Aldo Leopold
Land Stewardship
TRAIL GUIDE

"The oldest task in human history: to live on a piece of land without spoiling it."

—Aldo Leopold

Northern Great Lakes VISITOR CENTER

ACKNOWLEDGEMENTS

Production of this trail guide was funded in part by a 2004 grant from Wisconsin Environmental Education Board and a 2014 grant from the Fund for the Environment of the Duluth Superior Area Community Foundation.

With generous trail and wetland construction support from:
USDA Forest Service; Wisconsin Army National Guard, 106th Engineering Detachment, Ashland, WI; Great Lakes Indian Fish & Wildlife Commission; US Fish & Wildlife Service; University of Wisconsin-Extension

Photo credits:

Cover: Nina Leopold, planting trees at the family's Wisconsin "sand county" farm, 1936, Courtesy of the Aldo Leopold Foundation Archives

p. 5: Aldo Leopold, Courtesy of the Robert McCabe Family Collection and the Aldo Leopold Foundation Archives

p. 6: "A Sacred Place", Mike Kroenke, Professor Emeritus, UW Extension

p. 10: logger and virgin white pine, Montreal, Wisconsin, historic photo

p. 13: Wisconsin State Herbarium, photographers: Kenneth J. Sytsma (bunchberry flower), Robert Bierman (bunchberry fruit), Robert W. Freckmann (large-leaved aster)

p. 14: ferns, Jan Esposito

p. 24: Herbarium, Cofrin Center for Biodiversity, UW Green Bay, photographer Gary Fewless (tamarack gold); Wisconsin State Herbarium, photographer Emmet J. Judziewicz (fringed gentian)

p. 25: right front bear track, Courtesy of Lynn and Donna Rogers/ www.bear.org; great blue heron, Gough, G.A., Sauer, J.R., Iliff, M. *Patuxent Bird Identification Infocenter*. 1998. Version 97.1. Patuxent Wildlife Research Center, Laurel, MD. http://www.mbr-pwrc.usgs.gov/id/framlst/infocenter.html

p. 26, 29: pond, forest, Jan Esposito

p. 30: Aldo Leopold, Courtesy of the Aldo Leopold Foundation Archives.

All other photos: Northern Great Lakes Visitor Center partners and staff.

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TRAIL STOPS

DEDICATION

to those who led the vision and creation of this stewardship learning lab for Lake Superior basin forests, meadows, wetlands, streams, and clay soils...

Steve Hoecker, USDA Forest Service

Mike Kroenke, University of Wisconsin Extension

Susan Nelson, USDA Forest Service

Mike Mlynarek, US Fish & Wildlife Service

Kathleen Morgen, University of Wisconsin Extension

to all who work and walk these 42 acres...

In loving memory of Kathleen Morgen

and to the memory of Aldo Leopold, whose writings continue to inspire the vision and work of land stewardship and conservation.

Please accept this trail guide as our gift...adding notes as you wish. You may return it to the kiosk or front desk for another to use if you prefer. What you see and read here is only the beginning. The work yet to be done and the journals yet to be written about the ecological restoration of this site will one day become our "Clay County Almanac".

Aldo Leopold (1887-1948)

Considered by many to be the father of wildlife ecology and a major force behind the conservation movement, Aldo Leopold is a true Wisconsin hero. Throughout his life, Leopold worked in forestry, fish and game management, wildlife conservation, and education. These diverse experiences fueled his contemplations...how to achieve a balance between preservation and sustainable use of land and natural resources.

In 1935, Leopold purchased a neglected piece of land near the Wisconsin River, in an area known as the sand counties. The land held nothing but an old field with corn stubble, a hill of drifting sand, a marsh, and a manure-filled chicken coop. He saw more. He and his family cleaned and rebuilt the shed and returned weekend after weekend to "the shack". Along with friends and graduate students, the Leopold family gradually restored the land.

From volumes of journals written there, *A Sand County Almanac* emerged. This conservation classic, published in 1949, represents a lifetime of observations and theories on the relationships between biology, ecology, forestry, land use, and ethics. Aldo Leopold practiced what he professed...a "land ethic"...based on a belief that the future of our land, wildlife, and environment depended upon the practices of private landowners and farmers.

And here we are. It is the future. We believe he was right. We hope this trail follows in his footsteps and helps people yearn to understand and live in harmony with the land.

As for Leopold's shack, it still stands in the sand country along the Wisconsin River. Today it serves as a site for inspiration and education for landowners, educators, and natural resource professionals attending "The Woodland School". The Aldo Leopold Foundation invites you to visit their website to learn more about their programming and philosophy at www.thewoodlandschool.org.

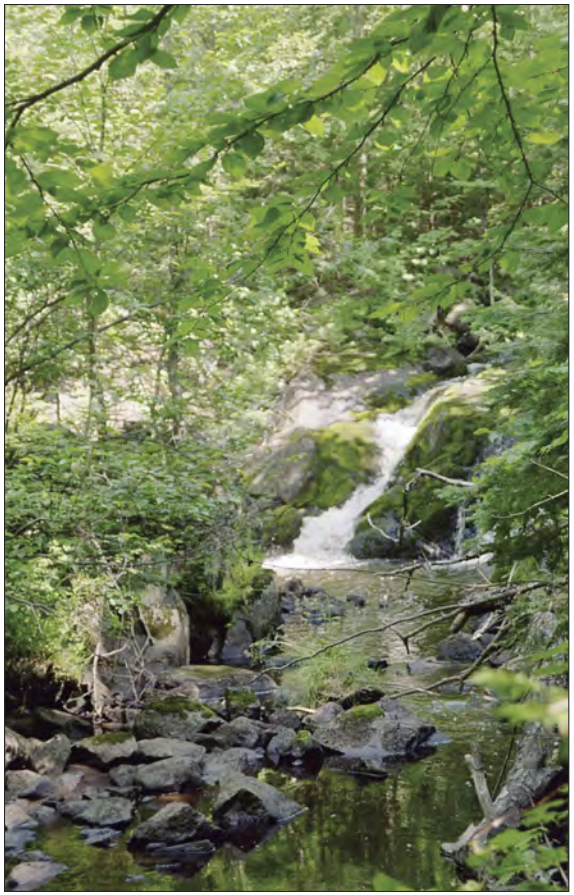
"The land ethic simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land."[2]

TRAILHEAD

Welcome to the Aldo Leopold Land Stewardship Trail. The trail traverses two intersecting loops totaling one mile in length through a 42-acre land stewardship site. Gravel and boardwalk surfaces provide moderate accessibility. A map of the trail can be found in the center pages of this guide.

Forests play a vital role in our quality of life. Healthy forests provide clean air and water, fish and wildlife habitat, and the recreation and economic base for all of us.

Healthy forests have healthy soils, held in place with a diversity of native plants and topped with a thick layer of organic matter.



In healthy forests, rainwater seeps deep underground, streams flow clear along stable banks, and when floodwaters rise, they are filtered and slowed by wetland sponges.

Like so many other places, the land you see before you was stripped of its trees more than a century ago and its living layer burned in the fires that followed. Stumps were removed, wetlands drained, and fragile clay soils exposed and farmed for a sliver in time.

The farmstead now houses interns, visiting researchers, and volunteers for the Center. Traditional barns like this are becoming scarce on the landscape. Its restored cedar shake roof will help keep it standing for years to come, answering a new call yet to unfold.

"A land ethic of course cannot prevent the alteration, management, and use of these "resources," but it does affirm their right to continued existence, and, at least in spots, their continued existence in a natural state."[3]

STOP 1: SHARING THE VISION

This land has undergone many changes in the last 100-150 years. Following the cutover of the late 1800s, when all the virgin timber was harvested, settlers struggled to grow crops and graze cows on the stump-studded land. Wetlands were drained or filled and plowed. The land still produces a hay crop, just as it did for the family who last called this farm home.

The dominant plant you see is an invasive grass commonly introduced to improve forage for livestock...reed canary grass. It took over the native vegetation that once adorned the land. It's going to take a major, long-term effort to bring plant diversity back to this land. But step-by-step, we plan to do just that.

All of the wetlands near the Center were created as an important first step in restoring habitat for wildlife, to help filter sediments from surface water, and to absorb flood waters.

We invite you to share the vision of helping this land heal. We have begun the long process of increasing diversity by planting native trees, shrubs, sedges, wildflowers, and grasses. This will result in increased diversity of wildlife species needing open meadow, forest, wetland, and streamside habitats.

This restoration effort has been undertaken not just for the health of the land, but to help all citizens learn to love and respect the land.

"We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect."[1]

STOP 2: WHITE PINE SENTINELS

Just ahead on the trail stand two stately second-growth pines. They remain here to remind us of giants that reigned over this land before the cutover.

"Acts of creation are ordinarily reserved for gods and poets, but humbler folk may circumvent this restriction if they know how. To plant a pine, for example, one need be neither god nor poet; one need only own a shovel..."[4]

Their greatest value today lies not in boardfeet, but in habitat for wildlife, biodiversity, scenic beauty, and a seed source for white pine regeneration.

ALDO LEOPOLD

STOP 3: NATURE'S THERMOSTAT

On a hot, summer day, you will notice how much cooler it is in the shade of these pines. The canopy (forest roof or overstory) offers natural climate control...keeping the air cooler in summer and warmer in winter. Tree needles and leaves calm gusty winds and provide cover for wildlife.

"If the land mechanism as a whole is good, then every part is good, whether we understand it or not. If the biota, in the course of aeons, has built something we like but do not understand, then who but a fool would discard seemingly useless parts? To keep every cog and wheel is the first precaution of intelligent tinkering."[5]

STOP 4: FOREST STORIES
(overstory, understory, groundlayer)

A healthy forest or woodland is rich in layers of green. Branches of mature trees make up the canopy or overstory high above, while shrubs and young trees form the understory below. Diverse native ferns, wildflowers, sedges and grasses cover the groundlayer or forest floor, along with tree seedlings pushing their way up through the litter layer of decomposing leaves, mosses, and fungi, finding new life in the protection of the shelterwood.

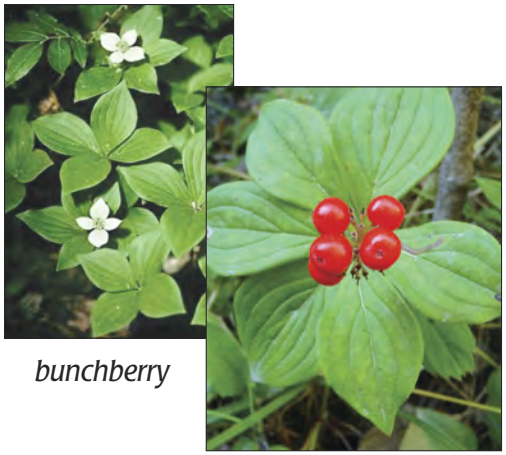
Where are the wildflowers and shrubs? Why is the ground so bare?

An over population of white-tailed deer have become a problem in land management. Mature forests of the past supported fewer deer than we see today.

Deer thrive in landscapes with an abundance of food easily found in farm fields, aspen regrowth in young forests, and even suburban backyards.

Deer relish seedlings of white pine, hemlock, and white cedar. Many groundlayer species don't stand a chance, munched as soon as they sprout or bloom. Plants the deer don't like such as the large-leaved asters and dewberries seem to thrive.

Watch ahead for the little bunchberries and other native plants.



bunchberry

large-leaved aster

Hundreds of white pine seedlings are enclosed in tree cages in this wooded area to protect them from browsing deer. One day they will thrive and reign over this forest.

"One basic weakness in a conservation system based wholly on economic motives is that most members of the land community have no economic value. Wildflowers and songbirds are examples...Yet these creatures are members of the biotic community, and if (as I believe) its stability depends on its integrity, they are entitled to continuance."[6]

STOP 5: DEAD TREES; NEW LIFE!

Even dead trees are critical to a healthy forest. Many insects, birds, mammals, amphibians, and reptiles depend on standing or fallen dead trees. Look for sawdust at the base of this old den tree. Where is it coming from?

Fallen logs also support fungi, millipedes, ants, and microbes...each in turn helping the decomposing wood build and enrich the soil.

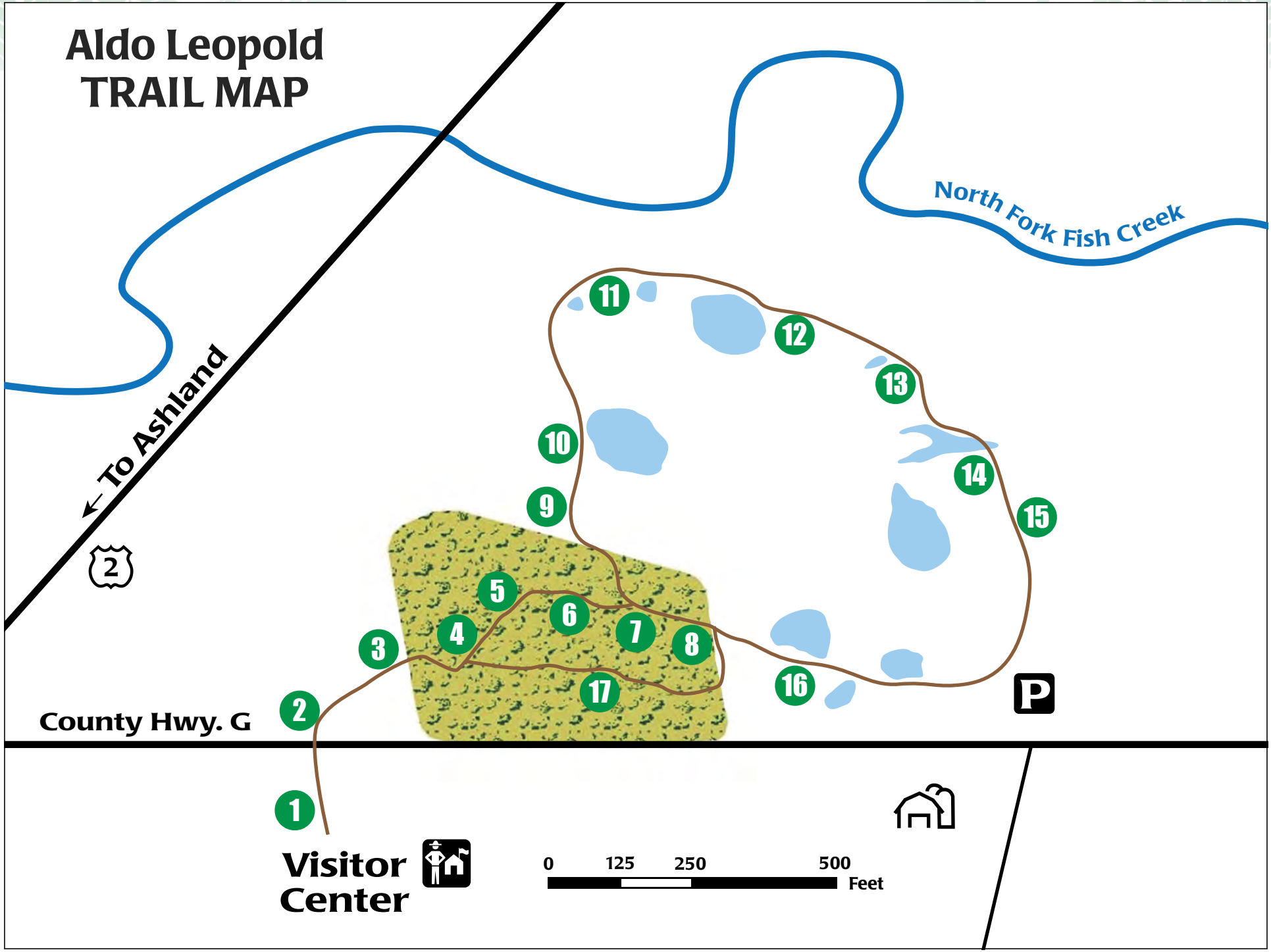
Life springs up where sunlight streams through canopy spaces vacated by dead trees.

STOP 6: MAKING CHOICES

This white pine tree, left where it was felled, serves as a reminder of how this woodlot appears to have been managed in the past. A common practice of cutting the most valuable timber and leaving only marginal or poor quality timber standing is called "high-grading".

In choosing which trees to harvest, we must weigh short-term economic gain with long-term sustainability. Sometimes that means selectively cutting trees of lesser value, leaving the best as an investment for the future.

"It is inconceivable to me that an ethical relation to land can exist without love, respect, and admiration for land, and a high regard for its value. By value I, of course, mean something far broader than mere economic value; I mean value in the philosophical sense."[8]


Aldo Leopold
TRAIL MAP
North Fork Fish Creek
To Ashland
2
County Hwy. G
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
P
Visitor
Center
0
125
250
500
Feet

STOP 7: PLUGGING THE DITCH

The open field beyond here was once farmed, with hay as the primary crop. In an effort to keep the field dry, several drainage ditches were dug to divert the surface water to the lower elevations near the main highway. You are looking at one of these ditches.

Our management plan includes slowing the flow of surface water run-off and recreating wetlands once drained. A ditch plug was installed here to accomplish both goals. This will dam snowmelt and rainwater behind the plug, helping to recreate an ephemeral (temporary) forest pond.

"Examine each question in terms of what is ethically and aesthetically right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise."[9]

As you walk toward the field, watch for poison ivy and European buckthorn–two invasive species commonly found in disturbed or human altered, environments. *(See p.31 for help finding more information on invasive species.)*

TRAIL LOOP NOTE: ***Turn right*** *to Stop #8 to learn more about the ephemeral pond.* ***Turn left*** *to Stop #9 and on to the longer loop to learn more about wetland restoration, watershed health, and plant and wildlife diversity.*

STOP 8: BRINGING BACK THE EPHEMERAL POND

Notice the tall black ash trees growing here. They need wet soils to thrive. They've been too dry too long. The ditch plug has helped restore this low, shallow bowl back into an ephemeral pond once again and allowed for us to plant white cedar and tamarack trees protected in wire cages from browsing deer. Such wetlands provide extremely valuable habitat for wood frogs, spotted salamanders, spring peepers, American toads, turtles, and wood ducks. If you look up in the trees along the trail you will see a duck box that was installed to increase nesting cavities for wood ducks. This type of wetland often dries up in late summer and fall but springs back to life with snowmelt and rainfall in spring.

black ash

"A land ethic, then, reflects the existence of an ecological conscience, and this in turn reflects a conviction of individual responsibility for the health of the land. Health is the capacity of the land for self-renewal. Conservation is our effort to understand and preserve this capacity."[10]

TRAIL LOOP NOTE: ***Walk ahead and turn right*** *for a shorter loop, returning to the Visitor Center...or...****walk back*** *to Stop #7, then continue to Stop #9 and the longer loop through the field and along the creek.*

STOP 9: IT'S THE PITS!

Do you know what caused the bowl-like landform here? This was a borrow pit for the construction of U.S. Highway 2. The rich topsoil was removed leaving infertile soil. Very little vegetation can thrive as a result. A few white spruce and birch have sprouted from larger seed trees, along with sparse grasses. There is little that can be done until many years have passed and topsoil forms.

The old field to the right will someday be graced with a canopy of mixed hardwood and conifer trees, reminiscent of forests that were once predominant before the logging era in the late 1800s.

STOP 10: RETURNING A GIFT

Wisconsin's wetlands are a product of glacial history, topography, and climate. As the glaciers receded, water filled the potholes and scrapes. Fifty percent of Wisconsin's wetlands have been lost to development and agriculture.

Ten wetlands were constructed between 2005 and 2006 in this open area in an effort to reestablish valuable wetland habitat for wood ducks, other birds, furbearers, amphibians, and insects.

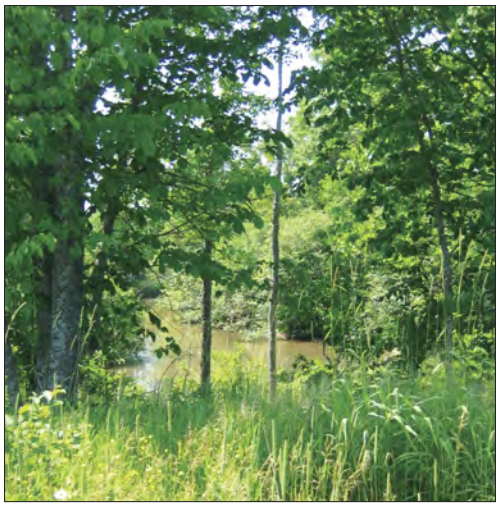
Landowners can request financial and technical assistance from resource agencies to restore wetlands. See page 31 of this trail guide for contact information to help you begin.

These wetlands now face a challenge from non-native, narrow-leaved cattail which has taken hold here. The task now is to cut back this invasive plant allowing native sedges and rushes to grow.

"Like winds and sunsets, wild things were taken for granted until progress began to do away with them. Now we face the question whether a still higher 'standard of living' is worth its costs in things natural, wild and free. For us of the minority, the opportunity to see geese is more important than television."[11]

STOP 11: WATERSHED HEALTH: HOLDING THE SOIL

Look to your left, and see that the shrubs and trees lining the stream bank here help stabilize the soil. Roots hold the soil in times of surface run-off and flooding. The vegetation also shades the creek, keeping the water cool for trout.



STOP 12: WATERSHED HEALTH: SLOWING THE FLOW

This site lies cradled near the bottom of Fish Creek's 55-square-mile watershed. Just downstream, Fish Creek flows into a marshy coastal wetland called an estuary, before reaching Lake Superior's Chequamegon Bay.

Like many south shore Lake Superior tributaries, Fish Creek is prone to flooding and sedimentation. Floods tend to be flashy and fast, undercutting slumping banks and washing out roads and culverts.

In fast moving waters, eroded clay and sand are carried downstream where they bury pebble beds needed for trout to spawn and impairs northern pike and other fish spawning habitats in estuary and coastal areas.

The wetlands constructed here can now perform important environmental services by reducing the intensity of storm runoff, filtering excess nutrients, pollutants, and sediments before they reach the North Fork of Fish Creek.

Rehabilitating a watershed takes time, but as people work to reestablish forests and stabilize streambanks, floods become less severe, and habitats proceed to heal.

STOP 13: SUCCEEDING NATURALLY

Along your way to the next stop, notice several native tree and shrub species. Our plan is to allow them to creep into the field in a process called natural succession. As they take root in the thick sod, they will shade out the invasive reed canary grass. The tree planting being done now and in the future will be our way of lending succession a helping hand.

speckled alder

red-osier dogwood

white spruce

STOP 14: WILD THINGS AMONG US

"There are those who can live without wild things and those who cannot. These essays are the delights and dilemmas of one who cannot."[12]

Keeping a journal of observations over many years can help determine how best to conserve and manage the land. Recording notes on plants blooming and animals calling, feeding or nesting will provide an assessment of the land's overall health. Keeping a journal is good for us, too...sharpening our senses, nourishing and expressing our spirit.

In *A Sand County Almanac*, Aldo Leopold put forth his philosophy of a land ethic. He also reflected on the everyday natural events he witnessed and contemplated each season.

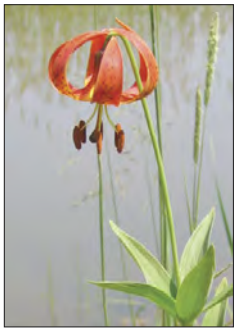
"The tamaracks grow not only in the swamp, but at the foot of the bordering upland, where springs break forth. Each spring has become choked with moss, which forms a boggy terrace. I call these terraces the hanging gardens, for out of their sodden muck the fringed gentians have lifted blue jewels. Such an October gentian, dusted with tamarack gold, is worth a full stop and long look..."[13]

Stewardship of our woodlands, wetlands, and meadows is largely motivated by the benefits healthier habitats offer wildlife. No dollar sign could be placed on the joy and companionship wild things give back.

A great blue heron squawks and takes flight as we near the pond, reminding us to slow down and tune in.

Maybe we'll see the kestrels perching on the dead snags we've planted by the ponds, or finally see whether it was hooded mergansers or wood ducks that muddied up the entrance to the nesting box. All three species need nesting boxes to replace natural cavities lost when too many dead trees become firewood.

June 30, 2006—What a surprise to find a Michigan Lily blooming where the clay was pushed just eight months ago. Dragonflies, green frogs, and painted turtles are already using the pond, and a bear has even stopped by for a drink!



MY REFLECTIONS

"At 3:30 a.m., with such dignity as I can muster of a July morning, I step from my cabin door, bearing in either hand my emblems of sovereignty, a coffee pot and notebook. I seat myself on a bench, facing the white wake of the morning star. I set the pot beside me. I extract a cup from my shirt front, hoping none will notice its informal mode of transport. I get out my watch, pour coffee, and lay notebook on knee. This is the cue for the proclamations to begin."[14]

Stop, sit a while, and reflect. This is your time and space.

STOP 15: HEDGEROW HABITAT

Hedgerows provide habitat for birds such as warblers and ruffed grouse. However, they often harbor non-native, invasive shrubs like buckthorn and honeysuckle. Even though we've removed the invaders from this hedgerow, we need to monitor this area closely because of reserve seeds that sprout from year to year... seeds most likely brought here from birds that ate the berries elsewhere and then roosted here for cover, expelling seeds with their droppings.

European buckthorn

Tatarian honeysuckle

"On this sand farm in Wisconsin, first worn out and then abandoned by our bigger-better society, we try to rebuild, with shovel and axe what we are losing elsewhere."[15]

STOP 16: LAND STEWARDSHIP IS LIFELONG

Many local and regional youth have been learning ways they can take care of the land through our Lake Superior Basin Stewardship Education preschool through grade 12 programs and other hands-on learning opportunities at the Center and the adjoining Whittlesey Creek National Wildlife Refuge.

These oak seedlings were planted by Ashland fifth graders and young boys from a combined Michigan, Minnesota, and Wisconsin Webelos Action Camp at the Center in 2005. In 2006, the Webelos returned to plant mountain ash and red oak.

These young trees and young people are a testimony to hope that people will learn and work together to better care for our land, today, tomorrow, and for generations to come.

May we all make land stewardship a lifelong commitment.

STOP 17: A NATION OF FAMILY FORESTS

Over 10 million families and other private landowners manage 350 million acres of forest land in the United States. This land represents one-half of the forested lands across the country. The health and welfare of our nation's forests depend on carful management using sustainable stewardship practices.

Resources listed on page 31 will help landowners keep their forests productive and healthy.

Thank you for joining us as we continue to learn how to walk the trails of land stewardship.

"To sum up: a system of conservation based solely on economic self-interest is hopelessly lopsided. It tends to ignore, and thus eventually to eliminate, many elements in the land community that lack commercial healthy functioning. It assumes, falsely, I think, that the economic parts of the biotic clock will function without the uneconomic parts.

An ethical obligation on the part of the private owner is the only visible remedy for these situations."[16]

NOTES

All of the quotes used throughout this trail guide were written by Aldo Leopold, the majority obtained from *A Sand County Almanac and Sketches Here and There*, except where noted.

A Sand County Almanac: [1]: p. viii, [2]: p. 204, [3]: p. 203, [4]: p. 81, [6]: p. 210, [8]: p. 223, [9]: p. 224, [10]: p. 221, [11]: p. vii, [12]: p. vii, [13]: p. 57, [14]: p. 41, [15]: p. viii, [16]: p. 214

Round River: From the Journals of Aldo Leopold: [5]: p.145-146, *The River of the Mother of God and Other Essays*: cover quote

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Flader, Susan and Callicot, J. Baird, eds, 1991. *The River of the Mother of God and Other Essays by Aldo Leopold*. University of Wisconsin Press, Madison.

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Leopold, Luna B., ed., 1953. *Round River: From the Journals of Aldo Leopold*. Oxford University Press, New York.

Aldo Leopold's ecological classic, *A Sand County Almanac* is available for purchase at Spirit of the North, the Northern Great Lakes Visitor Center bookstore, owned and operated by Friends of the Center Alliance, Ltd., a non-profit organization.

LANDOWNER RESOURCES

These resource agencies can help private landowners plan and implement land stewardship projects.

Wisconsin Department of Natural Resources
Wisconsin Forest Landowner Grant Program:
http://dnr.wi.gov/Aid/ForestLandowner.html
(608) 267-0494
Invasive Species: (includes facts, photos, and management techniques):
http://dnr.wi.gov/topic/Invasives/

Healthy Forests Reserve Program and Environmental Quality Incentives Program
USDA Natural Resources Conservation Service
PO Box 2890
Washington, DC 20013
(202) 720-3210 • http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/forests/
http://prod.nrcs.usda.gov/wps/portal/nrcs/main/mi/programs/financial/eqip

Partners for Fish and Wildlife Program
U.S. Fish and Wildlife Service
Wisconsin Private Lands Office
4511 Helgesen Drive
Madison, WI 53718-6747
(608) 221-1206 • http://www.fws.gov/midwest/WisconsinPartners/

Wetlands Reserve Program
USDA Natural Resources Conservation Service
8030 Excelsior Drive
Madison, WI 53717-2906
Phone (608) 662-4422 • Fax (608) 662-4430
http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/wetlands/

Conservation Reserve Program
USDA Farm Service Agency
(608) 662-4422
http://www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=crp

University of Wisconsin Cooperative Extension
http://basineducation.uwex.edu/

Bayfield Regional Conservancy
33 North 1st Street
Bayfield, WI 54814
(715) 779-5263 • http://www.brcland.org/preserve-your-land.html

Northern Native Plants Project
http://www.northland.edu/native-landscaping

THE NORTHERN GREAT LAKES VISITOR CENTER

OUR MISSION

The Northern Great Lakes Visitor Center helps people connect with the historic, cultural, and natural resources of the Northern Great Lakes Region through customer-based visitor information, tourism services, and educational programs.

OUR VISION

The Northern Great Lakes Visitor Center will be a leader in advocating the sustainability of the region's cultural, historic, and natural resources through innovative partnerships that engage people and communities in positive change.

OUR PARTNER AGENCIES

NATIONAL PARK SERVICE

FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE

U.S. FISH & WILDLIFE SERVICE

WISCONSIN HISTORICAL SOCIETY

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