2010 Project Abstract
For the Period Ending December 31, 2013

PROJECT TITLE: State Park Improvements
PROJECT MANAGER: Stan Linnell
AFFILIATION: Department of Natural Resources, Division of Parks and Trails
MAILING ADDRESS: 500 Lafayette Road Box 39
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WEBSITE: www.dnr.state.mn.us
FUNDING SOURCE: Environment and Natural Resources Trust Fund
LEGAL CITATION: ML 2010, Chap. 362, Sec. 2, Subd. 4c. State Park Improvements

APPROPRIATION AMOUNT: $835,836

Overall Project Outcome and Results
The purpose of this project was to focus on renewable energy improvements, water quality enhancement, and attracting new users at Minnesota State Parks and Recreation Areas. This project consisted of installation of photovoltaic solar generation facilities at Tettegouche State Park, the construction of 4 rustic camper cabins at Lake Bemidji State Park, and the major rehabilitation of the storm water management system and repair of an eroding river bank at St. Croix State Park.

The first activity was to install photovoltaic solar panels at Tettegouche State Park. This allows us to showcase renewable energy at one of our busiest parks. There were 24KW of pole-mounted photovoltaic generating equipment installed. The system has 96 panels and each panel has a nameplate power rating of 250 watts. These panels will generate power for the brand new visitor center that will open to the public in the spring of 2014. Any excess power is exported to the electrical grid. The Utility, MN Power will credit any net excess kWh generation on the meter's monthly invoice. Annual saving are $3,200.

The second activity was to rehabilitate storm water collection and storage systems at the St. Croix State Park Visitor Center and repair and stabilize river bank erosion on the St. Croix River. Storm water treatment and storage facilities were lacking. The original storm water management system was built by the Civilian Conservation Corps (CCC) in the 1930's. A 20 car parking lot was re-graded and repaved with historic features such as stone curbing preserved. Best management practices are now demonstrated including natural treatment systems such as rain gardens, grassy swales and infiltration pipes were used to redirect storm water from the parking lot away from the river. The hillside that had eroded into the St. Croix River has been stabilized. It was re-graded and restored with native vegetation. The delta of sediment has been removed from the river.

The third activity was to construct 4 rustic camper cabins at Lake Bemidji State Park. They are well insulated to exceed the energy code by 30% and they exceed Minnesota Sustainable Design Guidelines. FRC sustainably grown lumber was used. Camper cabins have been found to attract new users who may not have camping equipment or

feel comfortable sleeping out in a tent. These cabins are open for use year round. All 4 cabins have heat and electricity, a screened in porch, an outdoor fire ring for cooking and a picnic table. Two of the cabins sleep 6 while the other two are wheelchair accessible and sleep 5. Along with the cabins, 2 vault toilets were installed within close proximity as well as 2 wells for drinking water. Since the cabins opened in June 2012 there have been 959 occupied site nights.

Environment and Natural Resources Trust Fund (ENRTF)
2010 Work Program

Date of Report: May 2, 2014 – Final Report
Date of Next Progress Report: ~~December 31, 2013~~
Date of Work Program Approval: July 30, 2013 Amendment
Project Completion Date: December 31, 2013

I. PROJECT TITLE: State Park Improvements

Project Manager: Stan Linnell
Affiliation: Department of Natural Resources, Division of Parks and Trails
Mailing Address: 500 Lafayette Road, Box 39
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Telephone Number: 651-259-5626
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FAX Number: 651-297-1157
Web Site Address: www.dnr.state.mn.us

Location: Lake Bemidji State Park, Soudan Underground Mine State Park, St. Croix State Park, and Tettegouche State Park

Total ENRTF Project Budget:	**ENRTF Appropriation:**	**$ 835,836**
	Minus Amount Spent:	**$ 657,964**
	Minus Amount Encumbered	**$0**
	Equal Balance to Cancel:	**$177,872**

Legal Citation: ML 2010, Chap. 362, Sec. 2, Subd. 4c. State Park Improvements

Note: the appropriation amount differs from the original report amount due to the actual balance amount available to transfer to this appropriation was $221,836 not $200,000 as estimated (in addition to the $47,000 transfer). See appropriation language below.

Appropriation Language:

$567,000 is from the trust fund to the commissioner of natural resources for state park capital improvements and natural resource restoration. Of this amount, $250,000 is for solar energy installations in state parks and the remaining amount shall be used for park and campground restoration and improvements. Priority shall be for projects that address existing threats to public water resources. On July 1, 2010, the unobligated balance, estimated to be $200,000, of the appropriation for clean energy resource teams and community wind energy rebates in Laws 2005, First Special Session chapter 1, article 2, section 11, subdivision 10, paragraph (a), as amended by Laws 2006, chapter 243, section 15, and extended by Laws 2009, chapter 143, section 2, subdivision 16, is transferred and added to this appropriation. On July 1, 2010, the $47,000 appropriated in Laws 2009, chapter 143, section 2, subdivision 6, paragraph (f), for native plant biodiversity, invasive plant species, and invertebrates is transferred and added to this appropriation.

II. FINAL PROJECT SUMMARY AND RESULTS:

The purpose of this project was to focus on renewable energy improvements, water quality enhancement, and attracting new users at Minnesota State Parks and Recreation Areas. This project consisted of installation of photovoltaic solar generation facilities at Tettegouche State Park, the construction of 4 rustic camper cabins at Lake Bemidji State Park, and the major rehabilitation of the storm water management system and repair of an eroding river bank at St. Croix State Park.

The first activity was to install photovoltaic solar panels at Tettegouche State Park. This allows us to showcase renewable energy at one of our busiest parks. There were 24KW of pole-mounted photovoltaic generating equipment installed. The system has 96 panels and each panel has a nameplate power rating of 250 watts. These panels will generate power for the brand new visitor center that will open to the public in the spring of 2014. Any excess power is exported to the electrical grid. The Utility, MN Power will credit any net excess kWh generation on the meter's monthly invoice. Annual saving are $3,200.

The second activity was to rehabilitate storm water collection and storage systems at the St. Croix State Park Visitor Center and repair and stabilize river bank erosion on the St. Croix River. Storm water treatment and storage facilities were lacking. The original storm water management system was built by the Civilian Conservation Corps (CCC) in the 1930's. A 20 car parking lot was re-graded and repaved with historic features such as stone curbing preserved. Best management practices are now demonstrated including natural treatment systems such as rain gardens, grassy swales and infiltration pipes were used to redirect storm water from the parking lot away from the river. The hillside that had eroded into the St. Croix River has been stabilized. It was re-graded and restored with native vegetation. The delta of sediment has been removed from the river.

The third activity was to construct 4 rustic camper cabins at Lake Bemidji State Park. They are well insulated to exceed the energy code by 30% and they exceed Minnesota Sustainable Design Guidelines. FRC sustainably grown lumber was used. Camper cabins have been found to attract new users who may not have camping equipment or feel comfortable sleeping out in a tent. These cabins are open for use year round. All 4 cabins have heat and electricity, a screened in porch, an outdoor fire ring for cooking and a picnic table. Two of the cabins sleep 6 while the other two are wheelchair accessible and sleep 5. Along with the cabins, 2 vault toilets were installed within close proximity as well as 2 wells for drinking water. Since the cabins opened in June 2012 there have been 959 occupied site nights.

III. Progress Summary

Result Status as of: July 30, 2013: All activities have been completed except one PV solar installation which is tied to a federally funded project. The renewable solar photovoltaic energy project (No longer ENRTF funded) at Soudan Underground Mine

state park is under construction and is expected to be complete in August 2013, resulting in 27 KW of roof mounted photovoltaic renewable energy generation capacity.

The renewable solar photovoltaic energy project at Tettegouche state park is under contract. This installation is being completed in conjunction with a larger building construction project. Delays in the building construction project have forced delays in completing the PV solar installation. New projected completion date is December 31, 2013.

Result Status as of: January 7, 2013
This amendment requests a time extension until August 31, 2013 at which point the Tettegouche project is expected to be complete. The appropriation under ML of 2010 (see language in outline section) allows a project which receives federal funding to have the appropriation extended to equal the federal grant period. The federal grant for the Tettegouche project does not expire until all funds are expended.

Renewable solar photovoltaic energy projects have been designed and are now under contract at Soudan Underground Mine and Tettegouche state parks. Construction of the complex Soudan Underground Mine State Park building project was delayed such that the ENRTF funds originally allocated to this project were no longer eligible to be used. The ENRTF funds were cancelled and other funds have been directed to complete this project. The renewable solar photovoltaic energy project at Tettegouche State Park is part of a larger new visitor center project, done in cooperation with MN/DOT and federal funding.

This second project has restored the eroded shoreline and protected and enhanced the water quality of the Wild and Scenic St. Croix River at the historic St. Croix State Park lodge. Storm water now drains away from the river and infiltrates, sediment has been removed from the river and the eroded shoreline has been restored. The amendment requested an adjustment in the amount funded as was required to accomplish the results on this project.

Four camper cabins have been constructed at Lake Bemidji State Park and over 1000 people have already enjoyed their use. July and August of 2012 occupancy in these facilities was at 90%. Camper cabins are key facilities in attracting new users to MN State Parks.

Budget amendments include: Result 1: a decrease from $271,667 to $250,000 to reflect the amount originally appropriated for this result. Result 2: an increase from $382,517 to $389,335 to reflect the actual amount of ENRTF funding needed to complete this task. Result 3: an increase from $159,816 to $196,501 to balance out the remaining funds from this appropriation. This last increase also reflects the actual amount appropriated ($21,836 above original estimated appropriation) which was not shown on the previous amendment.

Amendment Request 12/31/11:

Photovoltaic panel installations are ready to bid at Tettegouche and Soudan Underground Mine state parks, adding sustainable energy to projects funded by capital bonding in each location. Stormwater facilities and bank erosion work is underway at St. Croix State Park and is a larger project than originally anticipated to properly control bank erosion. Camper Cabin installation at Lake Bemidji State Park is almost completed. Due to increased costs for solar energy installations and for the St. Croix stormwater/erosion project, the solar-powered well installations that were originally part of this work program are being dropped. Amendment Request Approved: 6/11/2012

IV. OUTLINE OF PROJECT RESULTS*:*

RESULT/ACTIVITY 1: Install PV solar power generation equipment at Soudan Underground Mine and Tettegouche state parks.

Description: This budget will allow for the installation of approximately 25KW of pole-mounted photovoltaic generating equipment. These installations will be completed along with larger building construction projects at these sites funded by bonding appropriations.

Summary Budget Information for Result 1: **ENRTF Budget: $250,000**
Amount Spent: $129,904
Amt. Encumbered: $0
Balance to Cancel: $120,096

Deliverable/Outcome	Completion Date	Budget
1. Design installations	May, 2012	$1040
2. Award bid for construction (Tettegouche)	May 2012	$128,864
3. Construction complete	December 31, 2013 ~~August 2013~~	

Result Completion Date: December 31, 2013 Extension permissible under: **ML 2010, Chap. 362, Sec. 2,**

Subd. 9.**Availability of Appropriations**

Money appropriated in this section may not be spent on activities unless they are directly related to the specific appropriation and are specified in the approved work program. Money appropriated in this section must not be spent on indirect costs or other institutional overhead charges. Unless otherwise provided, the amounts in this section are available until June 30, 2012, when projects must be completed and final products delivered. For acquisition of real property, the amounts in this section are available until June 30, 2013, if a binding contract is entered into by June 30, 2012, and closed not later than June 30, 2013. If a project receives a federal grant, the time period of the appropriation is extended to equal the federal grant period.

Final Report Summary December 31, ~~August 31,~~ 2013: The photovoltaic solar power generation equipment has been installed at Tettegouche State Park. These solar panels will power the brand new Visitor Center that will open to the public in the spring of 2014. The DNR web team is in the process of adding Tettegouche State Park to the Energy Smart at the DNR webpage, which will track how energy saving results and tons of CO2 prevented.

Result Status as of December 31, 2013: The renewable solar photovoltaic energy project at Soudan Underground Mine state park is complete. The renewable solar photovoltaic energy project at Tettegouche state park is complete although the visitor center that it serves is still under construction. Due to a staff departure and the lack of completion on the visitor center, the projects have not yet been added to The DNR's Energy Smart web page: http://www.dnr.state.mn.us/energysmart/index.html Energy saving results and tons of CO2 prevented will be reported here.

Result Status as of July 30, 2013: The renewable solar photovoltaic energy project at Soudan Underground Mine state park is under construction with completion expected in August 2013. The renewable solar photovoltaic energy project at Tettegouche state park is under contract. This installation is being completed in conjunction with a larger building construction project. Delays in the building construction project have forced delays in completing the PV solar installation. New projected completion date is December 31, 2013.

Result Status as of January 7, 2013: Renewable solar photovoltaic energy projects have been designed and are now under contract at Soudan Underground Mine and Tettegouche state parks. These two installations are being completed in 2013 along with larger building construction projects at these sites.

The solar project at Tettegouche State Park is part of a larger visitor center project done in cooperation with MN/DOT. The contract includes the installation of 24KW of ground mounted photovoltaic generating equipment at Tettegouche State Park which nearly meets the original generation goal of the project description. The solar power will directly feed into the building to offset the power use of the building. The power will also be able to feed directly back into the power grid at times when there is excess power generated. The solar photovoltaic portion of the project is under contract for $128,864. The Tettegouche project is a complex building project which required extensive review including review to meet federal standards, which had to have the design modified and be rebid after initial bids came in too high. The federal funds are Coordinated Border Infrastructure (CBI) funding. The funds are capped at $3,000,000.00 for this project. Tettegouche received federal authorization in fiscal year 2011. The federal grant for the Tettegouche project does not expire until all funds are expended.

Construction of the complex Soudan State Park project building project was delayed such that the ENRTF funds originally allocated to this project were no longer eligible to be used. Other funds have been directed to complete this important project which is under contract for $141,763 for 27 KW of roof mounted photovoltaic generating equipment.

MN/DNR is a leader in renewable energy and is committed to including renewable energy to serve new building developments as well as to serve many existing buildings. See http://www.dnr.state.mn.us/energysmart/index.html for more information.

Result Status as of December 30, 2011: Projects at Tettegouche and Soudan Underground Mine are ready for bidding. Budget for Tettegouche is $128,864 and the budget for Soudan is $142,803

RESULT/ACTIVITY 2: Rehabilitate storm water collection and storage systems at St. Croix Lodge Visitor Center, St. Croix State Park, and repair and stabilize bank erosion.

Description: This allocation will be used to rehabilitate the storm water management systems at the historic St. Croix Lodge, constructed by the CCC in the 1930's. Storm water treatment and storage facilities will be added and major bank erosion will be stabilized and re-vegetated. Installation of storm water facilities will involve re-grading and repaving a twenty car parking area and restoring historic features such as granite curbing. Natural treatment systems such as rain gardens and grassy swales will be utilized where feasible. This amendment requests additional funds that were required to accomplish the results on this project.

Summary Budget Information for Result 2: **ENRTF Budget: $389,335**
Amount Spent: $389,335
Balance: $-0-

Deliverable/Outcome	Completion Date	Budget
1. Complete topographic survey~~, and~~ design, inspection and permitting	May 28, 2012	$97,033
2. Award bid for construction	September 2011	$292,302
3. Complete construction	May 28, 2012	

Result Completion Date: June 30, 2012

Final Report Summary June 30, 2012: Construction of storm water collection and storage systems has been completed as of May 2012, along with re-grading and repaving of 20 car parking lot and installation of rain gardens, grassy swales and infiltration pipes. The river bank erosion has been stabilized and re-vegetated with native plants. The delta of sediment has been removed from the St. Croix River.

Result Status as of June 30, 2012: The project to restore the eroded shoreline and protect and enhance the water quality of the Wild and Scenic St. Croix River at the St. Croix State Park lodge has been completed. This allocation was used to rehabilitate the storm water management systems at the historic St. Croix Lodge, constructed by the CCC in the 1930's. Storm water treatment and storage facilities have been added, and a major bank erosion problem was stabilized and re-vegetated. The hillside that had

eroded into the Wild and Scenic St. Croix River has been re-graded and restored to native vegetation. The delta of sediment has been removed from the river. Storm water facilities were installed to direct storm water away from the St. Croix River and infiltrate it. The project involved re-grading and repaving a twenty car parking area and restoring historic features such as granite curbing. Natural treatment systems such as rain gardens, infiltration pipes and grassy swales were utilized. The parking lot water now drains away from the river to an infiltration swale. Clean Water, Land and Legacy Park and Trail funds were also leveraged to help fund construction.

Result Status as of December 30, 2011: Project is partially completed and is a much larger bank stabilization project than originally expected. Project will be completed by May 2012

RESULT/ACTIVITY 3: Construct 4 camper cabins at Lake Bemidji State Park.

Description: This allocation would fund the on-site construction of 4 camper cabins at 2 state park locations (2 cabins each location). Priority locations being evaluated are: Lake Bemidji, Forestville, Sakatah Lake, Savannah Portage, Itasca, Split Rock Lighthouse, and Tettegouche state parks. Final selection will depend on resource and archaeological reviews. Cabins will be open year-round and will be well-insulated to exceed the energy code by 30% and will exceed Minnesota Sustainable Design Guidelines (B3). Photovoltaic generating panels will be installed where the site conditions allow. FRC sustainably grown lumber will be used. Budgets include installation of water supply, parking, and vault toilets.

Summary Budget Information for Result 3: **ENRTF Budget: $196,501**
Amount Spent: $138,724
Balance to Cancel: $57,776

Deliverable/Outcome	Completion Date	Budget
1. Design installations, permits, plan review	May 1, 2011	$24,519
2. Award Bids for Construction	January 2012	$114,205
3. Complete installations	June 30, 2012	

Result Completion Date: June 30, 2012

Final Report Summary June 30, 2012: Four camper cabins have been constructed at Lake Bemidji State Park. Along with the cabins 2 vault toilets and 2 drinking water wells have been installed for use by camper cabin guests. Construction was complete June 2012. The cabins have heat and electricity and are open year round.

Result Status as of June 30, 2012: Four camper cabins have been constructed at Lake Bemidji State Park and over 1000 people have already enjoyed their use. July and August of 2012 occupancy was at 90%! Camper cabins are key facilities in attracting new users to MN State Parks.

Cabin construction and installation, water supply, vault toilets, parking and site work were completed in June 2012. Clean Water, Land and Legacy Park and Trail funds were leveraged to help fund this project. Cabins will be open for year-round use.

Result Status as of December 30, 2011: Cabin installation and sitework has been bid and installation will be completed in spring 2012.

V. TOTAL ENRTF PROJECT BUDGET: $835,836

Personnel: $-0-

Contracts: $657,964 (includes $122,592 in permitting and professional engineering and architectural services)

Equipment/Tools/Supplies: $ -0-
Acquisition (Fee Title or Permanent Easements): $ -0-
Travel: $ -0-
Additional Budget Items: $ -0-
Balance to Cancel: $177,872

TOTAL ENRTF PROJECT BUDGET: $835,836

Explanation of Capital Expenditures Greater Than $3,500: Capital expenditures will be made on state park property open to the public.

VI. PROJECT STRATEGY:

A. Project Partners: N/A

B. Project Impact and Long-term Strategy: These expenditures are consistent with strategic directions in the DNR Conservation Agenda, particularly “Connecting people to the Great Outdoors”, “Energy Efficiency”, and “Water Protection and Planning”.

C. Other Funds Proposed to be Spent during the Project Period: Bonding 2008 and 2010, Clean Water, Land and Legacy Park and Trail funds, Federal Grant funds.

D. Spending History:

VII. DISSEMINATION: Signs will be added to provide Environmental Trust Fund recognition at the project sites as per LCCMR guidance.

VIII. REPORTING REQUIREMENTS: Periodic work program progress reports will be submitted not later than December 30, 2010, June 30, 2011, December 31, 2011, and June 30, 2013. A final work program report and associated products were submitted on April 10, 2014. ~~will be submitted in January, 2014, as requested by the LCCMR.~~

IX. RESEARCH PROJECTS: N/A

Photovoltaic Solar Panels - Tettegouche State Park

Solar Panels – Tettegouche State Park

Camper Cabins – Lake Bemidji State Park

Camper Cabins – Lake Bemidji State Park

Bioswale – St. Croix State Park

Repairing and stabilizing bank erosion – St. Croix State Park

Repairing and stabilizing bank erosion – St. Croix State Park

Prior Eroded Condition – St. Croix State Park

Attachment A: Budget Detail for 2010 Projects - Summary and a Budget page for each partner (if applicable)

Project Title: *State Park Improvements*

Project Manager Name: Stan Linnell

Trust Fund Appropriation: $ *835,835.88*

1) See list of non-eligible expenses, do not include any of these items in your budget sheet

2) Remove any budget item lines not applicable

2010 Trust Fund Budget	Result 1 Final Budget: 1/8/2013	Amount Spent 4/10/2014	Balance 1/8/2013	Result 2 Final Budget: 1/8/2013	Amount Spent 1/8/2013	Balance 1/8/2013	Result 3 Final Budget: 1/8/2013	Amount Spent 1/8/2013	Balance 1/8/2013	TOTAL BUDGET	TOTAL BALANCE
BUDGET ITEM	PV Solar Installations			St. Croix Storwater Mgmt and Erosion			Camper Cabin Installation				
Contracts (Includes Professional Architectural and Engineering Services)	250,000	129,904		389,335	389,335	,	196,501	138,724			
Canceled Amount	120,096						57,776				
COLUMN TOTAL	**$129,904**	**$129,904**	**$0**	**$389,335**	**$389,335**	**$0**	**$138,725**	**$138,724**	**$0**	**$657,964**	**$0**

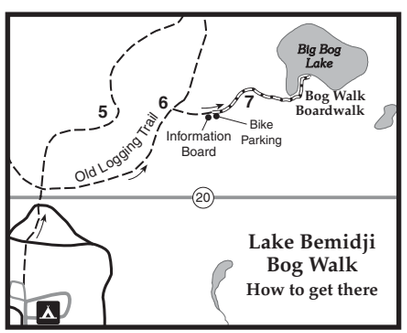
LAKE BEMIDJI STATE PARK

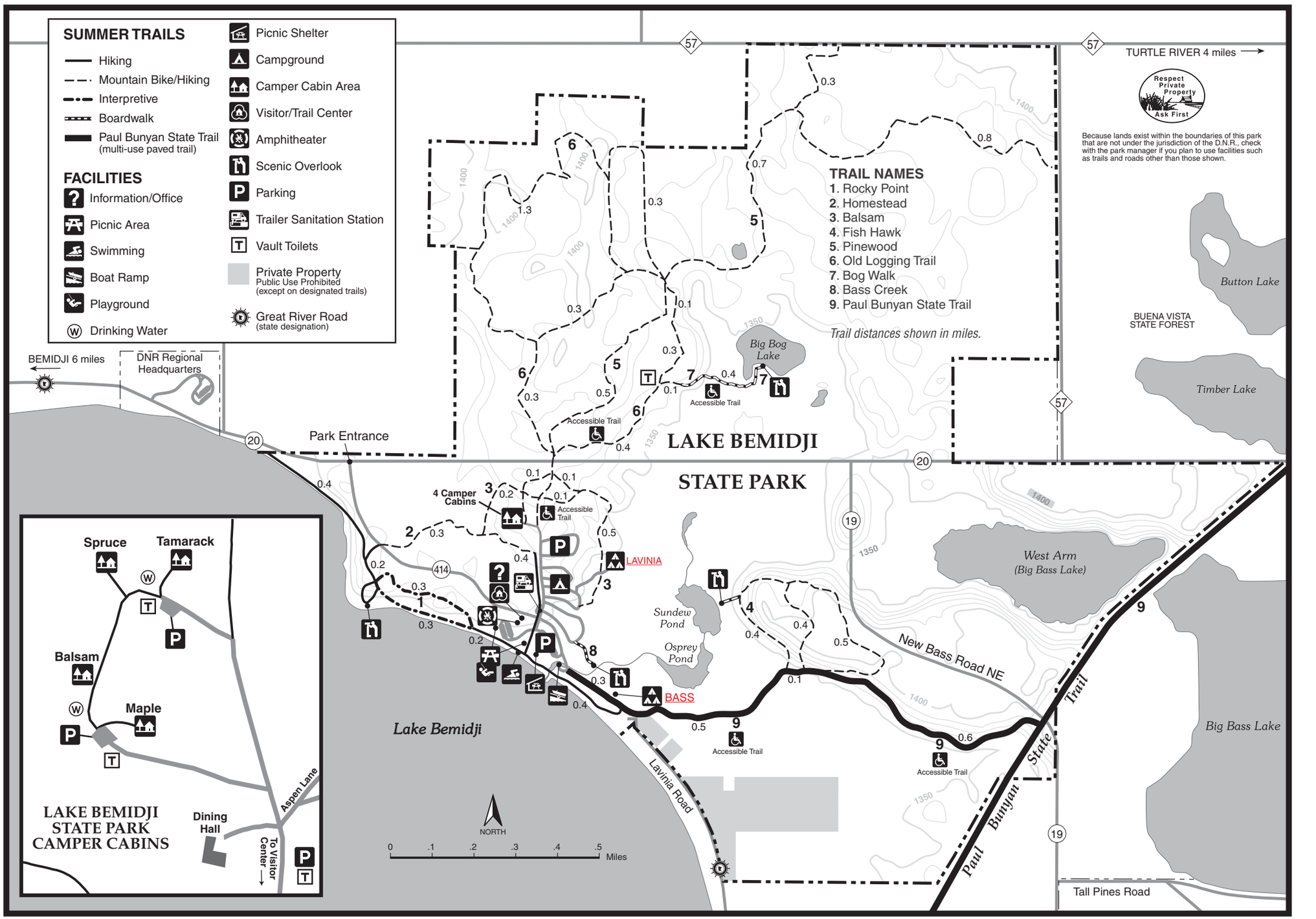
SUMMER FACILITIES AND FEATURES

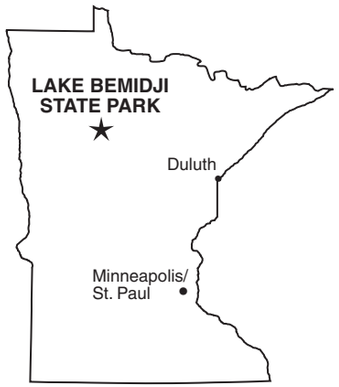
- 95 semi-modern campsites
- Hot showers
- Group areas
- Picnic area
- Swimming beach
- Public boat access/marina
- Boat/canoe/ kayak rentals
- Lake fishing
- Visitor center/trail center
- Naturalist programs
- Nature trails
- Trailer dump station
- Paul Bunyan State Trail
- Fishing pier
- Free WiFi
- Playground

SPECIAL FEATURE

The Lake Bemidji Bog Walk is a boardwalk into the spruce-tamarack bog. See orchids, insect-eating plants and a hidden lake.







LAKE BEMIDJI STATE PARK

FOR MORE INFORMATION
Lake Bemidji State Park
3401 State Park Road N.E.
Bemidji, MN 56601
(218) 308-2300

Department of Natural Resources
Information Center
500 Lafayette Road
St. Paul, MN 55155-4040

(651) 296-6157 (Metro Area)
1-888-646-6367 (MN Toll Free)

TDD (Telecommunications
Device for Deaf)
(651) 296-5484 (Metro Area)
1-800-657-3929 (MN Toll Free)

Web Site: mndnr.gov/parksandtrails

LAKE BEMIDJI STATE PARK is located 1.7 miles off County Road 21, five miles north of Bemidji, Minnesota. Entrance to the park is from Beltrami County State Aid Highway 20. Highway map index: F-7.

In the pine-moraine setting on the north shore of 6,765-acre Lake Bemidji, this state park affords visitors an enjoyable combination of Minnesota lake country recreation and the natural experiences of the northern forest. The short hike to the bluff at Rocky Point high above the blue waters, under a canopy of pine, birch, and maple, is both memorable and inspirational.

LANDSCAPE: Lake Bemidji State Park contains a variety of plant and animal communities. Located in the north-central portion of the pine-moraine region of Minnesota, the park is a mixture of many plant communities from maturing pines to young aspen. Settlers found communities of aspen-birch, tamarack-spruce, river-bottom oaks, basswood, and hard maple represented in the landscape.

Today, natural changes are still occurring within the park. The park is managed to provide visitors with vacation activities like camping, fishing, and boating within the natural setting of the pre-settlement landscape. Still continuing are the processes and plant/animal interactions which have been a part of the area for thousands of years.

RECREATION: Lake Bemidji State Park is far from being just a summertime vacation land. Winter in the north country has become an enjoyable season for young and old. The miles of groomed trails within the park provide both advanced and beginning skiers with exciting, yet peaceful, cross-country skiing experiences. Snowshoers, hikers, birders, and winter anglers also find park resources the ingredients for a pleasurable day. The park is the trailhead for the Paul Bunyan State Trail.

GEOLOGY: The present landscape in the park is the result of the last stage of glaciation in Minnesota. Soil, gravel, and rock material carried by the glacier as it moved south was eventually deposited as the ice receded 10,000 years ago.

The park's rolling topography was created by the uneven deposition of this glacial till. Meltwater, running off the surface of the glacier, also played a role in constructing the present shape of the land. Glacial meltwaters deposited outwash in some areas of the park similar to the way a river deposits soil at its mouth in the form of a delta. The campground area is overlying a flat outwash plain.

Many of the swamps and bogs in the park were formed when chunks of ice separated from the receding glacier and left depressions which later filled with water. Lake Bemidji itself is the result of two huge blocks of ice being left behind by the retreating glacier.

Is our present landscape now fixed? Definitely not! Since the last major alteration in the glacial period, the land continues to change slowly. The changes result from the erosive forces of wind and water, shoreline wave action, and other earth-moving processes.

WILDLIFE: The diversity of vegetation in the park supports many wildlife species. Birding is excellent. Campers may awake to cheery sounds of red-eyed and warbling vireos, rose-breasted grosbeaks, and many other forest songsters. Loons, black terns, gulls, even osprey can be seen while spending a quiet morning or evening on the lakeshore. A quiet hike on one of the park trails can yield a glimpse of a doe with her fawn, a porcupine having lunch halfway up a jack pine, or even an occasional black bear. Eastern chipmunks and red squirrels, always seeking attention from campers and picnickers, adapt all too well to the park's recreational areas.

The park is fortunate in having fine examples of an interesting northern Minnesota plant community—the conifer bog. Living exclusively in these areas are some of Minnesota's most unusual plant and animal species. The Bog Trail boardwalk leads a quarter mile into one of these areas so that visitors can observe pitcher plants, insect-eating sundews, orchids, and other plants without disturbing the bog.

Adjacent to the Fish Hawk Trail a short boardwalk leads visitors to a floating overlook of Sundew Pond.

In the wetland areas of the park, nesting waterfowl can be found as well as beaver, muskrat, and mink. In the evening, the park is alive with the sounds of gray treefrogs, spring peepers, and chorus and wood frogs. The woodland sound of a barred owl, the flute-like song of the veery, and the hammering of a sapsucker all add to the twilight wilderness experience.

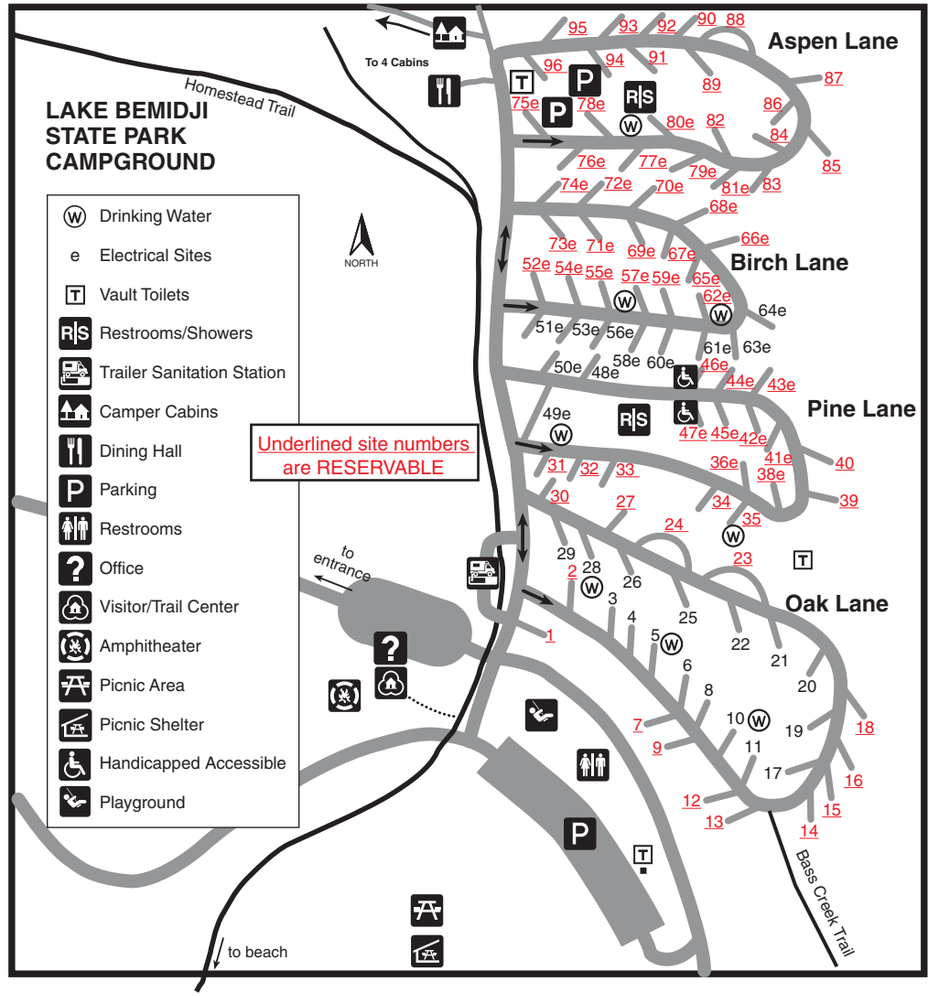
In all, nearly 50 species of mammals and almost 200 different kinds of birds can be seen throughout the year in Lake Bemidji State Park. Contact the park naturalist for current information on where and when to observe the variety of wildlife.

HISTORY: For generations, Dakota Indians fished and hunted around Lake Bemidji until the westward-moving Anishinabe reached the area, about 1750. The Anishinabe were able to drive the Dakota into the Great Plains away from their ancestral lakes and hunting grounds.

The Anishinabe called the lake Bemidjigumaug, meaning "cross water." Early voyageurs translated it to French as Lac Travers. Later Europeans unable to pronounce the Anishinabe name simply referred to it as "Bemidji."

A priority of settlers in the area was the harvesting of prime white and red pine. Several mills on the south shore of Lake Bemidji were the center of the last big logging surge in Minnesota. The foundation of one mill is still visible near Nymore Beach. Logging artifacts have been found in the lake by divers.

The land within the present park boundaries was involved in the logging era. Vast areas were extensively logged. Fortunately, a few areas within the park boundaries were still in a virgin state when the land was purchased by the government, thus preserving a remnant of towering forests so common in years past.



In 1923, the Minnesota state legislature set aside 421 acres, establishing Lake Bemidji State Park. Today, the park has grown to over 1,600 acres to serve 150,000 plus visitors a year.

INTERPRETIVE PROGRAMS: Throughout the year park visitors have the opportunity to participate in a variety of activities. From Memorial Day to Labor Day activities such as morning hikes, boat tours of Lake Bemidji, or evening films and campfire talks are conducted just about every day. Winter months offer visitors a chance to try snowshoeing, candlelight skiing, or to learn about winter wildlife, animal tracking or life under the ice. A variety of programs are offered from Labor Day to Memorial Day.

During the winter a modern trail center is open daily and sometimes serves as a gathering place for interpretive programs where visitors share experiences by the warmth of the woodstove. Throughout the year the Visitor Center is a place where information about the park's trails, animals, geology or other interesting features can be found through exhibits, videos or naturalist programs. A complete listing of programs and special programs for organized groups is available on request.

This information is available in alternative format upon request.

Minnesota Department of Natural Resources

Management Resources Bureau

Aaron Van De Bogart
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St. Paul, Minnesota 55155-4029

MEMORANDUM

Solar Photovoltaic Summary – Tettegouche State Park (Ground Mounted PV System)

24 kilowatt (kW) ground mounted solar photovoltaic array.
The system has 96 solar modules (panels). Each panel has a nameplate power rating of 250watts
Each panel is connected to a microinverter mounted on the back of each panel, converting DC(direct current) electricity to grid AC (Alternating Current).
The modules are from a US company SolarWorld located in Oregon.
The electricity generated from the system is used on-site and any excess power is exported to electrical grid.
The Utility, MN Power will credit any net excess kWh generation on the meter's monthly invoice.

Annual kWh: 32,000
Annual Savings $3,200

Annual mmBtu Offset: 109.2
Co2 MT Offset: 17.3
Proj. Cost: $128,864
Cost per Watt: $5.3/watt
Install Date Oct-2013
System Size: 24 kW
No. of Modules: 96
PV Module Power Rating: 250watt
Inverter Type & No: Microinverter, 96

Solar Photovoltaic Summary – Soudan Underground Mine State Park (Roof Mounted PV System)

27 kilowatt (kW) solar photovoltaic array mounted on new water filtration building.
The system has 96 solar modules (panels). Each panel has nameplate power rating of 270 watts.
Each panel is connected to a microinverter mounted on the back of each panel, converting DC(direct current) electricity to grid AC (Alternating Current).
The modules are from a US company SolarWorld located in Oregon.
The electricity generated from the system is used on-site and any excess power is exported to electrical grid.
The Utility, Coop Light & Power Association of Lake County will credit any net excess kWh generation on the meter's monthly invoice.

Annual kWh: 36,000
Annual Savings $3,600

Annual mmBtu Offset: 122.9
Co2 MT Offset: 28.4
Proj. Cost: $141,763
Cost per Watt: $5.25/watt
Install Date Sept-2013
System Size: 27 kW
No. of Modules: 96
PV Module Power Rating: 270watt
Inverter Type & No: Microinverter, 96