



**ECO-RESOURCE CONSULTING, INC**

**ENVIRONMENTAL COMPLIANCE | ECOLOGICAL RESTORATION |  
ECOLOGICAL RESOURCE MANAGEMENT | PLANNING | FORESTRY SERVICES**



**PROVIDING SCIENCE-BASED ECOLOGICAL CONSULTING, SUSTAINABLE RESTORATION, AND  
COST-EFFECTIVE RESOURCE MANAGEMENT**

## **Statement of Qualifications 2021**

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## COMPANY PROFILE

Eco-Resource Consulting, Inc. (ERC) is a multi-disciplinary consulting firm offering a broad range of services in environmental and natural sciences. ERC has established partnerships with select engineering, surveying, Geographical Information System (GIS), and hydrology contractors to provide its clients with total project service at competitive rates. Services are provided to a diverse clientele including corporations, businesses, large and small government entities, public agencies, private developers, institutions, and private landowners. ERC's Standard Industrial Classification code is 8748, and the North American Industrial Classification code is 54160.

ERC was established in 2004 and currently consists of senior personnel with between 15 and 35 years of experience in natural resources management experience. ERC gained experience through employment with nationally recognized environmental consulting and engineering firms as well as State agencies. ERC has worked on numerous projects throughout the U.S., including: wetland delineation and permitting, wetland mitigation, ecological restoration and land management, endangered and threatened species surveys, Lake and River Classification, lake and stream studies, pond design and management, water quality data collection and analysis, and preparation of Comprehensive Management Plans (CMP), Natural Resource Protection Plans (NRPP), Environmental Assessments (EA), and Environmental Impacts Statements (EIS).

ERC uses state-of-the-art computer software, graphics and reproduction equipment, libraries, information storage and retrieval systems.

ERC practices equal opportunity employment. Based on this practice, recruitment, hiring, advancements, transfers, training, compensation, benefits, and other employee relationships are carried out regardless of race, creed, color, gender, religion, age, handicap, national origin, or disabled Vietnam Veteran Status.



## ECOLOGICAL SERVICES

ERC provides diverse expertise in aquatic and terrestrial biology and ecology, including botany, land management planning, native habitat restoration, installation and maintenance, wetland delineation, restoration and mitigation, forestry and woodland characterization, grant application and permitting, lake management planning and litigation support.

ERC routinely assists clients with permitting and water conservation/waste minimization. ERC also assists agencies in preparing cooperative studies regarding natural resource investigations and erosional studies.

ERC has considerable experience in conducting ecological assessments for evaluation of a natural ecosystem, as well as for planning and data collection services. Following is a list of ecological services provided by ERC:

### ERC PROFESSIONAL AND TECHNICAL SERVICES INCLUDE:

#### Environmental Compliance

- NEPA & WEPA Documentation | NEPA & WEPA Compliance
- Wetland Delineation | Mitigation
- Regulatory Permitting
- Construction Compliance Monitoring
- Water Quality Monitoring | Sampling
- Preparation of State & Federal Grant Applications

#### Ecological Restoration

- Ecosystem Assessment | Restoration
- Wetland Restoration
- Native Plant & Seed Installation
- Pond Design & Management
- Waterway Management & Consulting

#### Ecological Resource Management

- Endangered & Threatened Species Surveys
- Natural Resource Inventory
- Invasive Plant Species Management

- Waterway Classification

#### Planning

- Comprehensive Land Management Planning
- Conservation Development Design & Maintenance

#### Forestry Services

- Woodland Restoration
- Timber Stand Improvements

#### Drone Services

- License Remote (drone) Pilot
- DJI Phantom 4 Drone with Sentra 4K Multispectral Camera
- Image capturing capabilities: red, green, blue (RGB); near-infrared (NIR), and normalized difference red edge (NDRE) images
- Ability to collect topographic and high resolution, real-time imagery data

## **ENVIRONMENTAL COMPLIANCE**

ERC assists clients from project commencement to project completion by providing guidance through the regulatory process of complying with federal, state, and local environmental regulations. In doing so, ERC helps to find solutions to meet project goals while also complying with environmental policies and regulations.

### **NEPA and WEPA Documentation | NEPA & WEPA Compliance**

ERC provides support for the preparation of reports in order to comply with the National Environmental Policy Act (NEPA) and the Wisconsin Environmental Policy Act (WEPA). ERC staff has completed numerous EA and EIS documents for a wide range of private and public sector clients in the upper Midwest region. Our team of biologists, ecologists, and botanists provide a comprehensive group for identification and evaluation of environmental impacts to natural resource communities, including threatened and endangered species.

### **Wetland Delineation | Restoration | Mitigation**

ERC conducts wetland determination and delineation and mapping services using Global Positioning System (GPS) and GIS technology. Our wetland delineators are trained under the latest U.S. Army Corps of Engineers (USACE) guidance for regional supplements and the 1987 manual as well as region specific regional supplements and/or State-specific wetland delineation procedures outlined by the Wisconsin Department of Natural Resources (WDNR). ERC staff have delineated over 200 wetland boundaries in the U.S., with the majority occurring in the upper Midwest region.

Wetland restoration is one of the cornerstones of ERC and is the focus of many ERC projects. Our restoration successes are the result of many years of hands-on experience and attention to detail. Wetland buffer restoration always accompanies wetland restoration and completes the ecological framework of the wetland, upland and woodland continuum.

ERC biologists and ecologists have extensive experience in wetland mitigation design. In 2015, ERC prepared a draft Wetland Mitigation Bank Prospectus and submitted the Prospectus to the WDNR, the USACE, and the U.S. Environmental Protection Agency (EPA). ERC staff has designed, implemented and monitored numerous wetland mitigation sites in Wisconsin and northern Illinois. ERC has also prepared numerous wetland mitigation plans for on-site and in-kind mitigation for various land developments. ERC can provide clients a comprehensive approach to

mitigation and restoration, from initial project design through construction oversight and restoration implementation.

### **Regulatory Permitting**

ERC's regulatory compliance covers the range of permitting needs under Section 404 of the Clean Water Act (CWA), including Nationwide, General and Individual Permit applications. ERC also works closely with engineering firms to develop appropriate sediment and erosion control measures to ensure that projects are in compliance with federal and state regulations.

### **Linear Siting Process | Environmental Construction Monitoring**

ERC can assist with the project siting phase of linear projects, including conducting natural resource surveys. A critical part of project siting includes the knowledge of how best to avoid sensitive natural resources. By conducting baseline plant and wildlife surveys, threatened and endangered species surveys and wetland delineations, ERC can help clients through this process to ensure compliance with environmental regulations, while also being mindful of construction timelines.

ERC provides construction monitoring and compliance services for the private and public sector, primarily for linear projects (transmission lines, pipelines, etc.). ERC helps verify that construction is completed in line with environmental regulations and mitigation requirements. ERC offers pre-construction environmental awareness training for sensitive species and habitats.

### **Water Quality Monitoring | Sampling**

ERC provides water quality monitoring for public and private waters. ERC has provided water quality sampling, monitoring and management for a wide range of private and public waters. These projects include monitoring and management of riparian wetlands that affect the water quality of these resources. Every effort is made to use the "watershed approach" to evaluate and manage these complex ecosystems.

### **Preparation of State and Federal Grant Applications**

ERC assists with the preparation and submittal of State and Federal grant applications. ERC provides liaison services with Federal, State, and non-governmental organizations (NGO) for partnering assistance and grant funding.

## **ECOLOGICAL RESTORATION**

### **Ecosystem Assessment | Restoration**

Assessment of aquatic and terrestrial vegetation communities, aquatic and terrestrial vegetation surveys, and restoration planning for land developers, lake districts, lake associations, and other government agencies.

### **Native Plant | Seed Installation**

Preparation of specifications and facilitation of site preparation, custom seed mix/plant mix design, product procurement, installation, and maintenance. ERC staff provides full service installation, maintenance, monitoring and reporting to meet performance standards of agency permits or specific landowner requirements for prairie, woodland, and wetland environments.

### **Pond Design | Management**

Design, installation, and management of ponds for various land developments including golf courses, subdivisions, commercial developments, and private landowners. ERC staff provides management of aquatic invasive species, and subsequent native seeding and planting to create sustainable aquatic ecosystems.

### **Waterway Management and Consulting**

ERC provides aquatic ecosystem services to various local municipalities, lake districts and associations, and “friends” groups that live on or near public waters. These services include; aquatic vegetation surveys, nutrient sampling and analysis, treatments, shoreline restoration, public outreach and education, and nuisance or invasive species management.

## **ECOLOGICAL RESOURCE MANAGEMENT**

### **Endangered | Threatened Species Surveys**

ERC conducts Federal and State Endangered and Threatened species surveys for development, siting, and planning projects. Our staff of biologists, ecologists, and botanists provide expertise in identifying and reporting plant and animal species of concern for permitting and/or planning efforts of land development. ERC has conducted numerous Threatened and Endangered species (T&E) surveys in accordance with the Federal Endangered Species Act (ESA) and the WEPA. ERC

staff have over 50 years of combined experience in identifying species and characterizing habitats for ecological inventory assessments.

### **Natural Resource Inventory**

ERC staff routinely conduct inventory of all natural resources on, and adjacent to, project sites for integration in planning and protection, including preparation of NRPP. Natural resource inventory information and recommendation assists municipal planners, engineers, and board members in making wise land use decisions.

### **Invasive Plant Species Management**

Monitoring, control, containment, and eradication of all woody and herbaceous invasive species. Invasive species control is a common problem with managed lands of all types. ERC utilizes a multi-faceted and sustainable approach in designing and implementing herbicide regimes. ERC maintains state-wide Wisconsin Pollutant Discharge Elimination System (WPDES) permit coverage for pest control pollutant discharge and our staff is licensed to apply a wide array of herbicides on all types of landforms and habitats.

### **Waterway Classification**

Classification of public waterways under the Wisconsin Lake Management Protection Grant Program. ERC staff has prepared the Waterway Classification Systems for Dodge and Langlade Counties in Wisconsin.

## **PLANNING**

ERC works with public and private sector clients to develop plans that range in size from a few acres to hundreds of acres. The planning process covers a wide range of needs, such as with comprehensive land management plans and aquatic invasive species management plans.

### **Comprehensive Land Management Planning**

Natural resource assessment and preparation of land use planning documents for private, public, and non-profit organizations. Land management plans for sustainable wetlands/waterways, woodlands, and prairie habitats.



## **Conservation Development Design and Maintenance**

Assistance to engineers and CAD staff in design of ecologically friendly developments utilizing conservation development technologies. These design components include; rain gardens, wetland storm water basins and drainage-ways, ponds, connection of isolated environmental corridors and improving natural resource features of the site.

## **Forestry Services**

ERC can provide tree determination/inventory, Managed Forest Law (MFL) management, forestry mowing, forestry stewardship planning, timber cruising/marketing, harvest planning, Timber Stand Improvement (TSI), timber contract/sale administration, and native tree and shrub installation and maintenance.

## **DRONE SERVICES**

ERC owns and operates a commercial Unmanned Aerial Vehicle (UAV)/drone. Modern commercial drone technology at the control of our experienced pilot allows our clients and our project managers to make more informed decisions based on real-time on-site data. ERC is certified to conduct drone surveys with an FAA-licensed remote pilot on staff. The ERC drone is utilized for the following types of data collections:

- Real-time, high-resolution imagery (RGB photos and video) capture
- Near-Infrared (NIR)
- Normalized Difference Red Images (NDRE)
- Topographic/elevational data

This data is utilized by ERC and their clients in the following ways:

- Vegetation surveys
- Analysis of erosional conditions in difficult-to-access terrain
- Wetland/hydric soil surveys
- Drainage pattern analysis
- Forest health surveys (quantifying effects of emerald ash-borer or oak wilt infestations)
- Invasive species surveys



### **Stephen J. Hjort – Senior Biologist, Director of Ecological Services**

Mr. Hjort is the principal owner and a senior biologist with over 27 years of experience in terrestrial and aquatic ecology, lake and stream studies and management. He has prepared major portions of numerous EAs and EIRs and conducted Federal and State endangered and threatened species surveys for new facilities and expansions. Mr. Hjort consults with many lake associations and the largest Lake District in the State of Wisconsin on projects ranging from water quality monitoring to petitions for modifying dam Operating Orders. His work includes the preparation of permit applications for wetland dredge/fill projects, as well as CWA 404 and state water quality certifications for a wide range of development projects. Mr. Hjort has delineated over 300 wetlands in Wisconsin and other states and provided litigation support for various waterway violations. His greatest passion is for wetland/waterway restoration projects and he has conducted many of these gratifying projects in his career.

### **Stanley A. Nichols, Ph.D. – Senior Biologist**

Dr. Nichols has 35 years of experience as a researcher and educator with the University of Wisconsin-Extension with appointments in the Environmental Resources Center and the Wisconsin Geological and Natural History Survey. During that time, he worked on the Inland Lake Renewal and Development Project, the Lower Wisconsin River Wild and Scenic River Assessment, Federal Energy Regulatory Commission re-licensing projects, Outstanding Resource Waters Designation Projects, the International Biological Program – Lake Wingra Project. He also participated in a variety of research projects dealing with the management and control of aquatic plants and aquatic plant ecology. Dr. Nichols has published widely in the areas of aquatic plant management, lake protection and management, pond management, ecological sampling, and prairie ecology and management. Dr. Nichols retired from the University of Wisconsin-Extension in 2003 with a title of Professor Emeritus of Environmental Sciences and joined the ERC staff in 2005.

### **Clayton M. Frazer – Senior Ecologist**

Mr. Frazer has over 20 years of experience in professional natural resource management, ecological restoration, and ecological consulting. He has worked as an ecologist for Federal and State agencies, non-profit conservation organizations, and private sector consulting firms. Mr. Frazer's areas of specialization include: wetland delineation, prescribed fire ecology, wildlife management, invasive species management, native prairie restoration installation and maintenance, forestry and woodland management, and comprehensive land stewardship planning. Mr. Frazer has drafted specifications for hundreds of public, corporate, non-profit, municipal, and private land restoration/enhancement projects. These projects have occurred on a wide range of land and habitat types ranging from upland prairie and woodland sites to various wetland habitats. Mr. Frazer has also managed site prep, installation, and maintenance on numerous Federal Farm Bill program projects in Wisconsin. An avid hunter and conservationist, Mr. Frazer resides in Deerfield, Wisconsin with his wife and two sons.

### **Daniel L. Fuhs – Senior Biologist, GIS Specialist**

Mr. Fuhs has over ten years of experience in biology and restoration. Mr. Fuhs earned a double major in Biology and Wildlife, and a minor degree in GIS and Spatial Analysis at UW-Stevens Point. His areas of expertise include wildlife management, invasive species management, native prairie installation and maintenance, forestry and woodland management, and shoreline restoration and management. He has conducted vegetation sampling and ornithology surveys. He has been trained in prescribed fire methods and prairie restoration adaptive management. Mr. Fuhs manages and oversees the completion of a wide variety of projects for ERC. Mr. Fuhs provides spatial analysis using GIS, remote sensing and aerial photograph interpretations skills.

### **Kyle Duquaine – Staff Scientist**

Mr. Duquaine has four years of experience in ecological restoration. Mr. Duquaine earned a Bachelor of Science in Biochemistry from UW-Milwaukee before making the decision to pursue ecological restoration. He then received an Ecological Restoration Certificate from the University of Minnesota. Mr. Duquaine has experience in native prairie restoration, invasive species management, forest and woodland management and shoreline restoration. While in the field Mr. Duquaine acts as a Crew Leader, overseeing field staff and communicating with the Project Manager. He also assists in project development, and the creation of proposal and reports.

### **Andrea Weissgerber – Staff Ecologist**

Ms. Weissgerber has a Master of Science in Restoration Ecology from UW-Madison with two years of experience post grad. She was awarded the Wisconsin Distinguished Graduate Fellowship at UW and studied the distribution and threats of a state threatened orchid species for her thesis research. During her studies, she gained experience in technical writing, adaptive management planning, vegetation monitoring, ecological research and design, scientific communication, and prescribed fire ecology. Since joining ERC, Ms. Weissgerber has conducted site assessments and vegetation monitoring in a variety of community types, drafted specifications for wildlife habitat, woodland, and invasive species management, and has developed comprehensive stewardship and restoration plans. Ms. Weissgerber also works as the administrative assistant for the Wisconsin Prescribed Fire Council. She is passionate about ecology and enjoys helping clients achieve their vision while fostering stewardship and creating a sense of place. She loves wildflowers, spending time with her family, and being in nature.

### **Megan Padrutt – Biologist**

Ms. Padrutt has over five years of experience in biology and restoration. She earned an Environmental Biology and Ecology degree from UW-Eau Claire. After graduating she worked for the Department of Natural Resources as a Wildlife Technician at Sandhill Wildlife Area. Ms. Padrutt has experience in native prairie restoration, invasive species management, wildlife management, forest and woodland management, and shoreline restoration. She has a passion for protecting and preserving the natural landscape.

### **Thomas M. Luehring – Biologist**

Mr. Luehring has over ten years of experience in restoration ecology, land management, and wildlife management; and had previously worked for the WDNR as a Wildlife and Forestry Technician. He earned his Bachelor of Science Degree at UW-Oshkosh. Mr. Luehring has experience in forest and prairie restorations and maintenance involving native plantings, seedings, and prescribed fires. He specializes in terrestrial invasive species and has a passion for restoring woods and prairies back to what they once were. Mr. Luehring is an avid fisherman and spends most of his time on the water.

### **Curt Belke – Restoration Technician**

Mr. Belke has three years of restoration ecology experience. Mr. Belke earned his degree in Environmental Studies from Carroll University in 2018. While a student, Mr. Belke was an intern at the Greenfield Station, a 60 acre outdoor laboratory for Carroll University. There he worked on projects to help manage the invasive species on the property and assisted in workshops for grade school and high school students. After college, Mr. Belke gained more experience in restoration ecology working as an intern for the Cook County Forest Preserve in Cook County Illinois. There his tasks included, removal of invasive trees and shrubs, herbicide applications and large scale buckthorn removal projects.

### **Alex Gall – Restoration Technician**

Mr. Gall has three years of restoration experience after his graduation from UW-Stevens Point with a degree in Wildlife Ecology and Habitat Management. While attending UWSP, Alex was an intern with the Madison Audubon Society, where he and four other interns managed natural areas around Dane County. After graduation, Alex began his professional career in ecological restoration. Mr. Gall joined the ERC team in the early spring of 2020. Alex has a passion for habitat management for game species, and is an avid member of NWTF, PF, QDMA, and DU.

### **Andrew Haberman – Restoration Technician**

Mr. Haberman has just begun his professional career in restoration ecology. Mr. Haberman earned his degree in Conservation and Environmental Science at UW-Milwaukee in 2019. Andrew has a passion for this work and has worked on restoring a native oak savanna and wet mesic prairie on his parent's property since 2020. Andrew has experience conducting native plantings, seedings, and prescribed burns as well as managing terrestrial invasive species. In his free time, Mr. Haberman enjoys hunting and fishing.



## PROJECT EXPERIENCE

For over 15 years, ERC has worked with private and public sector clients throughout the northwestern and southeastern United States. These organizations include both private firms and public agencies and through these relationships, ERC has grown its capabilities. Examples of our clients and projects are provided below.

### **Environmental Compliance**

**Project:** *Preparation of an Environmental Assessment | Environmental Impact Report*

**Client:** *Public Sector, Wisconsin*

ERC prepared major portions of EA and EIR documents for the Water Level Order petition in 2005 and the Planning Assistance to States (PAS) project in 2011-2012. ERC prepared the EA for a 2013 experimental dredge/fill project that will allow the study of small-scale dredging efficacy and will use the fill to create riprap armored wetlands to protect a narrow strip of wetland that separate a high-quality natural wetland system from being eroded and becoming incorporated into Lake Koshkonong.

**Project:** *Preparation of an Environmental Impact Report*

**Client:** *Private Client, Central Wisconsin*

ERC prepared portions of an EIR for a proposed concentrated animal feeding operation (CAFO) in central Wisconsin between 2012- 2015. The project area included portions of two Counties and two watersheds. ERC conducted a T&E Survey, evaluated potential impacts to both aquatic and terrestrial components including; numerous trout streams that were in the project area and potential impacts to flora and fauna over the entire 6,000-acre project area.

### **Ecological Restoration | Ecological Resource Management**

ERC has conducted woodland surveys and prepared and instituted numerous woodland restoration plans. Woodlands are important ecological resources and the restoration and maintenance of these habitats is paramount for overall resource planning. These conservation areas play a key role in maintaining critical habitat, protection of ground- and surface waters and providing a natural setting for educational purposes.

**Project:** *Preparation of a Wetland and Waterway Assessment Report*

**Client:** *Marshfield Utilities Natural Gas Company, Marshfield, Wisconsin*

A Wetland and Waterway Assessment Report for the Marshfield Utilities Natural Gas Supply Lateral Routes was prepared by ERC to assess the primary gas route and one alternative lateral gas route in Wood County, Wisconsin. The study included data collection and evaluation of natural resources within the planned routes, including a T&E Survey. Special attention was given to the waterways and associated wetlands and woodlands along each route.

**Project:** *Natural Resource Inventory*

**Client:** *Private Client, Wood County, Wisconsin*

ERC performed an ecological inventory of over 4,000 acres for a potential land use conversion of red pine plantation to irrigated agricultural lands in Wood County, Wisconsin. Project responsibilities involved defining biotic communities and ascertaining the presence or absence of T&E species on or adjacent to the proposed project site.

**Project:** *Stream and Habitat Survey*

**Client:** *Private Client, Central Wisconsin*

ERC conducted a stream gaging study, habitat survey, and modeling evaluation of impacts to numerous streams in central Wisconsin relating to high capacity well permitting. Biotic and abiotic components of the aquatic ecosystem were evaluated to determine if groundwater discharge reductions would result in significant impacts to the stream and its inhabitants.

**Project:** *Preparation of a Stream Depositional Study*

**Client:** *Private Client, Waukesha County, Wisconsin*

ERC completed a Stream Depositional Study of a cool-water stream in Waukesha County, Wisconsin as part of an illegal discharge litigation case. The project included the geomorphologic characterization of sediment profiles along a six-mile stretch of the stream and identifying endemic flora and fauna in the stream. ERC also provided litigation and negotiation support with agencies.

**Project:** *Ecological Restoration | Wetland Restoration*

**Client:** *Village of Belleville, Wisconsin*

ERC monitored vegetation restoration efforts for the Lake Belle View wetland restoration project in the Village of Belleville, Wisconsin. Various plant communities were monitored twice during the growing season in 2012 and 2013, and were monitored once in 2014 and 2015 to determine if the wetland restoration effort will meet agency permit conditions. In 2014, ERC conducted a wetland delineation of the newly created wetlands as a condition of the wetland permit.

**Project:** *Vegetation Assessment Report*

**Client:** *Concordia University, Mequon, Wisconsin*

ERC was contracted in 2012 to draft a Vegetation Assessment Report for Concordia University in Mequon, Wisconsin. The area of assessment was a 20-acre restored bluff adjacent to Lake Michigan. Qualitative transect methodology was utilized by ERC Ecologists to evaluate species dominance within the native planting on the re-engineered bluff face and shoreline. Soil erosional characteristics were also evaluated and ranked according to degree of severity. Data collected was compiled into a final Vegetation Assessment Report which conveyed associations between invasive species presence, established native vegetation, and soil erodibility. Subsequent quantitative assessments will support data compiled in a management/maintenance plan for the restoration area.

**Project:** *Vegetation Management Plan*

**Client:** *SC Johnson, Inc., Sturtevant, Wisconsin*

In 2010, ERC was contracted by SC Johnson, Inc. to draft a VMP for their Waxdale Facility in Sturtevant, Wisconsin. The objective of this VMP was to outline recommended maintenance and monitoring practices in support of a 30-acre mitigation site. The VMP included hydrological and vegetation management sections for the wetlands, detention basins, and associated uplands within the restoration area.

**Project:** *Bluff Stabilization*

**Client:** *Concordia University, Mequon, Wisconsin*

In 2005, Concordia University in Mequon, Wisconsin undertook one of the most ambitious Lake Michigan bluff stabilization projects ever attempted. The three-year, 12-million-dollar project was overseen by a multi-national engineering/design firm and entailed the complete re-grading of a 20 acre, ½ mile long section of Lake Michigan shoreline and the associated bluff. Incorporated into the restoration design was a pedestrian switchback sidewalk and stairway system, a complex stormwater drainage system that drains to a perched wetland system at the toe of the slope, coastal wetlands, 2,700 feet of large rip-rap stone, and a submerged rock revetment to help dissipate wave energy at the shoreline. The project was awarded several national and international engineering design awards.



Prior to intense invasive species management and supplemental seeding, the central portion of the bluff site was dominated by crown vetch, smooth brome grass, sweet clover, reed canary grass, and teasel. This area was the initial treatment area as outlined in ERC's 2015 Vegetation Management Plan (VMP).



In 2012, ERC was commissioned by Concordia University to evaluate vegetation and erosional conditions on the bluff, and draft a Vegetation Management Plan (VMP).

ERC utilized an adaptive management approach to prepare the treatment area for supplemental seeding with native vegetation. Site preparation methods involved well-timed cutting (to reduce invasive plant propagation and reduce surface plant biomass), custom herbicide regimes, and the use of prescribed fire to reduce remaining plant biomass and re-invigorate remnant native plants from the original restoration. Phase II began in 2016, which entailed a similar specification on an adjacent 4-acre treatment area.



The Biotic Earth Black, native seed mix, tackifier, and fertilizer was applied hydraulically.



Native vegetation and nurse crop

**Project:** *Ecosystem Assessment | Restoration*

**Client:** *B. Bruce Krier Conservancy Land Foundation, Inc., Belgium, Wisconsin*

The B. Bruce Krier Conservancy Land Foundation, Inc. (Conservancy) in Belgium, WI was officially designated in 2015. Working with ERC, the landowner had restored over 400 acres of former cropland and converted it to tallgrass prairie. The last piece of restoration was the severely degraded wetland in the floodplain of the stream that had been buried by up to two feet of mineral soil from erosional processes of adjacent cropland and the upstream watershed.



Winter 2012/2013



Summer 2013

In 2009, ERC conducted an initial site assessment of the degraded wetland along Suckerbrook Creek within the Conservancy. The site assessment included research of the property boundaries, topography, surface water bodies, watershed drainage patterns, land uses, and soil mapping to decide whether a wetland restoration project was feasible.

The Phase I investigation began in 2010 with a review of historical aerial photographs, assessing current wetland and vegetation conditions, and outlining restoration options and permitting requirements. The Phase II investigation followed in 2011 with a soil lithology investigation, meeting with agency staff to discuss permitting options, conducting a wetland delineation, and having a land survey conducted. ERC



Summer 2014

worked with MSA Professional Services, Inc. (MSA) to prepare an excavation grading plan to remove the mineral soil deposits and place them on adjacent uplands. Over the winter of 2012/2013, the grading and excavation work was completed by MSA.



Summer 2015

From 2013-2015, native seed and plugs were installed by ERC and with the help of volunteers. Invasive species management has greatly reduced the amount of invasive species cover. Monitoring has shown an increase in native species from 26 in 2011 to over 100 in 2018.

This project ultimately restored 29 acres of degraded wetland to a mix of shallow marsh, sedge meadow, and wet meadow plant communities.

**Project:** *Wetland Restoration | Mitigation*

**Client:** *Village of Lake Belle View, Wisconsin*

Beginning in 2009, ERC and one of its longest standing business partners, MSA, teamed up to provide the Village of Belleville with a comprehensive study, along with public hearing support and community outreach process that resulted in the Lake Belle View Restoration and Mitigation Plan. After decades of poor water quality, shallow, silted-in conditions, habitat degradation, and a fishery dominated by carp, the Village of Belleville proposed a restoration project that would result in ecological improvements to both the Upper Sugar River and Lake Belle View. Implementation of the plan resulted in an off-channel lake through construction of a berm to separate the Upper Sugar River from Lake Belle View.



Project Site in 2013.

The project was designed to create a net improvement in ecological condition of Lake Belle View and the Upper Sugar River, including a substantial increase in wetland habitat. The long-term management plan for wetlands was to establish a succession from open water habitat to floodplain forest. A hydraulic analysis was conducted to identify a separation berm location that avoids impacts to the 100-year flood elevation upstream of the project and minimize wetland impacts. Unavoidable impacts were mitigated through on-site restoration activities.



Project Site in 2014.

The restoration area was composed of dredge spoils from the construction of Lake Belle View. The area was dredged in 2010, again in the spring of 2011, and grading activities were completed in the fall of 2011. The restoration included creation of an off-channel lake that was dredged to various depths up to 10 feet, with the dredge spoils being used to create 22 acres of additional wetland habitat. The area was seeded in 2011. In 2014, ERC conducted a wetland delineation of

the created wetlands as a condition of the wetland permit. A prescribed burn followed by a dormant seeding which was conducted in the spring of 2015.

ERC evaluated the success of the restoration from 2012 – 2015 pursuant to State and Federal Permit conditions. Monitoring results showed that by year three all habitat areas exceeded the performance standard of having 40% (or more) native species coverage. Overall, there was an increase in total native species from 59% in 2012 to 73% in 2015.



Project Site in 2015.

## Planning

**Project:** *Preparation of a Comprehensive Five-Year Management Plan*

**Client:** *Ozaukee-Washington Land Trust, Village of Mequon, Wisconsin*

In 2011/2012, ERC was contracted by the Ozaukee-Washington Land Trust and the Village of Mequon to draft a Comprehensive Five-Year Management Plan (Plan) for the Mequon Nature Preserve (MNP). This Plan included an outline for restoration and management work to occur over a 10-year period. The 420-acre preserve within the heart of suburban southeast Wisconsin supports remnant ephemeral wetlands, high quality basswood/beech/maple forests, and 25 acres of restored prairie and wetland. The 130-page Plan outlined a restoration trajectory to enhance and connect several remnant woodland corridors while creating an early successional woodland habitat type over the next decade. The long range goal of the preserve is to create a “pre-settlement” woodland ecosystem dominated by beech, maple, and basswood, and contain enhanced or restored wetlands and drainage ways.

**Project:** *Ecosystem Assessment / Restoration*

**Client:** *Rock-Koshkonong Lake District, Newville, Wisconsin*

ERC is currently the consulting biologist for the largest Lake District in Wisconsin. Responsibilities include lake/stream management and habitat restoration/creation including design and evaluation. ERC prepared several grant applications for State and Federal programs and the Rock-Koshkonong Lake District has successfully received these requested grants. ERC’s fisheries experience includes sampling and analysis of the biotic component of aquatic ecosystems. ERC worked with State and Federal agencies to prepare a Comprehensive Lake Management Plan which was one of the first of its kind in the state.

**Project:** *Pond Design | Management*

**Client:** *Private and Public Sector*

ERC has assisted in the design and management of numerous private ponds in Wisconsin and recently assisted in the dredging design for the Sugar River/Lake Belle View separation and restoration project from 2010 to present. ERC designs and manages ponds for target species to incorporate all of their life stage needs. Due to the temperature extremes of the Wisconsin climate, extra care is given to the creation of a self-sustaining ecosystem that can withstand the rigors of a northern climate. ERC coordinates the addition of “structure” in the form of aquatic vegetation and/or installation of hard structures, and provides options for the stocking of fish and other wildlife. ERC uses the “ecosystem approach” to ensure the self-sustaining nature of the aquatic environment and the surrounding area.

## **Forestry Services**

**Project:** *Woodland Restoration | Timber Stand Improvement*

**Client:** *Wright Institute, Elkhorn, Wisconsin*

ERC conducted a woodland restoration/TSI project for the Wright Institute in Elkhorn, Wisconsin. The objective of the project was to eradicate the non-native understory of an oak/hickory woodlot while enhancing native understory vegetation as well as to increase native tree regeneration. Between 2006 and 2012, 35 acres of woody invasive plant species were mechanically removed and replaced with native woodland shrubs, trees, sedges, grasses, and forbs. Maintenance consisted of prescribed woodland burns and herbicide application.

**Project:** *Woodland Restoration*

**Client:** *Private Client*

In 2005, ERC began a woodland restoration project at the Walnut Woods subdivision in Sugar Grove, Illinois. This project included the removal and management of non-native and invasive tree, shrub, forb and grass species within an existing woodlot. Various removal techniques such as cutting, herbicide application, and controlled burns were used to manage undesirable species. In 2006, the woodlands were planted and seeded with native forbs, grasses, and sedges to assist with the restoration of the woodlots to a more natural condition.