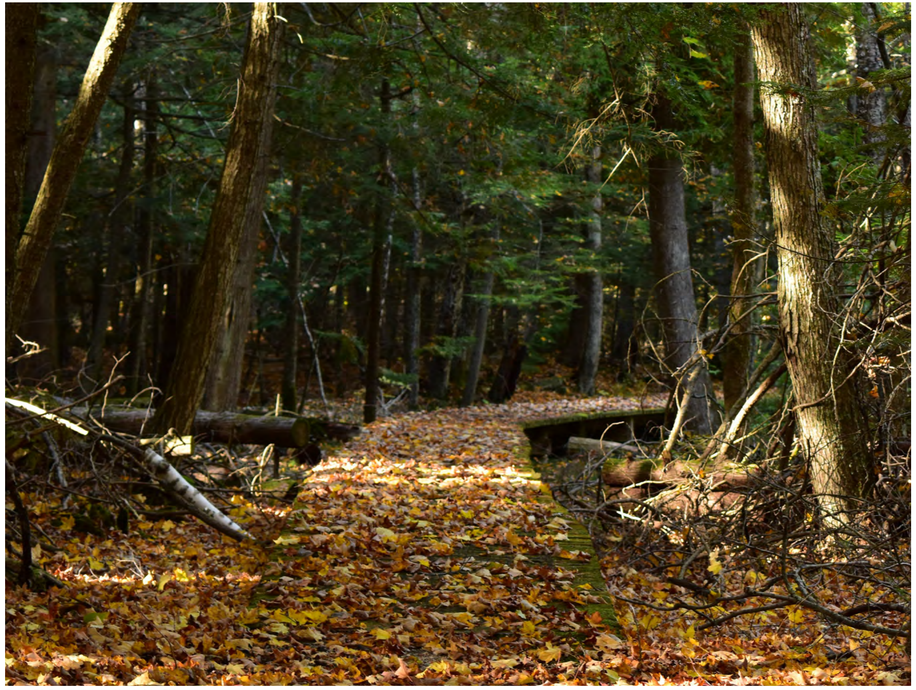


Figure 74: Boardwalk in the Heart of the Ridges

"The true value of a sanctuary is spiritual, and we Americans need a sound awakening in the spiritual way of life. We are at the crossroads, there is no turning back, and 'onward' sounds the voice of the tomorrow. The Ridges Sanctuary points the way towards a more profound life, towards tolerance and love for that beauty that is America, our home. To live in perfect harmony alongside the primitive, to understand its message..."

Jens Jensen, 1941

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THE RIDGES