Bone Lake Comprehensive Lake Management Plan

Lake Protection Grant Application

May 1, 2010

Project Scope/Description

a. Project area

Bone Lake and its watersheds are located in the Town of Georgetown (T35N, R16W, S5, 6, 7, 8, 17, 18, and 20) and the Town of Bone Lake (T36N, R16W, S31); WBIC: 2628100 in Polk County, Wisconsin. It is a drainage lake with Prokop Creek and three mostly intermittent streams flowing into the lake and Fox Creek flowing from the lake. Fox Creek eventually flows to the Apple River. The maximum depth is 43 feet, and the mean depth is almost 22 feet.

The Bone Lake watershed is part of the Upper Apple River watershed in the St. Croix River Basin. The watershed (or drainage area) of Bone Lake is approximately 9,173 acres. Of this area, approximately 3,088 acres are landlocked and do not contribute surface flow to the lake. Therefore, the area that drains directly to Bone Lake is about 6,085 acres.

The enclosed map shows public boat landing locations along with additional private access points.

Rare and Endangered Species Habitat

Bone Lake is in the Town of Georgetown (T35N, R16W) and the Town of Bone Lake (T36N, R16W). DNR records show two special concern species in and around Bone Lake. However, records of species present are no longer available to the public, so they are not listed in this grant application. Instead species for the two townships where Bone Lake is located are listed on the following page. No state or federally listed threatened, endangered, rare, or special concern plant species were found in any lake plant surveys.

Scientific Name	Common Name	State Status[1]	T35N R16W	T36N R16
HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	SC/FL	YES	YES
PANDION HALIAETUS	OSPREY	THR		YES
WILSONIA CANADENSIS	CANADA WARBLER	SC/M		YES
DENDROICA CAERULESCENS	BLACK-THROATED BLUE WARBLER	SC/M		YES
COCCYZUS AMERICNUS	YELLOW-BILLED CUCKOO	SC/M		YES
DENDROICA CERULEA	CERULEAN WARBLER	THR		YES
CYGNUS BUCCINATOR	TRUMPETER SWAM	END		YES
OPHIOGOMPHUS SMITHI	SAND SNAKETAIL	SC/N		YES
FUNDULUS DIAPHANUS	BANDED KILLIFISH	SC/N	YES	YES
HEMIDACTYLIUM SCUTATUM	FOUR-TOED SALAMANDER	SC/H		YES
ELEOCHARIS ROBBINSII	ROBBINS SPIKERUSH	SC		YES

The following communities are also listed in the database for T35N R16W:
Northern dry-mesic forest
Northern wet-mesic forest

The following communities are also listed in the database for T36N R16:
Open bog
Northern wet forest
Northern dry-mesic forest
Northern wet-mesic forest
Lake – soft bog
Ephemeral pond
Southern dry-mesic forest
Tamarack (poor) swamp

Note that wildlife goal objective 5 specifically targets improving habitat for sensitive species by focusing on increasing understanding of the importance of vernal pools.

[1] THR = Threatened, END = endangered, SC/FL = Special Concern (federally protected as endangered or threatened), SC/N = Special Concern (no laws regulating use, possessions, or harvesting), and SC/H = Special Concern (take regulated by establishment of open closed seasons).

b. Problem to be addressed by project

The Bone Lake Management District commissioned an advisory committee with 15 members and 4 advisors to assist in the development of the Bone Comprehensive Lake Management Plan in 2008 – 2009. The committee met 5 times to develop the plan. The plan has been approved by Lake District Board and the Department of Natural Resources. The approval letter is included with the grant application.

This lake plan implementation project addresses the priority concerns or problems identified in the planning process.

Identified concerns include:

- **Water Quality** *(Water quality concerns are related primarily to periodic algae blooms, some of which are severe. A major challenge of implementing the lake management plan is that only 19% of lake residents felt that runoff from their property impacted lake water quality. Percentages were low even with committee members of which only 40% thought runoff from their lot contributed to water quality problems in Bone Lake.)*

- **Natural Scenery** (*The committee "natural beauty" definition includes wildlife, plants, trees, clear water, quiet solitude, a variety of scenery, views of the lake. Where development occurs, it is preferable to have minimal views of buildings.)*

- **Fish Management** *(Initial concerns were related to high levels of tribal harvest of musky. The fishery committee has since expanded into looking into ways to improve fish habitat in the lake.)*

Water Quality Model Results[2]

The water quality model can be used to predict the impacts of changes in land management. The 2008 in-lake total phosphorus growing season average was 38 ppm which is consistent with model predictions. A tentative goal is to reach 30 micrograms per liter (equivalent to 30 parts per billion or 30 ppb). With overall watershed phosphorus reduction of 20%, a result of 31.5 ppb is predicted. With overall watershed reduction of 30%, 29.5 ppb is predicted.

Additional predictions from the water quality model are described in the bulleted list below.

- Reducing 70 acres of crop field P loading by 80% predicts 37 ppb, a 2.6% reduction in summer in-lake total phosphorus.

[2] Information from Steve Schieffer, Ecological Integrity Services.

- Reducing 25% of residential P loading by 50% predicts 36 ppb, a 5.2% reduction in summer in-lake total phosphorus.

- A combination of the two predicts 34 ppb, an 11% reduction in summer in-lake total phosphorus which is half way to the water quality in lake phosphorus concentration goal. **This is where project water quality improvement efforts are focused.**

- Additional phosphorus reduction could come from management actions on the tributaries – especially on the northwest tributary where actual phosphorus loading was higher than predicted or from curly leaf pondweed management. Both of these are under study in current lake management planning grant projects.

Shoreland Habitat Assessment Results
Volunteers completed a shoreland habitat assessment as part of the lake management plan. The assessment measured shoreline composition (at the immediate water's edge) and shoreland buffer composition (within 35 feet of the ordinary high water mark). The shoreline composition was 51% natural vegetation. The shoreland buffer composition was 34% natural. These percentages will be assessed again following completion of the lake protection grant to see how the project activities have influenced these amounts.

c. Project goals and objectives

Project goals and objectives are taken from the ***Bone Lake Comprehensive Lake Management Plan. August 2009.*** Some have been modified a bit after careful study by implementation committees.

Goal. Improve Bone Lake water clarity.

Objectives

Achieve an in-lake average summer phosphorus concentration of 30 ppb or less.

Reduce watershed phosphorus (P) loading by 25% or more.

- Reduce P loading from urban sources by lowering runoff from 25% of residential lots by 50%.
- Reduce P loading from cropland sources by reducing loading from 50 acres of row crop by 80%.
- Reduce tributary loading of phosphorus by 25%.

Goal. Protect and improve wildlife habitat in the Bone Lake shoreland area.

Goal. Maintain and enhance Bone Lake's natural beauty.

Create learning opportunities for children, adults, and families, delivered using a variety of methods: lectures, workshops, contests, family activities, handouts, brochures, newsletter articles, website features.

Wildlife Objectives:

1. Engage property owners in observing wildlife and recording their encounters.
2. Increase residents' understanding of ways to attract wildlife to their property.
3. Preserve and protect native wildlife habitat in public and private land around Bone Lake.
4. Provide information, education and support to understand the importance of native plants in the shoreland landscape with best practices for adding native plants that support wildlife; reduce the areas of lawn.
5. Provide information, education and support to understand the importance of and identify the habitat for threatened and endangered species.

Scenic Beauty Objectives:

1. Maintain undeveloped natural areas.
2. Enhance natural beauty of developed areas.
3. Preserve and enhance the opportunity to observe the beauty of the night sky.

Goal. Protect and improve the Bone Lake fishery.

Objectives

Maintain desirable levels of game fish in Bone Lake.

Assess and improve fish habitat.

Bone Lake Protection Grant 2010

d. Methods and activities

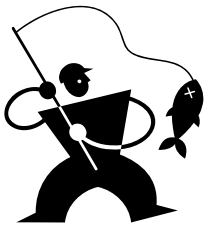
Committees for plan implementation
A unique feature of implementation of the Bone Lake Management Plan is the high level of involvement by lake volunteers. There are currently 6 committees organized to support implementation of various activities in the plan. These committees have from 4 to 7 volunteers each. Committees have met regularly to develop the details of plan implementation included in this grant application. Committees have collectively contributed over 275 hours toward the development of the projects in this grant application. Board members volunteered at least 30 additional hours to oversee the committee work.

The committees will continue to assist with plan implementation through the duration of the lake protection grant project. The committees will receive advisory support from local and state agencies and/or private consultants. The management district board approved reimbursement of mileage at the federal rate for lake district volunteers.

Committee job descriptions are as described below.

<u>Crop Fields Committee (haven't met yet)</u>
The Crop Fields Committee will help to assess and reduce the amount of runoff that makes its way from agricultural fields into Bone Lake. The Polk County Land and Water Resources Department is helping with this effort.

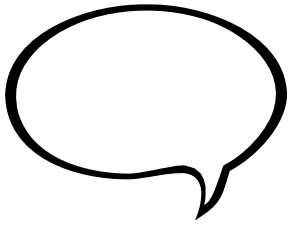
<u>Waterfront Runoff Committee (approx. 80 hours so far)</u>
The Waterfront Runoff Committee is developing a program to provide lakeshore property owners with the educational materials, technical assistance, financial incentives, and encouragement necessary to reduce runoff from their property. This committee is emphasizing innovative marketing techniques used in a step-by-step manner to encourage program participation.



<u>Fisheries Committee (101 hours so far)</u>
The Fisheries Committee will provide input to the DNR and the Tribe to help protect and improve the Bone Lake fishery. They are also working on installation of wood habitat structures for fish – especially in sensitive areas of the lake.

Evaluation and Studies Committee (48 hours so far)
The Evaluation and Studies Committee is monitoring the inputs to Bone Lake from its tributaries and other non-point sources within the watershed. Consultant help is available to guide testing and studies. Their work is largely supported through planning grant projects.

Wildlife and Natural Beauty Committee (44 hours so far)
The Wildlife and Natural Beauty Committee will provide information to lake residents to encourage maintaining undeveloped natural areas and enhancing the natural beauty of developed areas around Bone Lake.



Communications Committee (many hours donated)
The Communications Committee will facilitate lake resident education through the distribution of materials and information. The communications committee manages the Bone Lake web site and newsletter.

Actions

The actions were initially described in the lake management plan. They have been further developed by the implementation committees.

Water Quality

Crop Fields

- ✓ Investigate options for reducing nutrient loading once runoff testing results from planning grant project are available.
- ✓ Open dialogue with landowners with the assistance of Polk County LWRD.
- ✓ Encourage implementation of practices that reduce runoff and erosion from cropland.

  These projects are not included in the current grant application because the priority sites have not been identified and project specifics have not been developed.

Waterfront Runoff Actions

- ✓ Provide on-site technical assistance to property owners to encourage implementation of practices that reduce runoff from waterfront property. *Technical assistance must be no-strings attached and non-regulatory.*

- ✓ Implement the innovative marketing strategy developed by the Waterfront Runoff Committee. The strategy emphasizes a step-wise approach to first convince landowners that their property might be contributing to pollutant loading, then obtain an invitation to conduct an initial site analysis. The objective of the site visits is to be invited back to provide more detailed designs that will ultimately result in installation of water quality practices. The marketing strategy is included as an attachment.

  Benchmark objectives:
  Post cards distributed (500 in wave mailings)
  Checklists distributed (250 in response to wave mailings)
  Quick assessment visits completed (100 total visits)
  Initial simple project installations (30 diversions, rain barrels, small native plantings, etc.)
  Detailed designs completed (50 total designs)
  Projects installed (25 total installations)

- ✓ Provide financial incentives (cost-sharing) to encourage installation of waterfront runoff practices.

  Projects will be cost shared with the Lake District providing 70% of project costs through the grant and the homeowner providing 30% of project costs.

  Benchmarks:
  Water quality practices installed (25 total installations)

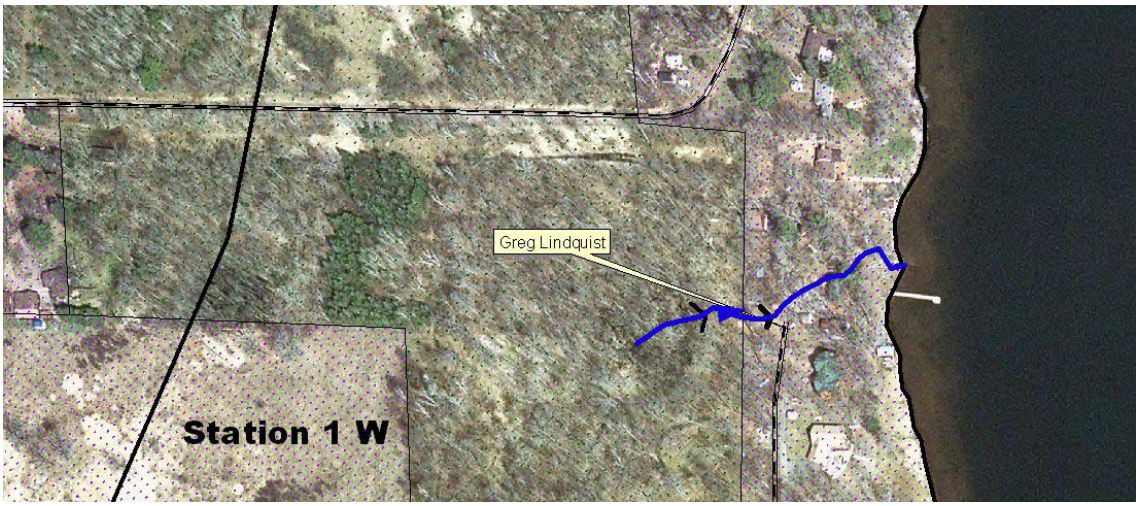
- ✓ Complete engineering design and permitting and install medium scale projects that involve runoff from more than one property (generally a drainage area 2 acres or greater)

  Land and Water Resource staff (Dave Peterson, Jeremy Williamson, and Scott Geddes) have already visited 2 sites where the drainage area is greater than 2 acres. Staff have made recommendations for practices and provided preliminary cost estimates for these sites. Support for engineering design, construction oversight, and installation costs are included in the grant budget.

Greg Lindquist property
1154 240th Avenue (NW side of the lake)

Problem #1
This property has concentrated flow which runs from roofs and other impervious surfaces above, down the road directly to the lake. This flow washes out gravel with stones as large as one inch.

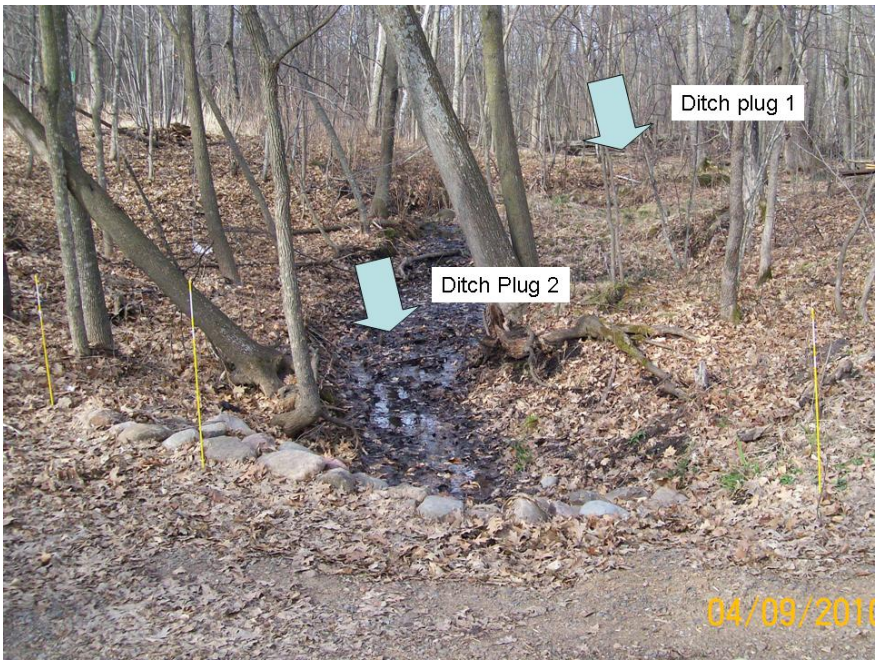
Proposed solution
Capture water above with waterfront runoff practices.
Divert remaining water across the road to low area. This diversion will need to be stabilized with pavement or heavier rock.



Divert water across driveway

Problem #2
Water drains from a wet area, through a culvert under the road, then directly to the lake.

Proposed solution
Construct a series of ditch plugs to hold water and allow it to settle. The Lake District and owner will obtain necessary permits and permission prior to implementing the project.



Cost for design and permitting: $2,000

Cost for installation: $6,000

Cris Moore and nearby property
1164 250th Ave. (Lagoon on north side of the lake)

We are monitoring sediment and nutrient content of the water and estimating flow through culverts 5, 6, and 7 as part of the 2010 planning grant project.

This property is at the lake entrance of Station 1 NW watershed. The watershed is composed of mainly forest and grassland. All water flowing from this watershed crosses 250th Ave. at culvert # 5, a 30" culvert. Water then flows to the lagoon on the north end. Because of the high flow and large culvert size, the best solution for this area will be to clear the brush vegetation from the channel to allow tall grasses to slow water and allow sediments to settle.

Water flows across Moore property.

Note that solutions for these two medium scale projects may be modified as land survey and designs are developed.

Culvert # 7

Sediment has collected partially plugged Culvert #7 (see watershed diagram on next page and picture below). Surface water is flowing from the Hunting Grounds subwatershed crossing County Highway GG through a 34" culvert. Water then flows toward 250th in a well defined channel with little area to develop a sediment basin. As the water reaches the culvert #7, a 20" culvert, the water backs up because of the smaller diameter, dropping out sediment. As the water level increases, it flows to culvert # 6. Flow below the culvert is partially through the wetland area and to the lake.

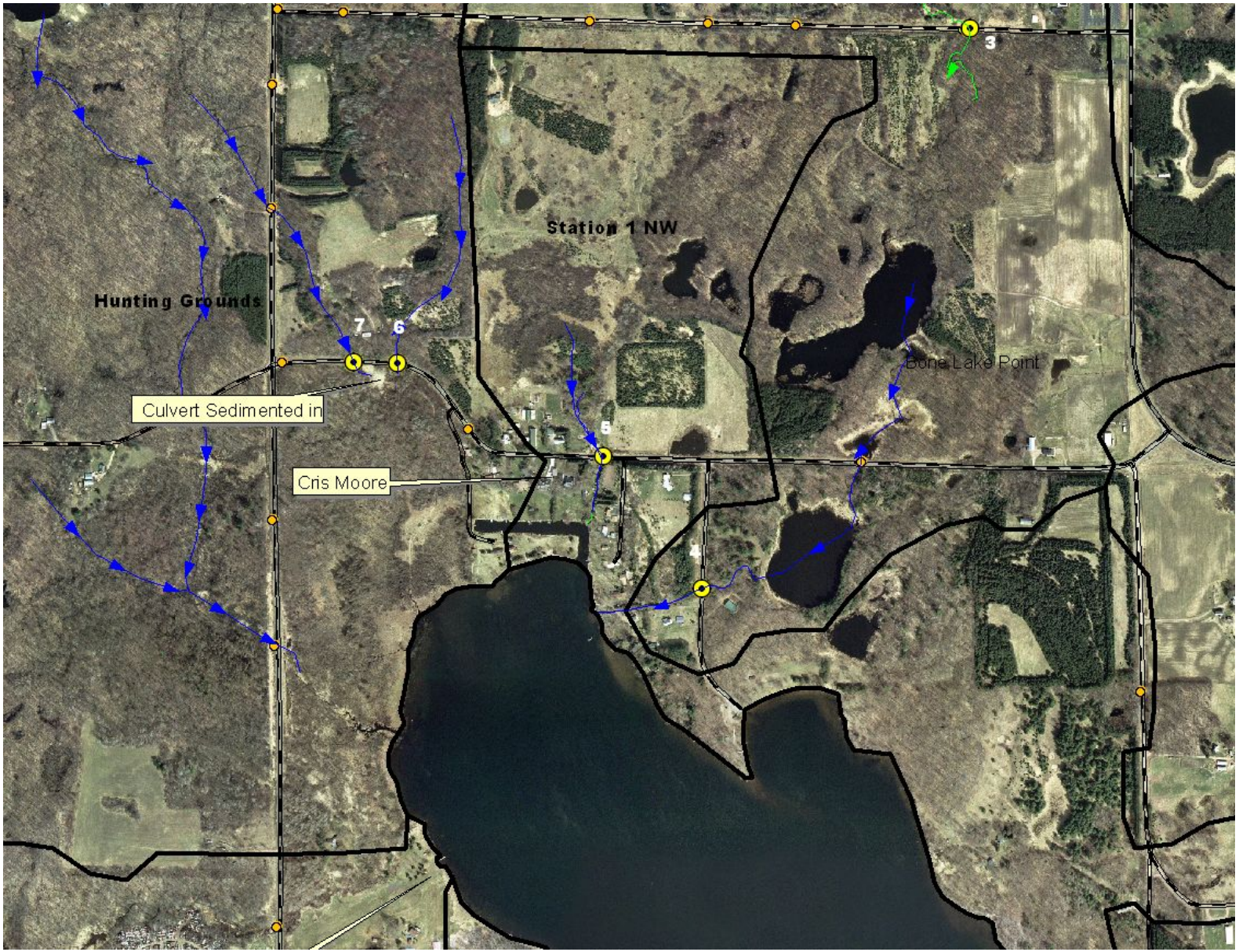
Solution: Culverts should be sized to adequately handle the flow. Dredging the entrance to these culverts will help to allow a place for sediment to settle. A stilling basin should be in place below these culverts to limit erosion from the culvert invert.

Cost for survey, engineering, and observation of installation: $5,000

Practice construction: $20,000

Culvert #7 w/sediment deposition is improperly sized.

Eroded channel flows to the lake.



Aerial photo of Cris Moore property area

Selected Volunteer Participants

Several landowners have already volunteered for quick assessment site visits. These 23 properties put us well on our way toward our goal of 25 site assessments for 2010.

Owner(s)	Lake Address	Potential practice (s)	Shore length (ft.)	Area of Lake	Sensi-tive Area?
Charles Adleman	2455 110th Street	Wood habitat	1200	NE	NO
Dick Boss	2102 West Bone Lake Drive	Unsure	100	SW	NO
Bob and Lorraine Boyd	2048 Dueholm Drive	All	100	SW	NO
Alex & Mary Chorewycz	2086A West Bone Lake Drive	Unsure	90	SW	NO
Lyn and Cris Dueholm	2017 Island View Lane	Unsure	100	S	NO
Department of Natural Resources	Small Island	Wood habitat		E	YES-D
Karen Engelbretson	1054A 230th Avenue	Water diversions	326	E	YES-C
Phil and Sue Foster	2080C W Bone Lake Drive	Rain garden, diversions, rain barrel, aquatic plantings, shoreline buffer zone	108	SW	NO
Jack Lachenmayer	2042 Dueholm Drive	Rain barrel	100	SW	NO
Ron & Mary Lachenmayer	2040 Dueholm Drive	Aquatic plantings	100	SW	NO
Kirk and Beth Larson	2180 W. Bone Lake Court	Wood habitat	438	W	YES-H
Wayne Liepke	2118 W. Bone Lake Drive		190	SW	NO
Michael & Lorraine Lunzer	2186 W. Bone Lake Court	Unsure	100	W	NO
Russ and Ann Miller	2036 Dueholm Drive	Unsure	101	SW	NO
Cris Moore	1164 250th Ave.	Infiltration pit or trench, diversions, rain barrel	125	N	NO
Dave Nelson	2247 Sunnyside Lane	Diversions, aquatic plantings, others?	100	E	NO
Brian and Sharon Paulsen	2104 W. Bone Lake Drive	Unsure	100	SW	NO
Carla Randall	2007 Island View Lane	Unsure	89	S	NO
Patrick and Dolly Schmidt	2192 Bone Lake Ct. W	Unsure	101	W	NO
John & Sharon Spies	2176 116th Street	Water diversions, wood habitat	300	W	YES-H
Chuck and Lois Steege	224 117th Street	Unsure	113	W	YES-I
William Trost	2063 Beddor Ct.	Aquatic plantings, shoreline buffer zone	150	SE	YES-G
Wayne and Mary Lou Wolsey	2215 Sunnyside Lane	Shoreline Buffer Zone	100	SE	YES-F

Example Sensitive Area Site Photos

Engelbretson property – adjacent to Sensitive Area C – Water Diversions

Larson property – adjacent to Sensitive Area H – Wood Habitat

Spies property – adjacent to Sensitive Area H – Water Diversions and Wood Habitat

Steege property – adjacent to Sensitive Area I

Trost property – adjacent to Sensitive Area G – Aquatic Plantings, Shoreline Buffer Zone

Wolsey property – adjacent to Sensitive Area F – Shoreline Buffer Zone

Wildlife Actions

Note – a more detailed description of Wildlife and Scenic Beauty Actions is available upon request

Objective 1:
Engage property owners in observing wildlife and recording their encounters.

Action Items

Prepare a *plant and animal inventory form* for lakeshore residents to use to record their encounters and observations of Bone Lake wildlife, native species, and special natural habitat.

Map natural areas along shoreline and document whether they are public or privately held; include habitat types, plants, animals sighted. Use resources from the lake management plan and plant inventories conducted by consultants and volunteers, plus data from residents who are currently observing wildlife. Build on this map when collecting data from residents' observations as a record of Bone Lake wildlife populations.

Distribute DNR Wildlife Cards to residents to aid in plant and animal identification.

Update *WLSB committee page on website* with findings.

Develop a *Nature Blog page* on existing website for uploading stories and images of nature encounters (page to be monitored by committee member).

Nature journal workshop for families, children, and adults. Make a nature journal and learn how to record observations, steps to scientific process, drawing and sketching in nature.

Distribute a variety of *nesting boxes* or kits to residents willing to install, observe, record, and report the nesting activity from the box.

Host guest speaker. Naturalist with live animals, birds, or taxidermy to speak at Lake Fair or other meeting. Programming will be suitable for children and families.

Host guest speaker for photography workshop. How to get good wildlife photos. Photo contest.

Objective 2
Increase residents' understanding of ways to attract wildlife to their property.
Behavior: Preserve existing and add wildlife habitat to lakeshore property.

Create and print a *brochure* listing common wildlife habitat requirements and simple ways for lakeshore property owners to increase habitat at their property. Address vernal pools and ephemeral wetlands. Collaborate with waterfront runoff committee. Pair this brochure with resident-updated Bone Lake plant and animal inventory list and website. Offer no-obligation site visit.

Objective 3
Preserve wildlife habitat in public and private land around Bone Lake.
Behavior: Protect and preserve near shore aquatic plant communities.

Mapping wildlife. Create a large-scale printed map to use in lake cabin to record sightings of wildlife with dates, locations, and description. Pair with nature journal projects.

What's in the lake. Develop an *interactive print and screen game* matching sensations felt while wading in the lake with the associated animal/vegetable/mineral.

Objective 4:
Provide information, education and support to understand the value of native plants in the lakeshore landscape; how to create beautiful and ordered low-maintenance gardens with native plants; the threats of invasive plants in the lakeshore landscape.
Behavior: Choose native plants for landscaping over horticultural varieties, reduce the amount of area of your lawn.

Guest speaker and/or newsletter article.

Cartoon series: What would I do if I didn't have a lawn (compare the expense of time and dollars maintaining a lawn with the leisure time recovered when you don't have one, or don't have such a big one).

Objective 5: Provide information, education and support to understand the importance of and identify the habitat for threatened and endangered species.

The endangered species in Polk County and how to identify them. Information about situation, habitat requirements. *Checklist* for identifying habitat for endangered species, images for identification, and how to document a sighting. *How to create habitat for specific species.*

Distribute vernal ponds brochure. Acquire from DNR or re-create and print. Distribute with newsletter and at meetings. Post as download on website.

For all objectives

Display board

Description of committee's activities, findings, and photos. Handouts and current contests.

Resources for more information.

List other nature activities in the area.

Scenic Beauty Actions

Objective 1
Maintain undeveloped natural areas

Overlaps with Wildlife Objective 1

Objective 2
Enhance natural beauty of developed areas

Information and education delivered via newsletter, and website.

Overlaps with Wildlife Objective 4

Objective 3
Preserve and enhance the opportunity to observe the beauty of the night sky.

Inform lakeshore residents of the issue and introduce simple methods to *reduce glare from lighting in the shoreland area:* shielded lights, low wattage lighting. Include information on outdated or even illegal lighting, associate with energy costs. Shielded lighting directs light to where it's needed – to the ground, not into the sky.

Provide resources for understanding the issue www.darksky.org, brochures on lighting and discussing the issue with your neighbors.

Provide star charts to lake residents.

Fisheries Activities

- ✓ Encourage, communicate, and support DNR and Tribal assessment and management of fish populations.

- ✓ Install wood habitat to provide structure for fish and other aquatic species.

- ✓ Install half logs to provide structure for fish and other aquatic species.

  Riparian owners must provide permission for installation and sign the necessary permits. Owners will not be charged for wood habitat installations or permits i.e., cost share rate is 100% from the Lake District. Committee volunteer hours provide the necessary grant match.

  Initial criteria for wood habitat installation:

  Low energy locations: areas that may not get as much pressure from ice out in the spring or wave action from boaters
  The size of the trees will be determined by the depth of the water. Shallow water = small trees, deep water = larger trees
  Tree availability

  Criteria for half log installation:

  Hard bottom: sand or rocks.
  6 feet of water depth
  Near wood habitat complex a bonus (then only one permit is needed)

Attachments provide an estimate of costs for these practices

e. Project products or deliverables

- Installed waterfront runoff practices.
- Waterfront postcard, checklist, and site evaluation form.
- Installed wood habitat and half log projects
- Wildlife habitat outreach materials and responses from owners
- Final report in pdf format

Additional outcomes and data collected listed in implementation chart.

f. Data to be collected

- Response to waterfront runoff postcard: number of evaluation checklists or site visits requested.
- Response to waterfront runoff checklist: number of site visits requested.
- Response to waterfront runoff site visits: installation of simple practices completed, detailed designs requested.
- Response to detailed designs: cost share project completed, installations completed without cost sharing.
- Wildlife/Natural Beauty: landowner participation in various educational activities

g. Existing and proposed partnerships

The Bone Lake Management District works closely with the Polk County Land and Water Resources Department (LWRD) to plan and implement lake management projects. The LWRD has already assisted with plan implementation by evaluating sites of potential runoff in a spring tour and providing practice recommendations, priority evaluation, and cost estimates for engineering and installation. They will provide assistance to the Lake District crop fields committee to help identify any areas of concern regarding crop fields, as well as assist with woody debris installation, recommendations for waterfront practices, identification of appropriate lands for protection, and mapping.

h. Role of project in planning and/or management of lake

Bone Lake developed an Aquatic Plant Management Plan in 2008 and a Comprehensive Lake Management Plan in 2009. These plans now guide Lake District activities. The Comprehensive Lake Management Plan set direction for lake management activities, but also raised several questions that will be addressed as part of current planning grant projects (through December 2011). The Comprehensive Plan also established a volunteer committee structure for plan implementation. These committees will continue to support plan implementation with a high degree of public involvement.

The project is consistent with the ***Polk County Land and Water Resource Management Plan.*** 2009. Some overlapping goals and activities directly from the plan are included below.

Goal 1. Protect the water quality of our groundwater, lakes, streams, rivers, creeks, and associated ecosystems.

Objective 1B. Limit the amount of non-point phosphorus reaching our waterbodies to prevent degradation from agricultural land uses.

- Provide education on proper erosion control and nutrient management standards (ATCP 50) to agricultural producers
- Collaborate with state efforts to achieve the 20% reduction in total phosphorus loading to the St. Croix Basin
- Identify and work to improve areas needing specific water quality protection from agricultural runoff

Objective 1C. Limit amount of non point runoff from urban stormwater runoff to prevent anthropogenic eutrophication.

- Identify and work to improve areas needing specific water quality protection from urban stormwater runoff

Goal 2. Protect shorelines, undeveloped riparian land, wetlands and aquatic plant communities, grasslands, forests, upland plant communities, farmland, and agricultural resources to perpetuate the benefits they provide: habitat and associated native wildlife communities, clean water, clean air, carbon sequestration, aesthetic beauty, and recreational opportunities.

Goal 3. Support and develop the human resources in Polk County that manage our natural resources – both LWRD and volunteer management groups.

Objective 3A. Educate public to instill an appreciation of natural resources.

- Expand natural resource education through innovative approaches and offer incentives whenever possible
- Continue to offer technical assistance to private landowners countywide

Objective 3B. Provide support for volunteers and residents who are properly managing natural resources by both technical and financial means whenever possible.

The Department of Natural Resources updated the ***St. Croix Basin Plan*** in 2002 for the Wisconsin portion of the watershed. Goals include maintaining and **improving water and air quality; maintaining diverse, rich shoreland habitat;** preserving large contiguous blocks of forestland, grassland, prairie, and wetlands; **working with the agricultural community to minimize nonpoint runoff**; working with cities, villages, towns and counties to help stem urban sprawl; and **providing education and technical assistance to enhance voluntary conservation.**

i. Timetable for implementation

See attached 2010- 2012 implementation chart.

j. Plan for sharing project results

Comprehensive Lake Management Plan and Aquatic Plant Management Plan are posted on the Bone Lake web site.

Bone Lake Management District web site, newsletter and annual meeting will include updates of plan activities and targeted outreach to residents.

Study reports and updates/addendum to Bone Lake Comprehensive Lake Management Plan will be shared.

k. Other information not described above (attached)

Waterfront runoff committee marketing plan

Fisheries committee cost estimates

DNR plan approval letter
Bone Lake Comprehensive Lake Management Plan (pdf format)