U.S. DEPARTMENT OF EDUCATION

GreenRibbonSchools

2013-2014 School Nominee Presentation Form

PART I - ELIGIBILITY CERTIFICATION

School and District's Certifications

The signatures of the school principal and district superintendent (or equivalents) on the next page certify that each of the statements below concerning the school's eligibility and compliance with the following requirements is true and correct to the best of their knowledge. *In no case is a private school required to make any certification with regard to the public school district in which it is located.*

1. The school has some configuration that includes one or more of grades Pre-K-12. (Schools on the same campus with one principal, even a Pre-K-12 school, must apply as an entire school.)

2. The school has been evaluated and selected from among schools within the Nominating Authority's jurisdiction, based on high achievement in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental and sustainability education.

3. Neither the nominated public school nor its public school district is refusing the U.S. Department of Education Office of Civil Rights (OCR) access to information necessary to investigate a civil rights complaint or to conduct a district wide compliance review.

4. OCR has not issued a violation letter of findings to the public school district concluding that the nominated public school or the public school district as a whole has violated one or more of the civil rights statutes. A violation letter of findings will not be considered outstanding if OCR has accepted a corrective action plan to remedy the violation.

5. The U.S. Department of Justice does not have a pending suit alleging that the public school or the public school district as a whole has violated one or more of the civil rights statutes or the Constitution's equal protection clause.

6. There are no findings of violations of the Individuals with Disabilities Education Act in a U.S. Department of Education monitoring report that apply to the public school or public school district in question; or if there are such findings, the state or public school district has corrected, or agreed to correct, the findings.

7. The school meets all applicable federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

[ ] Charter [ ] Title I [ ] Magnet [X] Private [ ] Independent

Name of ~~Principal~~ Head of School: **Mr. Stefan Anderson**
(Specify: Ms., Miss, Mrs., Dr., Mr., etc.) (As it should appear in the official records)

Official School Name: **Conserve School**
(As it should appear on an award)

School Mailing Address: **5400 N. Black Oak Lake Rd.**
(If address is P.O. Box, also include street address.)

Land O Lakes, WI 54540
City State Zip

County **Vilas** State School Code Number* **N/A**

Telephone (**715**) **547-1308** Fax ( )

Web site/URL **www.ConserveSchool.org** E-mail: **stefan.anderson@ConserveSchool.org**

I have reviewed the information in this application and certify that to the best of my knowledge all information is accurate.

_____ Date **1/17/2014**
(Principal's Signature) (Head of School)

Name of Superintendent* **N/A**
(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

District Name* **N/A** Tel.( ) **N/A**

I have reviewed the information in this application and certify that to the best of my knowledge all information is accurate. This is one of the highest performing green schools in my jurisdiction.

N/A Date **N/A**
(Superintendent's Signature)

**Private Schools: If the information requested is not applicable, write N/A in the space.*

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PART II – SUMMARY OF ACHIEVEMENTS

Instructions to School Principal

Provide a concise and coherent "snapshot" that describes how your school is representative of your jurisdiction's highest achieving green school efforts in approximately 800 words. Summarize your strengths and accomplishments. Focus on what makes your school worthy of the title U.S. Department of Education Green Ribbon School.

PART III – DOCUMENTATION OF STATE EVALUATION OF NOMINEE

Instructions to Nominating Authority

The Nominating Authority must document schools' high achievement in each of the three ED-GRS Pillars and nine Elements. For each school nominated, please attach documentation in each Pillar and Element. This may be the Authority's application based on the Framework and sample application or a committee's written evaluation of a school in each Pillar and Element.

Nominating Authority's Certifications

The signature by the Nominating Authority on this page certifies that each of the statements below concerning the school's eligibility and compliance with the following requirements is true and correct to the best of the Authority's knowledge.

1. The school has some configuration that includes one or more of grades Pre-K-12. (Schools on the same campus with one principal, even a Pre-K-12 school, must apply as an entire school.)

2. The school is one of those overseen by the Nominating Authority which is highest achieving in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental and sustainability education.

3. The school meets all applicable federal civil rights and federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

Name of Nominating Agency: Wisconsin Department of Public Instruction

U.S. DEPARTMENT OF EDUCATION

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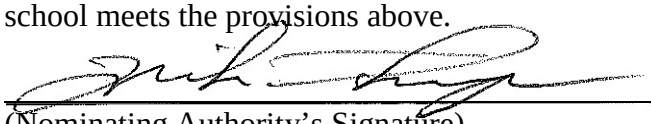
Name of Nominating Authority State Superintendent Tony Evers, PhD

(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

I have reviewed the information in this application and certify to the best of my knowledge that the school meets the provisions above.



Date 1/24/2014

(Nominating Authority's Signature)

The nomination package, including the signed certifications and documentation of evaluation in the three Pillars should be converted to a PDF file and emailed to green.ribbon.schools@ed.gov according to the instructions in the Nominee Submission Procedure.

OMB Control Number: 1860-0509
Expiration Date: February 28, 2015

Public Burden Statement

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless such collection displays a valid OMB control number. The valid OMB control number for this information collection is 1860-0509. Public reporting burden for this collection of information is estimated to average 37 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The obligation to respond to this collection is required to obtain or retain benefit P.L. 107-110, Sec. 501, Innovative Programs and Parental Choice Provisions. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the U.S. Department of Education, 400 Maryland Ave., SW, Washington, DC 20202-4536 or email ICDocketMgr@ed.gov and reference the OMB Control Number 1860-0509. Note: Please do not return the completed ED-Green Ribbon Schools application to this address.

WISCONSIN DEPARTMENT OF PUBLIC INSTRUCTION

Tony Evers, PhD, State Superintendent

U.S. Department of Education Green Ribbon Schools
Summary of Achievements
for
Conserve School

Sustainability is a core value at Conserve School, a private boarding school that brings 60 high school students from around the U.S. to its 1200-acre campus for immersion into environmental studies and outdoor activities through a rigorous college-preparatory curriculum. Its daily operating procedures, school culture, and educational philosophy embody all three pillars of the U.S. Department of Education's Green Ribbon Schools goals. Continuous improvement in sustainability is built into school programs, operations, and facilities. In and out of class, staff and students regularly plan and implement activities to enhance environmental stewardship and sustainability.

Conserve School provides students with full scholarships, thereby making attendance at Conserve School attainable for qualified students regardless of socioeconomic status, and provides laptops, and extensive equipment for outdoor activities. Eighty percent of students come from public schools.

Pillar I: Reduced Environmental Impact
Conserve School is committed to providing students and staff with healthy and sustainable learning and living spaces that are also effective teaching tools. This commitment has led to a variety of improvements and additions that include recycling and composting programs, energy monitoring systems, and photovoltaic arrays. In addition, the school has transformed high-maintenance ball fields into low-maintenance gardens, replaced standard vehicles with energy efficient vehicles, expanded environmentally friendly landscaping and the use of natural and energy-efficient light sources, installed water bottle filling stations, removed trays from the cafeteria, eliminated vehicular traffic on campus trails along with non-local student trips, built bike shelters, and installed bike repair stations. Student leadership and labor has played a role in most of these program improvements.

Facilities staff members aggressively pursue continuous improvement in sustainability. Supervisors conduct frequent audits of energy efficiency and environmental health. For example, campus lampposts were recently switched from metal halide to LED and photo cells were added so that lights would only turn on when necessary. These changes resulted in a 50% reduction in energy use.

Pillar II: Improved Health & Wellness
Conserve School's design and construction was based on best practices in environmental health. Building features include large space volumes for better air quality, interior glazing to maximize daylight, localized pollutant source exhausts, and low emission finishes of volatile organic compounds. Best practices in environmental health are followed when replacing or repairing materials. For example, replacement carpeting was recently selected after a comprehensive review of alternatives that took into account not only the health and safety of materials but also the impact of installation procedures on indoor environmental health.

Conserve School promotes wellness by integrating outdoor activities into classes and extracurriculars. Students swim, kayak, or canoe on campus lakes, and hike, run, or bike on wooded trails. In winter, they ski, snowshoe, ice skate, winter camp, and sled. Many activities integrate academics, stewardship, and outdoor activities. For example, in science class, students pull invasive plants and study water quality while hiking and paddling.

Student and staff advocacy for sustainable food has led to many positive changes despite the challenges of a remote location in the far north. School meals now include a salad bar, fresh fruits and vegetables, whole grain foods, and vegetarian, vegan, and gluten-free options. Access to foods and beverages of minimal nutritional value has been restricted. Beverages are healthy and include skim and soy milk. In 2013, the school garden produced 233 lbs. of produce for the cafeteria, much of it planted and harvested by students. Connections with local farmers are growing. Fifteen percent of the food purchased is "environmentally preferable."

Pillar III: Effective Environmental and Sustainability Education
Environmental and sustainability education is integrated into all subject areas. Required courses include environmental communications, outdoor exploration and leadership, adventure-based physical education, and environmental science. Electives include AP Environmental Science and art courses that use natural and recycled materials. Wednesday afternoons are dedicated to a unique Stewardship in Action class, during which students learn about environmental colleges and careers, listen to presentations from professionals in environmental fields, and carry out hands-on sustainability and stewardship projects on campus. Projects include removing invasive species, building bat or bird houses, making maple syrup, or working in the gardens, orchard, or apiary.

Cross-Cutting Questions
One of the keys to Conserve School's success has been its partnerships with other "green" organizations. Conserve School established a partnership with the University of Wisconsin - Stevens Point that led to a graduate fellowship program through which 16 UWSP graduate students work at Conserve School while earning master's degrees in natural resources and environmental education. Conserve School partners with the nearby Northwoods Discovery Center to educate students about citizen science, wolf studies, and birding. The school also partners with local Ojibwe organizations to involve students in restoring wild rice stands. In addition, Northland College in Ashland helps Conserve School conduct loon studies on campus and educate students about choosing and affording a green college, and The Nature Conservancy organizes community service days and trains students to fight invasives on private and public land. Staff members are active in the Wisconsin Association for Environmental Education, the Green Schools National Network, and the Green Schools Alliance. Conserve School was one of the first Wisconsin Green and Healthy Schools.

Scoring and Highlights:
The complete state application is too long to include in this nomination submission, so the applicant's information has been summarized in the following pages, aligned with the pillars and elements. Each application was ranked by teams of external and internal reviewers, each with different areas of expertise, using a common ranking tool. In addition, the slate of nominees was forwarded to related state and federal agencies to ensure there were no compliance or regulatory issues.

Conserve School serves 60 students and has 50 staff. They have 13 buildings on their campus.

The summary of the nominee's achievements as reported in their application is presented in each pillar and element below. The focus area is in reference to Wisconsin's application structure.

Pillar I: Reduced Environmental Impact
Element 1A: reduced or eliminated green house gas (GHG) emissions
Focus Area: Energy
The school has conducted 5 formal energy audits since 2004:
- ✓ Focus on Energy (2007) energy audit; Resulted in small grant for energy-saving showerheads and dishwasher sprayers
- ✓ Local provider (2007) "Sun and Daughters" local company; Resulted in small grant for installation of two solar arrays, a fixed array on a school building roof and a tracking array near the school garden, which produce about .61% of total energy use. This percentage is an average for the past year and fluctuates due to seasonal changes. Staff and students once calculated that the arrays provide more energy than is necessary to power all computers and associated peripherals on campus. The local utility uses a buy-back system for the unused energy and the school also uses daylighting.
- ✓ Wisconsin Green & Healthy Schools audit (2004); Named Green & Healthy School in 2004. Recognition was associated with a site audit that included an energy component. Applied for and received a grant to implement recommended actions to improve energy efficiency in 2005.
- ✓ Other (2007 & 2008) Science class conducted a wind audit and feasibility analysis of wind energy on campus in 2007. Two professional wind audits conducted in 2007. Sodexo energy audit conducted in 2008.

The school is not Energy Star certified; however, they report meeting the requirements for certification and provide this explanation: Conserve School prioritizes energy efficiency, maintaining and replacing computers, appliances, and mechanical equipment on a regularly scheduled cycle that is aggressive and adhered to meticulously. The school encourages staff and students to report problems immediately so they can be rectified promptly. The school purchases Energy Star-certified electronics, appliances, and equipment whenever available.

The school budget ensures that all appliances and equipment are inspected and serviced promptly, following industry best practices in energy efficiency. Conserve School carries out facilities management and food services in partnership with the Sodexo Corporation; therefore, the school benefits from the expertise of a multinational company with an explicit commitment to sustainability and comprehensive knowledge of environmentally friendly practices.

The school uses the following green building practices to increase energy efficiency in the building:
- ✓ School developed an Energy Policy Plan in 2002. Comments: Sodexo's policies emphasize reducing energy use. Please take into account that Conserve boards students 24/7, staff and families live on campus year-round; and the campus has many large buildings, including residence houses -- unlike most schools.
- ✓ Sodexo has energy efficiency and sustainability benchmarks, audits, and tracking tools. Sodexo sets high standard for energy efficiency, requires facilities personnel to track improvements, performs site visit audits frequently, and upgrades energy efficiency practices regularly.

The school's buildings were constructed according to best standards in green construction and renovations are conducted accordingly. The school has renovated the buildings within the past 10 years and 100% of the renovated area meets green building standards.

The school monitors its energy use and has reduced its total energy use from an initial baseline. The school has also installed energy saving devices:
- ✓ Switched to energy efficient lighting. Comments: Lighting is replaced on an ongoing basis with more efficient options, some lighting has been reduced or eliminated as the result of student research on building codes and light levels - for example, metal halide was replaced with LED.
- ✓ Installed occupancy sensors that are triggered by movement and/or sound.
- ✓ All vending machines have been removed to encourage healthy choices and to save energy.
- ✓ Upgraded to a more energy efficient HVAC system. Comments: We now use a 24/7 monitoring system from Complete Control in the main academic building to allow ongoing adjustment and optimization of the energy efficiency of the air handling system.
- ✓ Other: low-flow showerheads, dishwashing spray-heads, and toilets; energy-efficient blinds; library air conditioners and dehumidifiers replaced by more efficient central system; motors replaced with VFDs; energy-efficient hand dryers installed.

A recent HVAC audit showed that building pressure differentials could be adjusted to improve energy efficiency; implementation is set for 2014.

Students and staff identify and implement behavioral changes related to energy consumption by speaking directly to administrators, through e-mails, and in community meetings, classes, and informal conversations. Changes include:
- ✓ Reminding one another to turn off lights when leaving a room, to keep windows closed when the heating is on, and to report facilities problems promptly.
- ✓ Installing energy meters in residence houses to track their energy use and observe how behavioral changes affect it. Clubs have sponsored competitions between houses, presented skits, and created posters and signage on energy conservation.
- ✓ Abandoning cafeteria trays to reduce the use of water and energy for washing.
- ✓ Reduction in the use of paper and plastic products.

Energy education is integrated throughout the curriculum. In science, students learn the forms energy takes, how it is produced and transmitted, the pros and cons of alternative sources, and its role in individual organisms, food webs, ecosystems, and human society. They calculate energy output when doing deep knee bends and when on hiking trips; model energy flows while studying lichen; learn the science behind human contributions to climate change; use scale models to study traditional energy production and compare it to alternative systems; evaluate the potential of alternate energy to offset our reliance on fossil fuels; debate whether the U.S. should expand its use of nuclear power; research energy use at the school and advocate changes based on the Green Ribbon School application; use a power bike to experience the amount of effort it takes to generate one Btu of energy; and calculate energy savings achieved via a low-flow showerhead and/or a shorter shower. In English, students advocate energy efficiency by creating bumper stickers, giving speeches, and writing editorials. In Spanish class, students study human rights

issues associated with petroleum extraction in the Amazon.

Professional development related to energy efficiency has included attendance at the annual Green Schools National Conference, the Midwest Renewable Energy Fair, the Green Festival in Chicago, and Wisconsin Center for Environmental Education workshops. The school sent the AP Environmental Science teacher to several College Board AP workshops that cover energy education. Another science teacher attended a workshop at the Darrow School, a boarding school that emphasizes sustainability, on the topic of solar energy. Sodexo educates the Director of Campus Services and maintenance staff on energy efficiency on an ongoing basis.

Conserve School invites environmental professionals to the school to speak to students once a week as part of the required core course Stewardship in Action. The science classes also invite professional speakers to address environmental topics including energy efficiency and alternatives. Recent speakers have included Dr. Saeid Nooshabadi, a specialist in solar energy from Michigan Tech University, and Tom Giralamo, an environmental consultant who owns the local company Eco-Building and Forestry. Students have created biodiesel fuel as part of science class and constructed a solar pump for use during maple syrup production. Classes and extracurriculars have included visits to off-the-grid houses, to construction sites of companies that produce energy efficient buildings, and to homes that prioritize environmental outcomes like energy efficiency and that showcase alternative construction techniques, like a straw-bale house at Northland College.

Element 1B: Improved water quality, efficiency, and conservation

Focus Area: Water

Conserve School has many wells on school property which are 100% compliant with the Wisconsin Department of Natural Resources wellhead protection requirements for small municipal systems.

The school uses the following practices to increase water efficiency and ensure quality:

- ✓ Conducts annual audits of the facility and irrigation systems to ensure they are free of significant water leaks and to identify opportunities for savings. The school's system monitors water usage 24/7, so that a leak is recognized and fixed almost immediately through sudden fluctuations in water usage rates.
- ✓ Uses alternative water sources other than potable municipal or well water (ie. grey water, rainwater) for irrigation. The garden and orchard are primarily watered via natural rainfall.
- ✓ Has a smart irrigation system that adjusts watering time based on weather conditions; has a drip irrigation system that is smart in the sense that it is manually adjusted based on need and on rainfall.
- ✓ Landscaping is water-efficient and/or regionally appropriate.
- ✓ Reduced storm water runoff and/or reduced impermeable surfaces. The school's design took these issues into account.
- ✓ Taps, faucets, and fountains at the school are cleaned at least twice annually to reduce contamination and screens and aerators are cleaned at least annually to remove particulate lead deposits.
- ✓ Has a program to control lead in drinking water (including voluntary testing and implementation of measures to reduce lead exposure). The buildings are new and therefore do not present a risk of lead exposure as older buildings do; drinking water is tested frequently for a range of contaminants.
- ✓ Has a medication disposal policy that helps ensure water quality.

The school's innovative Green Machine wastewater treatment facility processes wastewater through a system of biologically active water tanks within a large greenhouse. Plants and microorganisms digest and filter the wastewater; it is then pumped into grassy drainage fields that filter it again. This movement through various biological systems replaces the caustic chemicals used in many municipal waste treatment plants and mimics the natural decomposition and filtering process found in wetlands.

The Conserve School campus includes pristine lakes, bogs, and wetlands. Students and staff work together to protect and conserve the excellent water quality on campus. For example, athletic fields have been repurposed as an organic garden, apiary, orchard, archery range, and chicken area, significantly reducing water usage. Native plants that withstand dry spells were planted in the butterfly garden and in surrounding open spaces. Vegetable strains are selected for their ability to thrive in the natural environment without much extra care or watering. The garden and orchard are watered on an as-needed basis using a drip irrigation system for trees and bushes, watering by hand for garden beds, or spot-watering with small sprinklers in dry spells. Natural rainfall is relied upon. Mulch, compost, and hoop houses help retain moisture. When excessive use of water is detected, the staff or students who are

responsible are asked to be more mindful of sustainability.

Students have volunteered for local organizations that prevent the spread of aquatic invasives through boat inspections. Lead tackle and live bait are not allowed in campus lakes.

Water quality and conservation are featured in classes. The academic building wraps around a lakeshore used as an outdoor classroom. In science class students monitor lake water quality, testing for turbidity, clarity, and other factors; collect macro-invertebrates to gauge the health of lakes; map depth contours of lake bottoms; test for lead contamination in bogs; learn how to conserve water; and study the biochemical interactions and energy flow systems within the wastewater treatment facility. The AP Environmental Science curriculum includes the water cycle, hydrogeologic systems, major watersheds in the U.S., contaminants in water and how to remove them, and the relationship between the flow of groundwater and local topography. Students examine worldwide fishing practices and the collapse of fish species. In history class, students study the Hetch Hetchy controversy to learn about laws and practices that have affected U.S. water quality over time and to understand the complexity of water conservation. Before wilderness trips, students learn about contaminants in local water, how to purify water using hand pumps, and how to protect lakes and streams when hiking or camping.

The Wastewater Specialist on the facilities staff assists the science teachers in educating students about the campus water system. He is required to take courses in wastewater processing every two years and is re-certified regularly. He completed the course "Instruments of Wastewater Treatment Plants" in 11/13. Science classes visit the wastewater treatment plant, and the Water Specialist explains to them how the system functions and how he tests campus water quality.

Students are currently participating in the Student Rebuild Water Challenge. They create paper beads out of old magazines and mail them to Student Rebuild. Every 20 beads provide access to clean water for one person in a village in Tanzania. The art teacher is running this project as an optional extracurricular activity. Students who participate learn about water quality and conservation in Africa. Students participated for six years in Mondialogo, an international UNESCO program. International partner teams created projects in response to themes that included water conservation. The Conserve School team was partnered with a team from Pakistan. The teams collaboratively developed a water conservation education project, which won two international awards. (See award section for details.) Students in a science class assisted Colorado State University students (via technology) in the research and design of a water purification system to be installed in Afghanistan.

Element 1B: Improved water quality, efficiency, and conservation

Focus Area: School Site

The school has many features on their school site to encourage outdoor learning and sustainable land use:

- ✓ 1900 sq. ft. native garden to attract butterflies.
- ✓ 6000 sq. ft. vegetable garden with 40 fruit trees.
- ✓ An arboretum in the commons areas with eight trees—one species for each graduating class of the four-year program, with formal signage including common and Latin names.
- ✓ 1200 acres of forest, lakes, and bogs used for outdoor classrooms.
- ✓ Four-acre demonstration prairie planted for educational purposes. (Plants native to Wisconsin were planted on land cleared by a blow-down and then used as a construction staging area. Students are taught that it is not a true prairie.)
- ✓ A playground (swings) integrated into a natural area.

The school shares a border with the Sylvania Wilderness of the Ottawa National Forest; both grounds that are used extensively.

In 2007, staff developed a set of Guiding Principles for Stewardship that commit to Leave No Trace principles, regular stewardship projects on campus, eradicating invasive species, maintaining an organic garden and orchard, monitoring the health of campus lakes, keeping an apiary, and composting daily. Staff and students built raised and lasagna beds and planted native plants to gradually remediate the soil when converting the athletic fields. Conserve School would like to grow produce for the school cafeteria even during the coldest part of winter, when temperatures dip to -30. Students have conducted long-term independent research projects during which they built,

tested, and compared various types of hydroponic set-ups to determine what would work best at Conserve School. In an expansion of this student initiative, the school has recently acquired a set of large hydroponic towers. The Food Service Director has made a commitment to tending them and growing produce right in the cafeteria.

Conserve School's 1200 wilderness acres both reduces water use that would otherwise be needed in manicured landscaping and provides an outdoor classroom. Students and teachers can step outside the academic building and be right on a beautiful lakeshore, or they can hike, bike, snowshoe, or ski to outlying lakes, bogs, and special habitats. Students learn by simulating historical adventures in boats, by painting the landscape "en plein air," and by reading essays about trees while actually in trees. Boats and canoes, along with sheds full of paddles, PFDs, and other supplies, are placed strategically on school property to facilitate outdoor learning. For tamer academic pursuits, benches, a fire ring, and a covered whiteboard are just outside the academic building.

Professional development is provided to ensure teachers use outdoor spaces. New staff are trained by the American Canoeing Association, Wilderness Medical Associates, and other experienced staff members in the outdoor skills necessary for wilderness campus and backcountry trips. Teachers have taken National Outdoor Leadership School courses. Two administrators attended a three-day "Learning and the Brain" national conference on the benefits of outdoor learning. One of the science teachers attended a course at the Island School in the Bahamas on sustainability and permaculture. In addition, UWSP graduate courses address the educational techniques used in outdoor learning.

Element 1C: Reduced waste production

Focus Area: Recycling & Waste Management

The environmental science students conducted a formal waste audit in 2007. In addition to the student audit, Sodexo Corporation requires facilities staff members to keep statistics on waste handling and to track change over time. Paper, glass, metals, plastics, ink cartridges, cell phones, milk cartons, batteries, rigid plastic caps, and plastic seed flats and plant containers are recycled. The recycling program is largely run by students. Recycling bins are located throughout the campus, including in residence halls and outdoors. Recycling bins are clearly labeled with signs and photo explanations. In almost all indoor locations, trash cans have a recycling bin next to them. Outdoors, there are fewer recycling bins than trash cans. Taking into account both indoor and outdoor trash cans, 71% of trash cans have a recycling bin next to them. Usually, three containers are placed together: garbage, paper, and co-mingled. In residence houses and the cafeteria, there are bins for compostable food waste. The relatively low number of recycling containers outside is not problematic because students and staff are used to carrying their own re-usable water bottles and are accustomed to packing their own trash. Water bottle filling stations have been installed on campus to encourage water bottle use. Therefore, Conserve School community members rarely need to use a recycling bin when outdoors. For a planned event like a picnic that is likely to produce recyclables or food waste, multiple recycling and composting bins are set up at the event to make recycling and composting as convenient as possible.

The school composts cafeteria food waste, school landscape waste material, and uses shredded office paper (100% of paper used at the school is SFI certified) for chicken coop litter and then compost it in a separate pile. Initially the school was not successful with compost due to cold weather and bears.

The school works to reduce hazardous waste in the following ways:

- ✓ Hazardous waste policy for storage, management, and disposal that is actively enforced.
- ✓ Disposes of unwanted computer and electronic products through an approved recycling facility.
- ✓ Computer purchases are Electronic Product Environmental Assessment Tool (EPEAT) certified products. New computers are leased on a three-year cycle.
- ✓ Custodial program has been certified to the Green Seal Standard for Commercial and Institutional Cleaning Services (GS-42), the ISSA Cleaning Industry Management Standard - Green Building or an equivalent standard. School facilities staff members use green protocols and products determined by Sodexo Corporation. The products meet the Green Seal, EcoLogo, and EPA Design for the Environment Standards.

Fluorescent light bulbs and tubes are recycled; waste oil is recycled (currently used to help a local person heat his premises); TVs, computers, microwaves, etc., are transported to local waste disposal agencies; hazardous chemicals like oil-based products with a VOC are transported to the Oneida Landfill and disposed of properly; food grease and oil is collected and retrieved by Sanimax, which recycles it; batteries are transported to local waste disposal agencies

or mailed to national recycling centers, dependent upon type; lumber that has been treated with VOC paints are disposed of at local disposal agencies in accordance with their procedures; solids are collected annually from the Green Machine and hauled by a company that uses the product for land spreading. Medical waste procedures follow all school medical protocols and legal guidelines.

Science teachers were trained in managing hazardous waste through Flinn Scientific and ClickSafety. In 2008, Conserve School stopped teaching science labs that required highly hazardous chemicals. A professional hazardous waste team was hired to remove and dispose of them. Less hazardous chemicals were disposed of following safety guidelines outlined on the Flinn Scientific site. Chemicals are stored in appropriate lockers in prep rooms off-limits to students and are handled per accepted safety protocols. In 2013, the school removed chemically treated bridge timbers in a buffer area just beyond the school property line. They are being replaced with lumber that has not been treated. The school no longer uses treated lumber.

Students and staff members are required to recycle and to compost food waste from school meals. Students and staff members look for opportunities to re-use materials whenever possible. Extracurricular activities make good use of items that could go to landfills. For example, the school community collects candle stubs, which are melted down and combined with dryer lint to make fire starters for camping and hiking trips.

The Environmental Science courses cover waste reduction, recycling, and composting. Projects include analyzing school waste and debating national policies on waste disposal. The Stewardship in Action course focuses on hands-on, day-to-day action, addressing waste reduction/recycling on campus; student groups pick an area of the school's operations for research, carry out composting and recycling, implement improvements in school practices, and make presentations to the school community on their improvements. Students are trained in class on the proper handling and disposal of hazardous substances. Art classes focus on using recycled materials or natural "waste" to create art. Reeds and branches are used to create sculptures. Chicken feed bags are sewn into tote bags. Worn-out clothes are cut up and pulped to make paper. Old sweaters are sewn into mittens, hats, slippers, pillows, quilts, and blankets. Cloth and paper scraps are used to make collages. Staff and students visit thrift stores to find costumes, accessories, and props. Students visit the school wastewater treatment facility and the local landfill for tours and discussions of disposal and recycling of various substances.

Conserve School sent five staff members to Master Gardener training in 2007, which included training in composting techniques. These staff members used their training to develop the school gardening and composting programs. The AP Environmental Science teacher has become a College Board AP Environmental Science consultant and trains science teachers from other schools on environmental science education, including the topics of waste and recycling. In 2013, two staff members attended a workshop on using landscape waste to make paper and then shared that information with the art teacher. The art teacher attends workshops related to using recycled and natural materials in art education.

Staff and students recently built a roof over the composting area to optimize the moisture content. Students suggested that the school provide cloth bags for shopping. Staff purchased plain tote bags and students silk-screened them with Conserve School logos and conservation slogans. Students run clothing swaps to acquire new clothes at no cost and to reduce wastefulness. Leftover clothes are taken to thrift stores or kept for general school use. Food service experimented with “compostable” disposable plates and silverware for picnics. Staff and students researched these products and determined that they do not compost well under typical conditions. Instead, the school purchased light-weight, reusable plates and silverware to use at picnics. Some students and staff members have begun to remind one another to simply bring their own plates and silverware to social gatherings and to take responsibility for cleaning them.

Element 1C: Use of alternative transportation

Focus Area: Transportation

The school has the following in place to ensure efficiency in transportation:

- ✓ A well publicized, no idling policy that applies to all vehicles.
- ✓ Vehicle loading/unloading areas are at least 25 feet from building air intakes, doors, and windows.
- ✓ Programs to encourage carpooling. Carpooling is ingrained in the school culture and staff members often carpool. Staff drive students places in groups unless the trip is by necessity for a single student. The school

encourages students' families to carpool, especially those that drive long distances. Families usually visit only at the start and end of the semester and for one Family Weekend, so travel is limited. The school assists families in arranging carpools.

- ✓ A policy pertaining to fuel-efficient fleet vehicle purchasing. The fleet includes a Honda Hybrid and four diesel Sprinters, purchased for their fuel efficiency.
- ✓ Bike racks. The school has recently built several covered bike shelters. Students can bring their own bikes or check them out from the recreation center.
- ✓ All roads on campus have a bike/pedestrian lane and have 15 mph speed limits. Most routes are one-way to reduce traffic and include cross-walks. Students usually can take a path instead of walking on a road.

Conserve School has also reduced student trips off campus significantly. Instead of transporting students to the Boundary Waters for canoeing trips, the school makes use of the Sylvania Wilderness, which is adjacent to the school property. The school eliminated vehicular traffic on trails, student trips to colleges, and participation in student contests that require travel. The school re-focused on making the best use possible of its own 1200 acres.

Conserve School purchased four 10-passenger Diesel Sprinters with Mercedes engines, which get 24-27 mpg. A student researched possible vehicles and recommended the Sprinter van as the most fuel- and cost-efficient vehicle in its class for school use. They also purchased a five-passenger Honda Civic Hybrid that exceeds 40 mpg. This vehicle helps reduce fuel costs when transporting five or fewer individuals, such as for transporting students to medical appointments. Two bike repair stations have been installed on campus. Students are taught to make repairs. Students cannot bring cars to campus and are encouraged to bike on the school's 20 miles of trails and on the local bike paths into town. Staff members accompany students on bike trips into town until students learn the way. Staff members also accompany students in local bike marathons or trail ride fundraisers. Biking is taught in PE class. Some students have never biked at all and others have never biked on trails, so basic skill training is very useful to them.

The Environmental Science courses cover fossil and alternative fuel used for transportation, emissions, the carbon cycle, outdoor air quality, public transportation, and fuel efficiency standards in sustainable cities now and in the future. All students conduct in-depth study of lichen on campus. Because lichen are sensitive to pollutants like sulfur dioxide, they make accurate, inexpensive bio-indicators of air quality. Students also study energy technology and policy related to low-carbon synthetic fuels and carbon capture and storage. Projects have included: designing and building electric bicycles; measuring and comparing the energy a bike and a car would use when travelling the same distance; and collecting data from commuting staff about the distance traveled to work and making suggestions for reducing miles traveled.

The school often sends staff to the Midwest Renewable Energy Fair, to the annual Green Schools National Conference, and to the annual conference of the National Science Teachers Association; the first two focus on sustainability and the third covers a variety of environmental science education topics, including sustainable transportation. The history teacher received International Mountain Bicycling Association training on trail building. In U.S. history class, he integrates instruction in proper trail-building (how to avoid erosion) with an overview of the role of erosion in U.S. history. Then he leads his students in building and maintaining trails on campus.

In 2009, students in the Environmental Communication class took part in 350.org's international event to raise awareness about CO2 levels. Students developed and ran an awareness event for Conserve School students, staff, and visiting family members on Family Weekend: a walk-a-thon with information stations on how individuals can promote this cause and make changes in their own lives to reduce carbon emissions. On the same day, Arctic explorer and environmental activist Eric Larsen spoke on campus to highlight the impact of global warming. During the walkathon, the student body, staff, parents and other community members walked 394 laps around the academic building, which added up to 100 miles. For a 2005 Midwest Renewable Energy Association contest, art students created a large mural depicting sustainable transportation. The mural won 2nd place.

Pillar II: Improved Health & Wellness
Element 2A: Integrated school environmental health program

Focus Area: Environmental Health

The school has fully complied with the state law prohibiting elemental mercury and has an indoor environmental quality plan.

The school employs the following practices to improve contaminant control and ventilation:

- ✓ A comprehensive indoor air quality management program that is consistent with EPA's Indoor Air Quality (IAQ) Tools for Schools.
- ✓ Has taken actions to prevent exposure to asthma triggers such as mold, dust, and pet dander.
- ✓ An asthma management program that is consistent with the National Asthma Education and Prevention Program's (NAEPP) Asthma Friendly Schools guidelines.
- ✓ Meets ASHRAE Standard 62.1-2010.
- ✓ Installed one or more energy recovery ventilation systems to bring in fresh air for use in the HVAC system.
- ✓ Installed local exhaust systems for major airborne contaminant sources.
- ✓ Has CO alarms that meet the requirements of the National Fire Protection Association code 720.
- ✓ Visually inspects all school structures on a monthly basis to ensure they are free of mold, moisture, and water leakage.
- ✓ Indoor relative humidity is maintained below 60%.
- ✓ Has moisture resistant materials/protective systems installed.
- ✓ There are no wood structures on school grounds that contain chromate copper arsenate.
- ✓ Prohibits smoking on campus and in public school buses.
- ✓ Has combustion appliances that are annually inspected to ensure they are not releasing Carbon Monoxide.
- ✓ Radon tests for the school tested at or below 4 pCi/L. According to the Department of Health Services, the radon average for this zip code is 1.94 pCi/L.

The school has a chemical management program that includes:

- ✓ Chemical purchasing policy (low or no-VOC products).
- ✓ Storage and labeling.
- ✓ Training and handling.
- ✓ Hazard communication.
- ✓ Spills (clean up and disposal).
- ✓ Selecting 100% third-party certified green cleaning products; EcoLab, Green Seal.

The school controls exposure to chemicals in the following ways: A special filtered vacuum is used for clay dust. Surfaces in ceramics classes are wet-cleaned. Chemicals that are highly hazardous are not used at all. Less hazardous VOCs are stored in prep rooms off limits to students and handled according to science lab safety guidelines.

The school has a pest management policy and outsources work to Plunkett's, a national corporation that uses Integrated Pest Management and green products and processes. The Director of Campus Services works with Plunkett's to plan pesticide application. Pesticides are applied during school breaks, when students are not present.

Environmental health in the school building and grounds started out high. Conserve School's design and construction process is featured in a book on construction planning. The chapter on Conserve School lists aspects of the school that maximize environmental health: "... selecting methods of heating, waste-water treatment, storm-water management, and access and circulation systems which would meet the environmental imperative ... Large space volumes for better air quality. Interior glazing which maximizes access to view and daylight. Localized pollutant source exhausts. Low emission finishes of volatile organic compounds. Indoor air quality construction procedures" (http://www.petepointner.com/book-sample.html).

The facility managers participate in many training programs including: certification by the Cleaning Management Institute (CMI) for Cleaning Best Practices and Healthy Environments; member of ISSA, Director of Campus Services (Sodexo/Conserve School Partnership) Michael Saad, 02/14. Bloodborne pathogens training is held annually for all staff.

In 2011, the U.S. Green Building Council, which administers LEED certification, invited teachers to apply for the opportunity to beta test a new online certification course for teachers on green classroom practices and principles. Teachers who were accepted would be able to take the course and earn the certificate free of charge. Conserve School's Spanish and Math teachers applied and were selected for the Green Classroom Professional Certificate program and spent several weeks completing the online course and giving the Green Building Certification Institute

feedback on the experience. In 12/11, both teachers were certified as Green Classroom Professionals.

Students are trained in science lab procedures, including chemical safety, in the first week of school. Mercury is not used at the school. Students in pottery classes are trained in the proper handling of substances like glazes that might present a hazard.

Integrating organic gardening and the eradication of invasives into the curriculum has provided many opportunities for staff and students to learn about environmental health and how to protect or improve it.

Element 2B: Nutrition & Fitness

Focus Area: Health & Wellness

The school has multiple policies covering health, nutrition, and wellness recorded in the Conserve School Staff Manual, the Conserve School Community Handbook, and Sodexo policies. The health and medical protocols are approved by their associated physician and cover all aspects of health care at Conserve School. Their partnership with Sodexo Food Service is supported by an agreement that the dining room staff will work with food from their own school garden, all meals will have a vegetarian entree option, whole grains will be served, and several sources of vegetarian protein will be available at all meals, so vegans can be accommodated. In addition, gluten sensitivity and allergies are accommodated on an individual basis, and items likely to cause allergic reactions are labeled and kept separate. Beverage options are healthy with no soda and include skim milk and soy milk. Core classes routinely include physical, outdoor activity, consequently, our curriculum functions as a wellness policy in the sense that students exercise frequently within classes.

The school deals effectively with harassment and bullying. The Major Expectations section of the Conserve School Community Handbook states: “The following major school expectations are considered nonnegotiable. Students who violate any of these expectations will be held fully accountable and may expect to be dismissed from Conserve School. Students who have questions regarding the major school expectations should contact the school prior to their arrival. Students must abide by these expectations throughout the period of their enrollment with Conserve School, which begins with their submission to Conserve School of their signed “Code of Conduct Agreement”, while on campus or off campus. All students are expected to act with kindness and respect to others. Harassment, hazing, fighting, or intentional meanness will not be tolerated.” Students consistently state that Conserve School's culture is far more kind and accepting than other school cultures they have experienced.

The school has an on-site indoor exercise room available to students and staff and provides extensive, high-quality fitness and outdoor sports equipment available for students and staff to check out and available for teachers to use with their classes. The fitness center was doubled in size seven years ago to accommodate more fitness equipment and to make regular exercise easier and more pleasant. Outdoor education and activity equipment is continuously replaced and upgraded. Equipment storage has been expanded so that classroom sets of snowshoes can be kept at both the academic building and the recreation center. The hours that the fitness center is open to students have been extended. Ski trail and single-track trail improvements make skiing, biking, and walking easier for a range of skill levels. The swimming and dock area has been upgraded with steps, brickwork, an extended dock, and separate areas for swimming, fishing, and a boat landing. The number of kayaks has been increased to a full class set. The Rec Center added areas to wax skis, repair equipment, and store trail equipment; started to groom the sledding hill and bought new sleds and tubes; and bought several canoes and placed them at a second lake on campus to eliminate the need to haul canoes from one lake to another.

Students have daily access to a live-on EMT and weekly access to an RN on campus. Staff also drive students to a nearby clinic for medical care. All staff members who supervise students are First Aid certified. Students’ social-emotional needs are met via a high staff/student ratio, a carefully planned academic and residential curriculum, an advisory program that pairs each student with a staff member, and staff training by experts on adolescent development. The school sends selected staff members to nationally recognized workshops for training in counseling students. About 60 students attend each semester, so the need for counseling services is limited. Students are screened carefully prior to attending and mental health issues are rare. If a student appears to need counseling, parents are alerted and take responsibility. The school has an on-call psychiatrist available for consultation.

Students spend 100 minutes four days each week in an accredited physical education course focused on outdoor

education and much more time daily in physical activity, supervised and unsupervised. At least 50% of students' annual physical education takes place outdoors. Formal instruction is provided to all students in many forms of outdoor sports and recreation.

The school trains staff in the use of the school's fitness center and sports/activity equipment and encourages staff to use them, purchasing fitness videos and other wellness equipment requested by staff and allowing staff to check equipment out and take it home when it is not needed for student use. Health care staff upgrade their EMT certifications regularly at the cost of the school. All staff are trained in Wilderness Water Safety and Wilderness First Aid. Graduate Fellows are trained and certified by the American Canoeing Association as canoeing instructors and by Vertical Endeavors as rock wall instructors; experienced staff are invited to join in this training on an optional basis. The school has also provided ski coaching certification training and National Outdoor Leadership School wilderness training for individual staff members. Staff members with special outdoor or fitness skills often volunteer to train colleagues. Staff are trained in conflict resolution and collaboration methods in part to reduce stress and increase staff satisfaction and wellness.

The required Field Instruction course focuses on health, nutrition, wellness, and physical activity with an emphasis on outdoor activities. Students learn how to canoe, kayak, Nordic ski, snowshoe, ice skate, and mountain bike. Instruction also covers back-country travel and living skills, including campsite selection and preparation, wilderness first aid, fire building, shelter building, backpacking, and back-country nutrition, cooking, sanitation, health, and safety. The required Environmental Science course covers the science of nutrition and physical activity. Students learn about energy flow by predicting and tracking their calorie intake during physical activity and then use this information to calculate how much and what type of food to pack on wilderness trips. In the required history course, students study American exploration from Lewis and Clark on, focusing on leadership and teamwork in the context of wilderness expeditions. How good leaders keep the entire team strong and healthy in difficult outdoor conditions is a main topic of study. In art classes, students learn how observing nature and using it as an inspiration for art can relieve stress and regulate mood.

The school supports staff and students who participate in local skiing and running competitions through financial support, transportation, and time away from regular responsibilities. Administrators support staff in focusing their annual professional goals on increasing fitness and spending more time outdoors. Staff members form informal groups to support one another in outdoor activities, for example, by taking walks or skiing on campus together. Staff members and students invite one another on walking, biking, or skiing tours of the campus trails and to evening or weekend events in the Recreation Center, including basketball, racketball, ping pong, working out in the fitness room, dance, and martial arts. Neighbors can hike, ski, or bike on the school trails. Staff advisors invite their advisee groups to wellness-related activities like ice skating, picnics in the woods, hikes in nearby national forests, and canoeing trips. Community members visit campus to lead self-care and stress-relief activities like journaling, sketching, yoga, and meditation. Students support community wellness by helping at the local community garden and at local 5K fundraisers.

Field Instruction incorporates health and wellness. Instructors assess student improvement in outdoor skills and course satisfaction frequently and then improve the outdoor skills and health and wellness curriculum based on results. Student satisfaction and skill has risen every semester due to this emphasis on constant improvement in instruction. Health and wellness has also been improved through better quality and sustainability of school meals, including using produce from local farmers or the school garden, meals that are lower in fat and higher in whole grains, organic and vegetarian options.

Pillar III: Effective Environmental and Sustainability Education
Element 3A: Interdisciplinary learning about the key relationships between dynamic environmental, energy, and human systems

Focus Area: Environmental & Sustainability Education

The school has a scope and sequence that integrates environmental and/or sustainability education as part of the regular coursework at all grade levels:

- ✓ Conserve School’s college preparatory curriculum that weaves environmental stewardship and sustainability into every subject. Students are immersed in outdoor activities, environmental studies, and a Northwoods wilderness setting in academics, extracurriculars, and residential life. The educational program emphasizes hands-on, active learning. Classes are often conducted outdoors, even when weather is severe. Each student is

provided with a laptop and all the equipment necessary to participate fully in outdoor activities and wilderness trips. Students are only responsible for bringing appropriate clothing.

The school has an environmental or sustainability literacy requirement:

- ✓ Our school-wide learning goals define our expectations regarding environmental/sustainability literacy. Excerpts follow. "After completing a semester at Conserve School, a student: 2) Comprehends the complex meanings of sustainability and stewardship, and uses these principles as guideposts for their personal and professional life. 5) Understands and critically evaluates the complexities of environmental issues, including their ethical dimensions, and advocates effectively for what they believe is just. 6) Understands educational and professional opportunities related to the environment, and how to pursue them. 9) Demonstrates the observational and reflective skills necessary to the development of a meaningful and lasting sense of place. 10) Is able to recognize and critically examine environmental issues across cultures and disciplines. 12) Understands the ecology, history, and cultures of the Northwoods from the local to the global levels." Students are assessed in class on these goals. Teachers are working on a school-wide assessment for environmental literacy to evaluate student progress more precisely, using Common Core and NAAEE standards along with other sources.

Teachers are charged with integrating skills and themes related to stewardship and sustainability in all subject areas. They are required to report regularly on how their classroom assessments and activities support the school-wide environmental and sustainability literacy goals outlined above.

Environment-integrated courses include: Environmental Science and AP Environmental Science; U.S. History: Exploration and Leadership; American Literature: Wilderness Voices; Spanish 2 through 5 and AP Spanish; Earth Art, Drawn to Nature, and Ceramics; Field Instruction; and Stewardship in Action/Colleges and Careers. Sixty-nine percent of students take AP Environmental Science and 79% of those students score a three or higher on the AP test.

Environmental topics are commonly included in assessments since they are taught school-wide. Examples of classroom-based assessments include science exams, debates on nuclear energy, science research projects and presentations to administrators on improving facilities sustainability, environmental advocacy speeches, reflections on Leave No Trace principles in Field Instruction, and Spanish essays on air pollution. Conserve School administers an end-of-program assessment; students self-assess on their accomplishment of school-wide learning goals, which cover stewardship and sustainability. In addition, Conserve School's e-portfolio system assesses students' accomplishment of school-wide goals by requiring them to post regular reflections on how assignments and activities have helped them achieve specific learning goals. Students are also required to set a personal goal at the beginning of the semester and self-assess on this goal at the end of the semester. These goals often are related to stewardship and sustainability. Conserve School staff are currently drafting a more precise pre- and post-assessment of academic achievement related to environmental literacy.

The program focuses so comprehensively on environmental activities that there is little time or need for these types of clubs. In the Stewardship course, students are broken up into small groups that choose a stewardship project for the entire semester; these groups function somewhat like clubs. The group focus areas include caring for the school bees, harvesting produce from the school garden, experimenting with 3-season gardening, improving bird habitat, and building and maintaining trails. Students are offered frequent optional after-school and weekend activities that are also similar to club activities. They include data collection for citizen science projects on bees and butterflies on campus; volunteering at local gardens; eradicating invasive species on Nature Conservancy property; harvesting and processing wild rice with experts from local tribes; taking down-hill ski trips; volunteering to help local DNR wildlife researchers; and overnight camping. Students are encouraged to suggest activities. The number of students is dependent on the activity. Often these optional activities are so popular that we have to hold a lottery and/or offer them multiple times.

Staff have participated in the following professional development events (numbers of staff are in parentheses): Aquatic WILD (2), Midwest Renewable Energy Fair; Leopold Education Project (1), Masters Degree in Environmental Education (2); National/International Conference (6). Comments: NSTA Conference, AP

Environmental Science conference, Ohio, 2012-13; NAI National Workshop 2012; ANCA Summit, Aug 2013; University of Minnesota International Monarch Biology and Conservation Meeting, June 2012 (poster presentation); Project Learning Tree (6); Project WET (5); Project WILD (5); Related university level course (10). Comments: Applied EE Program Evaluation, 2008; EE Theory and Practice, 2008; Teaching Methods in EE 2010 (taught); Place-based Instructional Strategies 2013 (taught); Ecology for EEducators, 2009; BS in Zoology and Biological Conservation, MS in Science Education; WI Association for Environmental Education Event (9); WI Center for Environmental Education Sustainability Course/Workshop/In-service (2); Other in-service, training, workshop, or course: (27) Land Ethic Leaders, 2013; Grad Fellows take courses in EE; Permaculture Design Certificate, 2013; WI-Master Naturalist Train the Trainer, 2013; Certified Interpretive Guide, 2006; EE Conference at Lesley University, 2009.

All students complete a semester-long science project in which they choose a phenology spot on campus and return to it repeatedly throughout the semester, observing, journaling, sketching, and photographing changes in their own special spot in the woods.

Element 3B: Use of the environment and sustainability to develop STEM content, knowledge, and thinking skills

Focus Area: Environmental & Sustainability Education

Environmental Science classes connect STEM and stewardship/sustainability. Class projects require students to apply quantitative analysis to topics like the energy efficiency of different designs and fuels. Students use math to analyze their own calorie intake and energy use. Students also study principles of sustainable building design and visit building sites of contractors specializing in sustainable construction. The AP Environmental Science teacher offers weekly math workshops to assist students in understanding the application of math concepts and processes to environmental topics and to prepare them for the APES exam. Each year several speakers visit Conserve School to talk to students about environmental professions, most of which fall into the STEM category, for example, environmental engineering, wildlife research, solar energy technology, and limnology. College admissions counselors visiting Conserve have described a variety of college programs to students that combine environmental studies with science, technology, engineering, and/or math. Students have visited Northland College for presentations on environmental studies by wildlife researchers and climatologists.

The school also makes connections between college and career readiness. The Stewardship course, a required, credited course, makes an explicit connection between the classroom and college/career readiness. Students are taught college and career skills like self-assessment, personal improvement, and goal-setting while they are introduced to a variety of green college programs and environmental careers. Students develop a tentative plan for potential environmental career paths and learn practical knowledge and skills related to the college admissions process, the qualities that colleges and employers rate most highly, how to present themselves in a professional manner, how to find environmental and/or outdoor internships, how to apply for financial aid, and how to find scholarships related to stewardship, sustainability, and leadership. Students are encouraged to identify interests and ask questions so that the class can be tailored to their particular priorities and concerns regarding green colleges and careers.

Element 3C: Development and application of civic knowledge and skills

Focus Area: Community Involvement

The school has community involvement all of the focus areas (Energy, Water, School Site, Recycling and Waste Management, Transportation, Environmental Health, Health and Wellness, Environmental and Sustainability Education).

Description of community partnerships/involvement:

- ✓ Energy: Conserve School worked with local solar energy business and Focus on Energy to pursue installing solar arrays on the school grounds through grant programs. The result of this partnership was the installation of a fixed solar array and a tracking solar array on the Conserve School grounds, partially supported by a Focus on Energy grant. This process increased students' understanding of solar energy because students conducted an initial feasibility study and solar energy experts visited campus and spoke with students during the planning

process. The solar arrays on campus increased student interest in alternative energy and their enthusiasm for implementing sustainable practices on campus and at their homes. Students built small solar arrays that helped them grasp how solar energy works and that provided energy on campus for a small pump used during maple sap collection and for an ornamental, but functioning, lighthouse on the shore of a large lake near campus.

- ✓ Water: Conserve School students and staff have developed a close partnership with the lake association made up of homeowners on Black Oak Lake, which is adjacent to campus. Students and staff assist with regular monitoring of lake levels and of terrestrial and aquatic invasives while carrying out the same monitoring on campus lakes. Students have carried out shoreline clean-ups for the association and accompanied research biologists as they monitor the lake's condition. Conserve School lends the association their pontoon boat for this monitoring and has also assisted the association by holding its annual picnic on school grounds.
- ✓ School Site: Conserve School has developed a partnership with Roger Labine, an expert on wild rice restoration and a member of a local Ojibwe tribe. Roger, who is associated with the Great Lakes Indian Fish & Wildlife Commission, has been awarded a multi-year grant to educate others about wild rice restoration, management, and processing in the context of traditional Ojibwe cultural practices and attitudes toward nature. He visits Conserve School often to educate staff and students on topics including making birchbark winnowing baskets and other traditional tools, and harvesting wild rice in canoes, using push-poles and ricing sticks that they make. Part of the harvested rice is used for reseeding Northwoods lakes. Students will continue to participate in the harvesting and re-seeding cycle.
- ✓ Recycling & Waste Management: Conserve School has a close relationship with the nearby public elementary school and newly founded charter middle school. Many children of staff members have attended the school over the years, and the two schools have developed a mutually beneficial partnership. The school provides an excellent setting for Conserve School students to teach others in an authentic setting and to deepen their own learning in the process. Conserve School paid the transportation costs for the charter school students to visit and tour Conserve School and to learn about the composting process and wastewater treatment center.
- ✓ Transportation: Conserve School has developed a close partnership with the University of Wisconsin - Stevens Point. Wisconsin's K-12 Energy Education Program (KEEP), associated with UWSP, loaned its energy bike repeatedly to use in science classes and eventually donated it. The science teachers report that it is an engaging and effective educational tool for demonstrating and quantifying power, energy, and efficiency, and for helping students grasp how different forms of transportation are powered and why some are better for the environment than others.
- ✓ Environmental Health: The local office of University of Wisconsin-Extension services houses the Vilas County Master Gardener program, which has helped Conserve School convert athletic fields into an organic school garden and orchard, an educational tool we use to teach students about environmental health. Science classes study the effect on environmental health of organic gardening and low-impact agricultural techniques versus large-scale use of pesticides, herbicides, and fertilizers.
- ✓ Health & Wellness: Conserve School has developed a rewarding partnership with Debra Jircik, the Director of Many Ways of Peace, a local artist, peace advocate, organic gardener, and educator who is a force behind many local efforts to incorporate social justice, holistic wellness, and sustainability into local community life. Whenever Conserve School has a special event like Earth Day or Harvest Festival, they invite her to speak with students about making a difference in the world through a holistic approach to health and wellness -- for yourself, for the community, and for the Earth.
- ✓ Environmental & Sustainability Education: Since 2007, Conserve School students and staff members have collected monarch data on campus and contributed it to a large citizen science research project, the University of Minnesota Monarch Larva Monitoring Project. As a result, Conserve School staff developed rewarding and valuable relationships with University of Minnesota researchers. Conserve School served as a pilot site for a new, NSF-funded, hands-on science inquiry program developed at the University. Teachers had the opportunity to provide feedback on the program to the curriculum designers. As a result of this partnership Conserve School has a thriving butterfly garden, counts monarch eggs on milkweed plants, collects and raises larvae, tags migrating adults, and tests them for parasites. All of this data is contributed to citizen science research projects. In addition, Conserve School staff members have increased their understanding of how to use citizen science as an educational tool.

Community involvement where students participate in civic/community engagement projects related to environmental and sustainability education:

- ✓ Environmental Health: One of the bogs on the school's property is near an old shooting range that is no longer used. Students and staff had repeatedly raised concerns that lead from the ammunition might have contaminated

the bog and could be poisoning wildlife, and that the school should do something about it. A science class decided to act on this concern and determine what if anything should be done. They studied water sampling and testing techniques, sampled the water in the bog, and conducted tests on lead levels. They compared their results with those from a commercial lab. Both student and professional testing showed no lead contamination. Students publicized these findings to the school community, laying to rest the long-standing speculation about a potential environmental health problem on campus.

- ✓ Water: Science and Stewardship teachers and students are pursuing the multi-year task of replacing invasive crown vetch with native plants on the shore of a lake adjacent to campus and to the Lowenstine Estate. The extensive lakeshore at the Estate was degraded decades ago by exotic plantings and construction right on the shoreline. Science classes have been working long-term to rehabilitate this area. For this project, students fought the crown vetch by pulling it and then securing ground cloth over it to smother new growth. Students also started seeds of water-loving native plants in science class. These plants were transplanted to the school garden; once mature, they will be planted in place of the crown vetch.
- ✓ Transportation: When Conserve School decided to sell its school buses and purchase more efficient, environmentally-friendly vehicles, school staff asked for student input. One student conducted a comprehensive research project on the topic and wrote a detailed report for the school leadership, recommending diesel Sprinter vans due to their fuel efficiency and their suitability for a school setting. He then presented his research and results to students and staff. The school confirmed the accuracy of his research, followed his suggestion, and has now used diesel Sprinters to transport students for years with a high level of both fuel efficiency and satisfaction.

School staff contribute to community-based projects of local organizations as representatives of the school:

- ✓ Transportation: Head of School Stefan Anderson and history teacher Michael Salat represent Conserve School in the Northwoods Bicycle Coalition, which brings regional bicycle groups together to collaborate on integrating trails throughout northern Wisconsin. Michael also works on behalf of Conserve School to do Sylvania Wilderness trail and campsite assessments each spring through the local Fish and Game Club. In addition, he leads students in trail clearing and assessment on the North Country Trail. Stefan is working with the National Forest Service on the development of a memorandum agreement that allows Conserve School students and staff to go into the Sylvania Wilderness to improve campsites, remove invasives, and maintain trails without having to ask for permission for each separate trip.
- ✓ Recycling &Waste Management: Conserve School's Wastewater Specialist, Dale Mattson, represents the school as a member of the Wisconsin Rural Water Association, the Wisconsin Waste Water Operators Association, and the Water Environment Federation. He also is part of a community of technicians around the country who operate environmentally-friendly Living Machine wastewater treatment facilities at schools and colleges that actively pursue environmental stewardship. Recently Dale developed an innovative technique that was quickly adopted by Living Machine operators around the country. When the Conserve School population became smaller due to the transition to a semester school format, the school's Living Machine (or Green Machine, as it is called at Conserve) was thrown off because the volume of waste dropped. Dale experimented with solutions and ultimately developed an innovative technique that improved the efficiency of the system, reduced pumping costs, and reduced the volume, while increasing the quality, of the solid end product (sludge, which is land-spread and becomes fertilizer). This innovative green process has been published and adopted around the country.
- ✓ Environmental Health: Jean Haack, Stewardship Coordinator, is the Conserve School representative to the Wisconsin Headwaters Invasives Partnership. Jean also represents Conserve School in her work with the local chapter of the Nature Conservancy and arranges service work on their land. Students fight buckthorn, honeysuckle, and garlic mustard with the help of environmental professionals from the DNR, nearby universities, and other local and state organizations.
- ✓ Conserve School has many other similar partnerships and mutually supportive relationships with community organizations, too numerous to include.

Cross-cutting Questions

The school participates in the following programs that benchmark progress:

- ✓ Certified Audubon International Signature Sanctuary Site. Benchmarks for construction, facilities, operations, and education.
- ✓ National Wildlife Federation Certified Wildlife Habitat.
- ✓ Certified MonarchWatch Monarch Way Station.

The school received the following awards for facilities, health, environment, sustainability, or environmental education:

- ✓ 2012 Earthguard Award, Wisconsin Association for Environmental Education - in recognition of student leadership in developing and conducting outstanding environmental action projects.
- ✓ 2012 Teacher of the Future Award, National Association of Independent Schools - for effectively weaving environmental sustainability, globalism, equity and justice, and the use of technology into classroom teaching. Spanish Teacher Kathleen O'Connor.
- ✓ 2011 Sodexo Team Connect Award - awarded to the Conserve School/Sodexo partnership for implementing a comprehensive food waste composting system and for using innovative, low-cost retrofits to make the kitchen more energy efficient.
- ✓ 2010 Toyota Tapestry Large Grant, Environmental Science Division - $10,000 to fund a lake water quality buoy designed and built by students. Science Teachers Robert Eady and Andrew Milbauer.
- ✓ 2003-2010 Wisconsin State Envirothon Championships - 1st place 2003, 2004, 2005, 2006, 2007; 2nd place 2008, 2009, 2010.
- ✓ 2008 Lake Stewardship Award, Educator Category, Wisconsin Association of Lakes -Science Teacher Jill Graf.
- ✓ 2009 Gaylord Nelson Earth Day Fellowship Award - for promoting conservation ethics and environmental education and for leadership potential in the field of environmental education. Conserve/University of Wisconsin Graduate Fellowship Program Coordinator Fran McReynolds.
- ✓ 2008 Teacher of the Future Award, National Association of Independent Schools - for effectively weaving environmental sustainability, globalism, equity and justice, and the use of technology into classroom teaching. Science Teacher Jill Graf and Art Teacher Nancy Schwartz.
- ✓ 2008 Wisconsin Volunteer Stream Monitoring Award, University of Wisconsin-Extension/Wisconsin Department of Natural Resources - for citizen science conducted by students in the Environmental Monitoring class.
- ✓ 2006 Mondialogo International Project Award (Theme: Water Conservation); Unity in Diversity Award; Special Recognition in Communication, UNESCO/Daimler-Chrysler - awarded to an international team of Conserve School students and students from a partner high school in Pakistan for a water conservation education project created collaboratively using international communication technology. Placed in top 25 teams internationally. Invited to international student conference in Rome. Won special awards for the teams' persistence and creativity in the face of significant logistical barriers, including time zone differences, language differences, cultural and political differences, and technology hurdles.
- ✓ 2005 Citizen-based Monitor of the Year, Citizen-Based Monitoring Network of Wisconsin – awarded for engaging students in citizen science. Science Teacher Jill Graf.
- ✓ 2005 - Named a Wisconsin Green and Healthy School.
- ✓ 2005 Midwest Renewable Energy Association Sustainable Transportation Contest - 2nd place awarded for a large mural showing sustainable transportation across cultures and time periods, created by art students.
- ✓ 2004 - Named an Audubon International Certified Signature Sanctuary.

The school sponsors the Wisconsin Envirothon Competition since they are no longer allowed to compete due to the reduced size of the school. The school hosts a Wisconsin Electrathon practice run most years. The school sponsors of the Wisconsin Green Schools Network Youth Summit . Conserve School is a sponsor of the Green School Alliance's Student Climate & Conservation Congress (Sc3), has had staff attend, and has provided scholarships for Conserve students to attend. In 2011, one of Conserve's administrators served on the steering group of a statewide initiative to cultivate a shared vision of Education for Sustainability in Wisconsin.

The school has staff that belong to the following environmental education organizations:

- ✓ Wisconsin Association for Environmental Education organizational member (waee.org). Comments: The Head of School is the Board Chair.
- ✓ Wisconsin Green Schools Network member (wisconsingreenschoolsnetwork.org).
- ✓ North American Association for Environmental Education (naaee.org). Comments: Conserve School is a member and is one of 20 organizations included in an EE Capacity Consortium Grant just awarded by NAAEE to the Wisconsin Association for Environmental Education, the purpose of which is to expand access to environmental education.

The school is developing a story of their success which can be found at:
http://eeinwisconsin.org/net/org/info.aspx?s=69847.0.0.2209