

SAGATAGAN

Saint John's
OUTDOOR
UNIVERSITY



Keep it Alive and Growing JOHN GEISLER '99

A tribute to the visionary work of our founder, Fr. Paul Schwietz, O.S.B. (1952-2000)



Fr. Paul Schwietz, Outdoor U/Abbey Arboretum founder, pictured in the oak savanna. OUTDOOR U ARCHIVES.

It has been twenty years since the Saint John's community was shocked and filled with grief upon learning of Father Paul Schwietz's sudden death on May 4, 2000. In my five years of knowing and working with Fr. Paul, I was inspired by his respect and enthusiasm for life as well as the brilliant impression he left wherever he worked.

In 1997 one of Fr. Paul's greatest dreams came true when the lands he worked so hard to preserve and restore were dedicated as a natural arboretum. His founding beliefs, knowledge, and passion were exemplified in the vision "to celebrate and preserve the unique beauty and richness of God's creation in central Minnesota, fostering the Benedictine tradition of land stewardship, education, and environmental respect," a vision we strive for to this day.

One of the first items I found as I entered Fr. Paul's office after his death was a handwritten

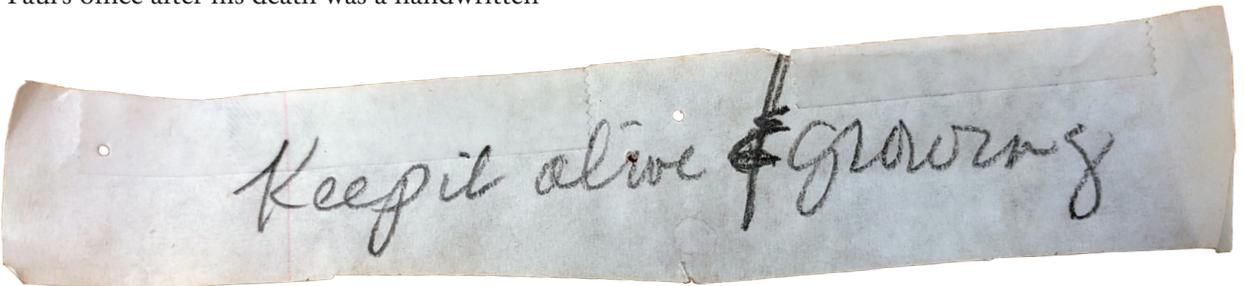
note: "Keep it alive & growing." Thanks to Saint John's Abbey, Saint John's University, the College of Saint Benedict, current and former staff, and hundreds of individuals who annually donate time and treasure to support our mission, the legacy of Fr. Paul's vision is in fact, alive and growing.

Evidence abounds in the stewardship efforts occurring within the Abbey Arboretum and the breadth and depth of outdoor education opportunities now offered through Saint John's Outdoor University.

Fr. Paul initiated many long-term stewardship projects on the land such as the habitat restoration project (restored wetlands, prairie, oak savanna), extensive conifer plantings and thinnings (earning him the title, "The Padre of the Pines"), and the very first oak shelterwood regeneration harvests. I often imagine Fr. Paul smiling or laughing his hearty laugh every time we complete a prescribed burn, discover the appearance of a new native species due to restoration work, thin a conifer stand, or nurture a healthy young oak stand. I know he would have been impressed by the Abbey Conservation Corps volunteers who continue to make a profound impact promoting the health and biodiversity of the Abbey Arboretum.

Further, Fr. Paul would have been extremely proud of the programming Saint John's Outdoor University provides. Fr. Paul was often troubled

CONTINUED ON PAGE 2



Almost two decades after clipping out that note, it now hangs in Outdoor U director and Abbey land manager John Geissler's office as an inspirational reminder to continue this meaningful work that will outlive us and benefit countless others. JOHN GEISLER.

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by how many people take our natural resources for granted. He saw a tremendous need to reconnect students of all ages with nature and improve environmental literacy. What began as an extremely small educational program initiated by Fr. Paul serving a few hundred in the 1990's has grown into a regionally recognized professional outdoor education program that serves and engages more than 5,000 pre-K-12 students, 5,000 CSB/SJU student interactions, and 3,500 community members annually.

This tribute is to the vision and energy of Fr. Paul and all who have subsequently contributed to advancing

our mission of caring for this special place, inspiring the next generation of environmental leaders, and increasing environmental literacy in students of all ages. The beauty about being a part of this work is that it continues to give long after we are gone.

JOHN GEISSLER '99 is the director of Outdoor U and the land manager and forester for Saint John's Abbey. A version of this article also appears in the spring 2020 issue of The Abbey Banner.

SAGATAGAN SEASONS

Volume 1, Number 1

Newsletter of Saint John's Arboretum

March 1998

Arboretum at Saint John's after 140 Years

By Fr. Paul Schwietz, OSB

On 9 May 1997, Brother Dietrich Reinhart, OSB, president, and Abbot Timothy Kelly, OSB dedicated the land at Saint John's as a Natural Arboretum.

The purpose of any arboretum is to illuminate the educational importance and values of the plant kingdom. It's a place where one can study trees, shrubs, herbaceous plants and their interaction. Many people, when they hear about an arboretum, think of a botanic garden with manicured lawns and flowerbeds. However, there is another type of arboretum, one which focuses on the natural environment. Approximately two thousand acres of our campus are beyond the proximity of our buildings and lawns. Here

the land is more natural – presenting various healthy and diverse environments.

An arboretum is important because it helps us to understand how we fit into the environment. With more of our human population being urban, a large gap has developed between our society and the natural world. The simple fact is that plant diversity is the basis of our civilization. Saint John's is an educational institution; with this arboretum, it can teach others about the environment. For years students have studied plant taxonomy, ecology, and other field-courses on the land. Saint John's has the best proximate natural resources
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of any college in the state. We can thus promote a better understanding of the environment in which we live, a natural strength of the campus. It is important to realize that all learning doesn't happen in class. As Ralph Waldo Emerson said: "The greatest wonder is that we can see these trees and not wonder more."

Fr. Paul Schwietz died unexpectedly twenty years ago this May, just two years after he penned this article in the first issue of *Sagatagan Seasons* celebrating the establishment of a natural arboretum at Saint John's. His vision lives on and we think he'd be proud to see his legacy at work today. OUTDOOR U ARCHIVES.

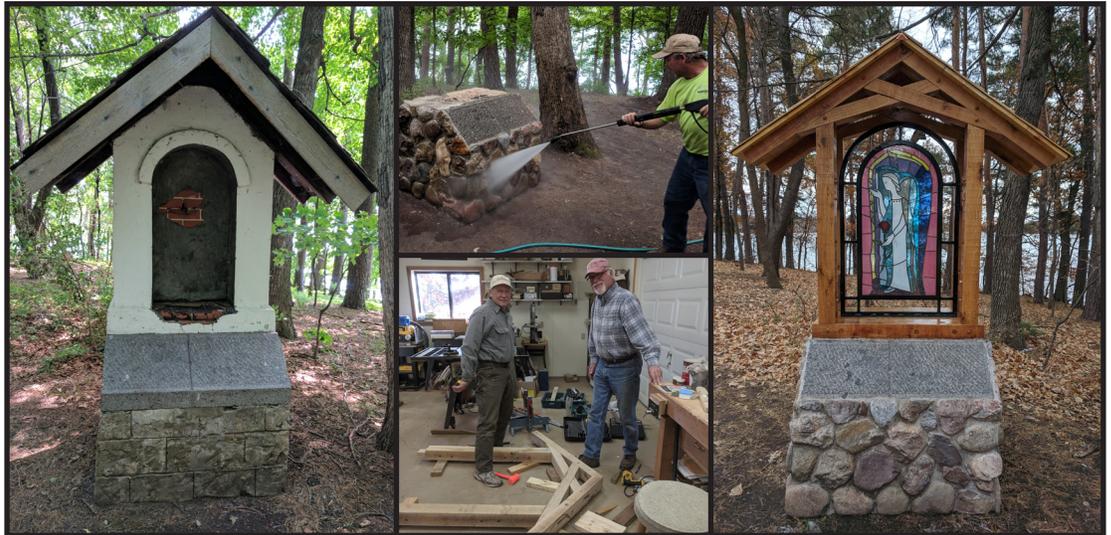
Chapel Trail Donation Brings Restoration

The Chapel Trail, a three-mile roundtrip hike that skirts the shore of Lake Sagatagan to the Stella Maris Chapel, is a storied trail and one of the most popular for students and visitors alike. Thanks to a generous donation, we have been able to improve and restore several notable features along the trail. *PHOTOS BY JOHN GEISSLER.*



The statue of Saint Kateri Tekakwitha, “Lily of the Mohawks,” pictured before (left) and after repair, sealing, and cleaning. Repairs were also completed on the stone chair near the statue. The statue was gifted to Saint John’s in 1956 on the 300th anniversary of Saint Kateri’s birth. The Catholic Church recognizes Saint Kateri, as well as Saint Francis, as a patron of the environment. Although she wasn’t officially canonized until 2012, her statue on the Chapel Trail at Saint John’s has said “saint” for decades.

The niche shrine on Prep Point (left) once held a statue of Saint Francis and, earlier, a statue of the Blessed Virgin. Abbey Conservation Corps volunteers Neil Franz and John Krueger helped build the new timber-frame structure that echoes the architecture of the Trailhead. The base was partially rebuilt while maintaining the flat stones beneath the alcove; the vertical line marks the direction uphill to the north where the Abbey’s observatory tower once stood. The new stained glass window depicts the Annunciation, when the angel Gabriel visits the Virgin Mary, a fitting reflection on the journey to Stella Maris Chapel that was originally built in 1872 to honor Mary, the Mother of God.



The bridge on the final approach to Stella Maris Chapel has been replaced (before and after pictures, left). The new floats beneath the bridge will help protect the structure during fluctuating lake levels. Above, a new floating canoe landing behind the Chapel provides easier access to and from Lake Sagatagan for boaters and hikers alike.

The Maple Syrup 8-Ball

DR. STEPHEN SAUPE



One of my most important roles as a college professor is advising. Each semester, I meet individually with more than a dozen students to discuss career options, course selection for the next semester, progress towards their major, and various research opportunities.

Of course, as a highly dedicated professional, I take this responsibility very seriously and spend lots of time preparing for these meetings. Prior to each, I bone-up on the requirements for various majors, check DegreeWorks, and then buff my Magic 8-Ball.

Magic 8-Ball? Just kidding.

However, I do have a Magic 8-Ball that sits prominently on my desk, ready to help answer difficult questions. For example, I can shake it and ask, “Hey Magic 8-Ball, should Sam take chemistry next semester?” – *‘Without a doubt.’* Or, “Hey Magic 8-Ball, will Elise get accepted into graduate school?” – *‘It is certain.’* And even, “Hey Magic 8-Ball, am I going to get a Nobel Prize this year?” – *‘My sources say no.’* My Magic 8-Ball is always “spot on” for these easy questions.

When I asked, “Hey Magic 8-Ball, how will maple sap flow be affected by climate change?” The answer was, *‘Reply hazy, try again,’* followed by *‘Cannot predict now,’* and then *‘Concentrate and ask again.’* My Magic 8-Ball wasn’t very helpful. Looks like we will need to answer this question the old-fashioned way – with a wee bit of science.

Fortunately, there have been some recent research to help us. After studying sap production in six sites in eastern North America, Rapp *et al* (2019a & b) concluded that the midpoint of the sap production season will occur a month earlier by the year 2100. A study in Quebec by Houle *et al* (2015) obtained similar results; they predicted that the sap season will occur about 19 days earlier by 2100. Rapp *et al* (2019a) also noted that during this same time period the sugar content of sap will decline by nearly 1 °Brix, and the region of maximum sap flow will move 400 km northward.

Yikes. The Magic 8-Ball should have predicted, *‘Outlook not so good.’*

The westernmost site selected by Rapp *et al* (2019) was in Indiana. As a consequence, it’s not clear what the future holds for Minnesota maple producers, like Saint John’s, who are on the western edge of the maple range. To try and

learn what we might expect, I analyzed the records from the Saint John’s Maple Syrup operation. These data are published at the end of every maple season and available at our website (csbsju.edu/outdooru/abbeyarboretum/maplesyrup).

Is sap flow getting earlier in central Minnesota?

To answer this question, I plotted the midpoint of our sap season versus year (Figure 1, below). The midpoint is the day on which 50% or more of the sap for the season was collected. From the graph you can see that there has been a slight trend toward earlier sap production during the past 45 years. If true, these data suggest that the midpoint of the season has gotten earlier by approximately one day per decade. Currently our mean (and median) sap flow midpoint date is April 2nd. By 2100, our data suggest that the midpoint of our season will be about a week earlier (7.3 days) or roughly March 26th. Compared to the 3-4 times greater change predicted in Quebec (Houle *et al*, 2015) and eastern North America (Rapp *et al*, 2019a), perhaps we should consider ourselves lucky.

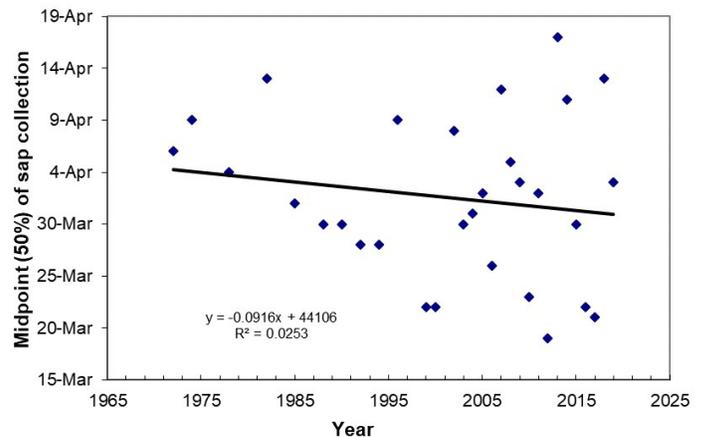


Figure 1. Plot of the date when 50% of the yearly sap was collected (season midpoint) versus year for the Saint John’s Maple Syrup operation based on data from 1974 - 2019.

Does temperature affect when sap flows in central Minnesota?

If temperature increases, then we expect sap flow to occur earlier in the season. Figure 2 plots the midpoint of the sap flow season versus the average temperature for the sap flow season, January – April. This graph shows that there is a very strong inverse relationship between sap flow and temperature. For every degree increase in mean temperature of the season, the sap collection season will shift earlier by 1.5 days! This is similar to Rapp *et al* (2019b) who found that the season will shift by about

2 days for every 1°F increase. If we ask the Magic 8-Ball whether warming temperatures will affect when sap flows at Saint John's, the answer would be an emphatic, 'yes - definitely.'

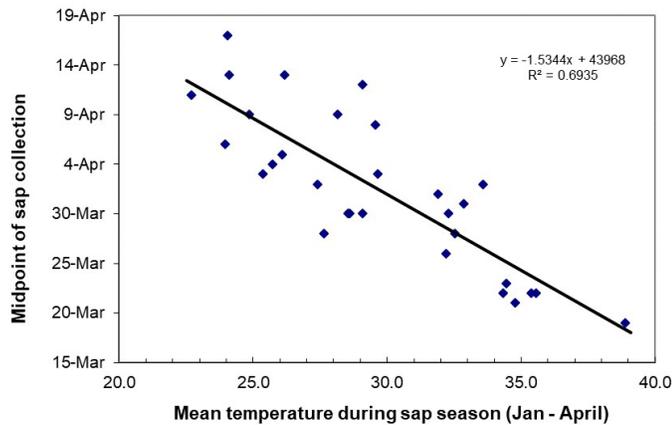


Figure 2. Plot of the season sap collection midpoint versus the mean temperature for the sap season (January - April) in the Saint John's Maple Syrup Operation, based on data from 1974 – 2019. Temperature data from the MN Climate Trends website. For every degree increase in mean temperature of the season, the sap collection season will shift earlier by 1.5 days.

Is the season getting longer?

The number of days between our first and last sap collection has also increased in the past 45 years. Figure 3 (below) shows that there is a trend toward a longer sap flow season; the season length has increased about 3 days per decade. Currently, the average season length is 24.8 days, which is about five days longer than when I began making syrup at Saint John's in 2000. The Magic 8-Ball should answer this question, 'It is decidedly so.'

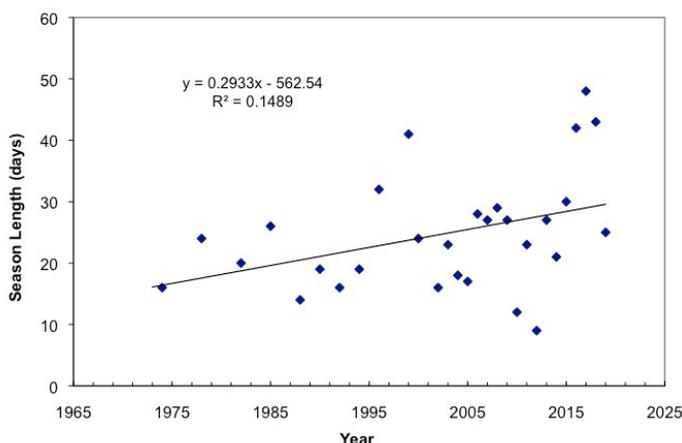


Figure 3. Length in days of the sap season, from first sap collected to the last day of sap collection, at the Saint John's Maple Syrup operation from 1974 – 2019.

How will the sugar concentration of the sap be affected by climate change?

Rapp *et al* (2019a & b) reported that the sugar concentration of the sap decreased with increasing



Saint John's Maple Syrup records so far concur with most recent climate research that shows a trend for earlier and longer sap seasons, but is inconclusive on the possible decrease in sap sugar concentration.

temperature of the previous growing season. They speculated that the increased warmth enhanced cellular respiration leading to lower amounts of storage carbohydrates for the following sap season. I was unable to detect this trend for our Minnesota data (data not shown). It's difficult to know whether this is due to some sort of biological difference in our sugar maple trees, or if it is the result of how we determine sap sugar concentration. Rapp *et al* (2019a) measured sap sugar concentration directly, whereas we calculate this value from sap and syrup volumes, which is less accurate. In any case, the Magic 8-Ball would be correct if it said that the answer to this question for our data is that we 'cannot predict now.'

In summary, an analysis of the records that we have been maintaining at the Saint John's Maple Syrup operation show that our maple season is coming earlier, lasting longer, and will be even earlier in the future if sap season temperatures rise.

I wonder if I my Magic 8-Ball is jealous that I relied on science to answer these questions? Let's ask. 'The signs point to yes.'

STEPHEN SAUPE is a biology professor at CSB/SJU and is one of our indispensable syrupers at Saint John's.

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- Houle, D, A Paquette, B Cote, T Logan, H Powre, I Charron, L Duchesne (2015) Impacts of climate change on the timing of the production of maple syrup in eastern Canada. PLoS ONE 10 (12): 1 – 14. DOI:10.1371/journal.pone.0144844.
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- Rapp, J, S Ahmed, D Lutz, R Huish (2019b) The shifting sweet spot of maple syrup production: Climate change impact on sugar maple sap. Maple Syrup Digest 58: 17 – 25. Minnesota Climate Trends – MN DNR. Accessed February 1, 2020. Available at <https://arcgis.dnr.state.mn.us/ewr/climatetrends/#>

Nature Explorers Summer Day Camp

Summer 2019 marked our first foray into summer camps at Outdoor U. We could spend some time here diving into the advantages of nature play and exploration, the skills and confidence building, the joy and wonder discovered by camp students and staff alike. Or we can just let “the experts” explain. PHOTOS BY 2019 OUTDOOR U CAMP STAFF.

“

I didn't know what I was capable of until camp.

It was just a really unique experience compared with other day camps they've done and they can't wait to go back next year.

”



2020 Summer Camps BE A NATURE EXPLORER

MN ANIMALS:

Jun 22-26 or Jul 6-10

JR. NATURALIST:

Jul 20-24 or Aug 3-7

- * 3rd-6th graders (as of Fall 2020)
- * Can attend both camps but not the same camp twice.
- * Member & sibling discounts

REGISTER NOW!



“

Our camper was VERY reluctant to participate at the start of the week, but consistently came home happy and excited to attend the next day. That is indeed the highest of compliments you can get from her!

The kids came home and couldn't wait to tell us what they did and learned. That normally doesn't happen!

”



Get Involved

SAINT JOHN'S OUTDOOR UNIVERSITY

ABBEY CONSERVATION CORPS WORKDAYS

csbsju.edu/outdooru/events/volunteer

Help with land stewardship efforts in the 2,944-acre Abbey Arboretum this season. Initial projects include building wire cages to protect 2,000 oak seedlings to be planted this spring. No experience necessary.

Thursdays weekly

1:15—3:30 p.m.

MAPLE SYRUP FESTIVAL

Pre-register and save!

Join us for what has become our most popular event of the year! Sap collecting, syrup cooking, demonstrations, and hot maple syrup sundaes await the whole family during this fun-filled event! Saint John's Maple Syrup patches \$2 each at the festival - for scouts, 4H, birthday parties, clubs, or anybody who likes to collect patches! Pre-registration prices available through noon on the Friday before the festival.

Saturday, Apr 4

11:00 a.m.—4:00 p.m.

FRUIT AT THE FINISH TRIATHLON

Compete individually or in teams of three in the annual fruit-themed triathlon at CSB/SJU. Swim 0.75K, run 5K, and bike 23K in this event hosted by the Peer Resource Program, Outdoor Leadership Center, and Outdoor U. Participants receive a t-shirt with this year's fruit-based slogan and logo.

Saturday, Apr 25

ABBEY CONSERVATION CORPS LEAVE A LEGACY

TREE PLANTING

csbsju.edu/outdooru/events/volunteer

Kick off the growing season with a day of service! Plant, protect and water up to 2,000 oak seedlings in the Abbey Arboretum. Lunch and free t-shirts provided to all volunteers.

Saturday, May 9

9:00 a.m.—Noon and/or 12:30—3:30 p.m.

SPRING BIRDING DAY

Includes morning refreshments and lunch

Spend a morning hiking through the Abbey Arboretum during peak bird migration. Early risers will be stunned by the abundance of birds active early in the day.

Saturday, May 9

5:30 a.m.—12:00 p.m., OR 8:00 a.m.—12:00 p.m.

NEW! CANOE BUILDING WORKSHOP

Participants will gain canoe-building skills as they build a 17-foot Atkinson Traveler, wood and canvas, canoe that will be put up for auction to support environmental and outdoor education at Saint John's Outdoor University.

Jun 8-14

NATURE EXPLORER SUMMER DAY CAMPS

For children entering 3rd-6th grades in fall 2020

8:30 a.m.—4:00 p.m. daily

The first two weeks of our summer day camps will focus on Minnesota animals, especially those living in the Abbey Arboretum. The second two weeks will be our new Junior Naturalist camp. From orienteering to journaling to identification, we'll explore it all in a week full of outdoor knowledge and skill-building. Activities will include exploring, observing, games, arts and up-close nature encounters. Children can attend both camps (MN Animals or Jr. Naturalist) but not the same camp twice. Member and sibling discounts available.

Jun 22-26, Jul 6-10,

Jul 20-24, Aug 3-7

MN MASTER NATURALIST VOLUNTEER

TRAINING - PRAIRIES & POTHoles

minnesotamasternaturalist.org

The MN Master Naturalist program is akin to the Master Gardener program and is geared toward adults who are curious and enjoy learning about the natural world and sharing their knowledge with others. Complete a 40-hour course during one week, studying natural history, environmental interpretation and conservation stewardship of the prairies and potholes biome. The 2020 course is currently full, but watch for more opportunities in future years!

Monday-Friday, Aug 3-7

8:30 a.m. - 4:30 p.m.

This course is currently full!

Saint John's Outdoor University Staff:

JOHN GEISSLER
Saint John's Outdoor U Director
Abbey Arboretum Land Manager
SARAH GAINEY
Assistant Director
Envr. Education Coordinator
KYLE RAUCH
Assistant Director
Envr. Education Coordinator
JENNY KUTTER
Department Coordinator
Editor, Sagatagan Seasons
VANESSA HENSLEY
Environmental Education Fellow
HENRY BECKER
Abbey Arboretum Forest Technician

Student Staff:

1 OFFICE ASSISTANT
2 LAND MANAGERS
6 NATURALIST AIDES
10 OLC STAFF
11 NATURALISTS
44 PRP FACILITATORS

Advisory Council:

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ALISON BINSFELD
SANDRA CORDIE
SCOTT DANINGER
KARI DOMBROVSKI
NEIL FRANZ
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ERIC HOLLAS, OSB
DICK HOWARD
TROY KNIGHT
MARIA SURMA MANKA
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SAGATAGAN SEASONS

Spring 2020

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THE PROGRAM
Saint John's Outdoor University provides environmental and outdoor education through classes, events and initiatives with the Abbey Arboretum, Saint John's University and the College of Saint Benedict.

THE PLACE
Saint John's Abbey Arboretum is more than 2,500 acres of lakes, prairie, oak savanna and forest owned by Saint John's Abbey and surrounding Saint John's University.

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SATURDAY, MAY 9

Abbey Conservation Corps

Leave a Legacy Tree Planting

9:00 a.m.-Noon and/or
12:30-3:30 p.m.

Help plant, protect, and water 2,000 oaks for the year 2258!



Spring Birding Day

5:30 a.m.-Noon or
8:00 a.m.-Noon

Morning refreshments and lunch included.



Choose Your Adventure - Sign up today!