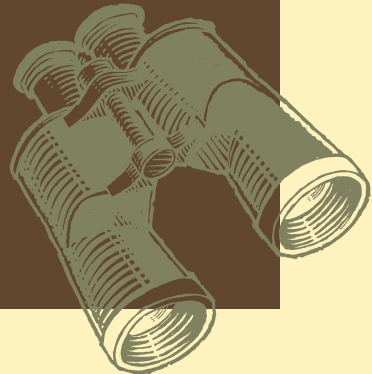
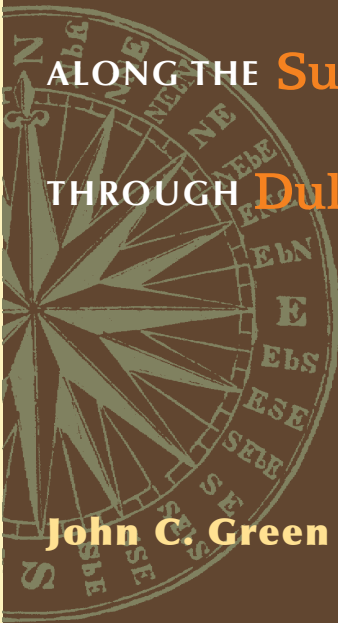




Natural History and Geology

ALONG THE Superior Hiking Trail THROUGH Duluth, Minnesota

John C. Green



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 Minnesota's Lake Superior Coastal Program -
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Introduction



Duluth harbor and Minnesota Point from Enger Hill, July



Woodland-Horsetail, June

THE 39 MILES OF THE Superior Hiking Trail through the City of Duluth pass through many areas of fascinating landscape, including world-famous geological features with rocks over a billion years old, spring wildflowers, stunning panoramas, shady old-growth forests, and many other ecological land types. This booklet is intended to help the hiker appreciate this remarkable natural history made accessible by the trail.

For other basic and essential information about the trail, including detailed directions, directions to trailheads, mileages, parking, etc., please consult the *Guide to the Superior Hiking Trail*, published by the non-profit Superior Hiking Trail Association (www.shta.org), which built and maintains the trail.

The booklet begins with a few general sections on various aspects of the natural history: geology, ecology, streams, and wildlife. These are followed by brief descriptions of features to look for, organized into twelve trail segments from Highway 210 in Jay Cooke State Park in the southwest to the Martin Road in the northeast.

Common names for plants are as given in Ownbey and Morley, 1991. Photos are by the author, unless otherwise indicated.

The lay of the land: Duluth area topography



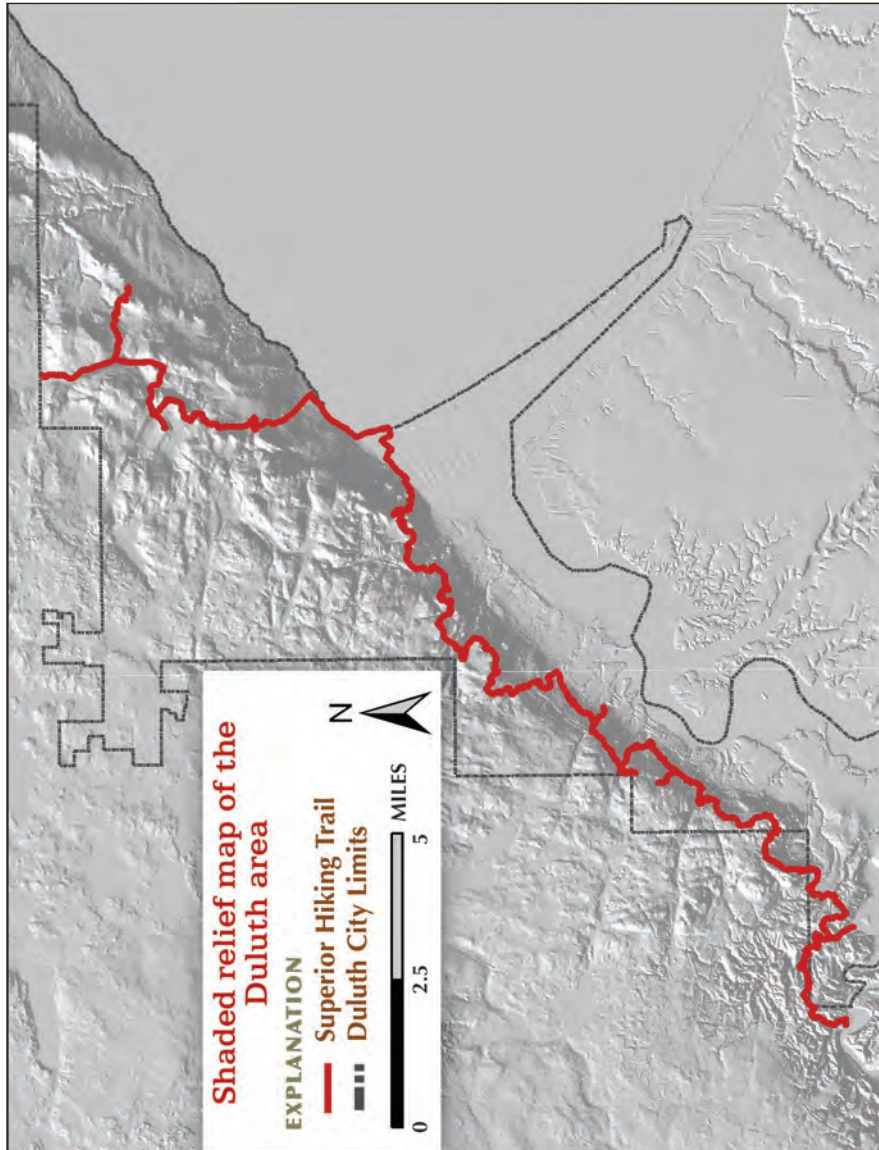
View of Bardon's Peak from Ely's Peak, October

THE FIRST THING THAT STRIKES US about the landscape here is the topographic relief: the uneven, rocky hills (some over 1,300 feet) contrasting with the lake (602 feet) and the flat lowlands to the south and east (*see map next page*). The hills, from Ely's and Bardon's Peaks to the south, through Spirit Mountain, Enger Hill, Mount Royal, and Hawk Ridge, merge into the rugged hillscape that characterizes the North Shore. The low ground is the Lake Superior Basin, occupied here partly by the Duluth-Superior harbor and the estuary of the St. Louis River, the largest U.S. tributary of Lake Superior. Tumbling streams, rushing down these slopes toward the lake, make especially attractive features along the Superior Hiking Trail (SHT).

Why is Duluth blessed by this abundance of natural beauty? Basically, we owe it to the area's



Clintonia, June



fascinating geological history, and the growth of vegetation on the various substrates that geology has given us. Let's start with the geological story.

Geologic history: How the scenery came to be



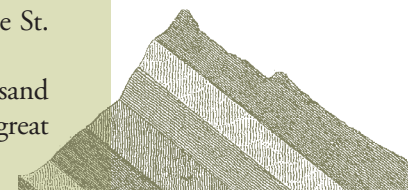
THE MAP ON PAGES 4-5 is a generalized bedrock geological map, showing the different kinds of rock that underlie the surface in the Duluth area, with the Superior Hiking Trail route indicated. In most of the area, this bedrock is overlain by much younger, Ice-Age and younger sedimentary deposits. Lake Superior itself didn't exist before the Ice Age.

The bedrock is all of Precambrian age (that is, over 545 million years old), and is part of the Canadian Shield, the core of the North American continent. We will start our geological history with the formation of the oldest rocks in the area, now found in the St. Louis River gorge in Jay Cooke State Park.

- Thousands of layers (beds) of mud and sand were deposited about 1.9 billion years ago in a great

Tilted graywacke beds, from Swinging Bridge over St. Louis River, Jay Cooke State Park

SEE BEDROCK GEOLOGICAL MAP NEXT PAGE



Generalized Bedrock Geology Map of the Duluth Area

EXPLANATION

- Superior Hiking Trail with Trailheads
- Spur of Superior Hiking Trail
- State Boundary
- Duluth City Limits
- Start of Hike Section (described on pages 25–43)
- Parking Lot

ROCK FORMATION

Middle Proterozoic – 1.1 billion years old

Fond du Lac Sandstone: red sandstone and siltstone

Intrusions

Northland sill: dark, fine- to medium-grained diabase

Endion sill: dark, medium-grained diabase

Granophyre: red, fine-grained granitic rocks

Duluth Complex Layered Series Upper Zone:
dark red to black, fine-grained ferrodiorite

Duluth Complex Layered Series:
dark, layered, medium-grained gabbro and troctolite

Duluth Complex Anorthositic Series:
light to dark gray, medium-grained gabbro

North Shore Volcanic Group

Lakeside lavas: fine-grained, pink to black lava flows

Leif Erikson Park lavas: fine-grained, pink to black lava flows

Ely's Peak basalts: dark gray to black lava flows

Lower Proterozoic – 1.9 billion years old

Thomson Formation: gray to black slate and graywacke

Map Symbol

FdL

NS

ES

Gr

DLu

DLs

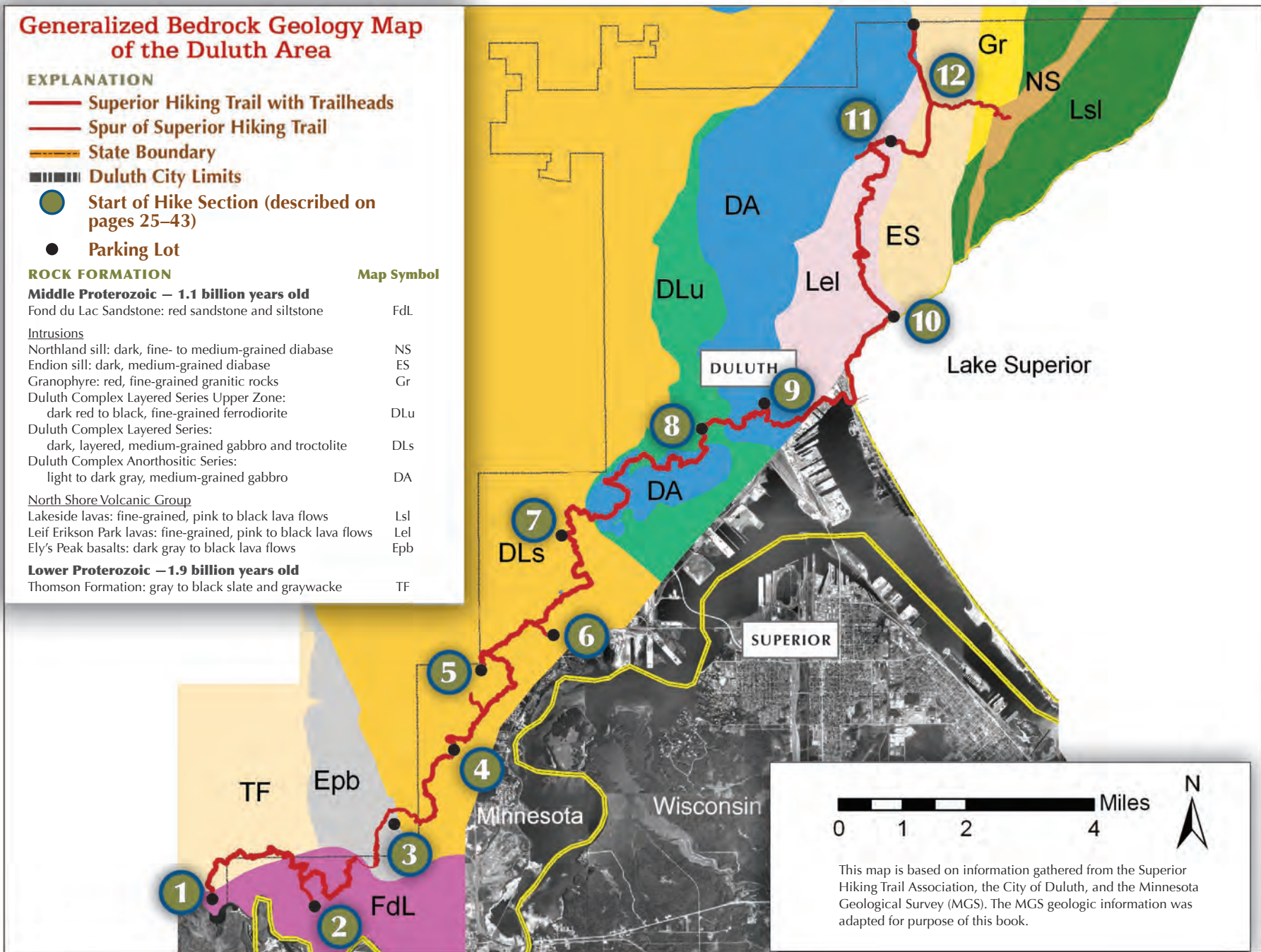
DA

Lsl

Lel

Epb

TF



This map is based on information gathered from the Superior Hiking Trail Association, the City of Duluth, and the Minnesota Geological Survey (MGS). The MGS geologic information was adapted for purpose of this book.

sea basin on the flank of the pre-existing continent made of still-more-ancient, Archean (3.5-2.6 billion years old) rocks. These sediments were soon buried, hardened to slate and graywacke, and folded to steep angles about 1.85 billion years ago in a big mountain-building event that involved thrusting of the Earth's crust from the south. This is the Thomson Formation, TF on the map.

- About 750 million years of slow uplift and erosion leveled these mountains, leaving a broad, flat erosion surface (a peneplain).

- Starting at about 1109 million years ago and lasting for about 24 million years, this central part of the continent underwent a period of intense rift-

ing and volcanism along a great arc that stretched from northeast Kansas up through Iowa, the Twin Cities, under what is now Lake Superior, and down to the Detroit area. This is called the Midcontinent Rift System. Large fissures developed in the older crust and huge volumes of basaltic lava (the kind erupting in modern times in Hawaii

and Iceland) poured out to form hundreds of great, pancake-like lava flows. As the crust was being pulled apart and the lava was being erupted, the surface sank along the axis of the rift, so that the rocks on the Minnesota side became tilted gently to the east or southeast. These rocks constitute the North Shore Volcanic Group (map units Epb, Lsl, Lel). Some of the molten rock (magma) was trapped below the surface, intruding beneath and within the lava flows. These intrusions solidified to rocks called gabbro of various sorts in the Duluth Complex (Bardon's Peak north to Enger Hill)

and thick diabase layers or sills that were injected between the lava flows (Mount Royal, Hawk Ridge). See map units DA, DLs, DLu, Gr, ES, and NS.

The rifting and volcanism stopped fairly abruptly, but the land continued to subside along the rift axis for millions of years. This provided a broad basin into which streams washed at least six miles' thickness of gravel, sand, and mud (now seen as red-brown-tan rocks in the Fond du Lac area of Duluth and the Bayfield Peninsula and Apostle Islands in Wisconsin; map unit FdL). Finally, the crust stabilized.

- Over a billion years of slow uplift of the land, erosion wore down these rocks, up to the time of the Great Ice Age. During this long interval, the hardest rocks (gabbro, diabase intrusions) were left at a higher elevation, moderately hard rocks (the lava flows) were eroded to lower levels, and the relatively soft, post-volcanic sedimentary rocks were eroded farther, down to a broad plain (*see photo*).

- The Great Ice Age began about 2.5 million years ago, but the Duluth area only shows direct evidence of the last glacial advance and retreat, from about 20 to 10 thousand years ago. The continental ice sheet, thousands of feet thick, covered the whole area, scraping off the weathered rock surfaces and leaving scratches (striations) and grooves that show its movement direction. Finding mainly soft, sedimentary rock, the successive advances of the ice sheet excavated the basin of Lake Superior (as well as the other Great Lakes). The harder igneous rocks around the margins remained relatively high. The ice sheet (the "Superior Lobe" in this area) also deposited some of its burden of ground-up rock (boulders, pebbles, sand, and mud; glacial till) over much of the surface in locally varying thickness.

- As the ice sheet was melting back to the northeast about 10,000 years ago, it uncovered the south-



Glacial grooves on basalt covered with golden lichen, Ely's Peak area, September



View to west from Ely's Peak, October: ancient erosion surface

Tim Larson photo

Native plant communities

west end of the great basin it had excavated, and a deep lake developed here (Glacial Lake Duluth). The lake rose to a level determined by the lowest point in its basin's rim, where it overflowed via the Brule and St. Croix Rivers into the Mississippi and the Gulf of Mexico (*see map*). Imagine glacial meltwater pouring into the Gulf!

This Glacial Lake Duluth beach line was at roughly 450 feet above the present lake level, roughly along the route of the Skyline Parkway. Huge amounts of red, muddy sediment were washed into this end of the lake by tributaries, especially the St. Louis River.

• After only a few hundred years, the retreating ice uncovered lower outlets to the lake basin farther to the east,

and the lake level fell in stages until it reached its present outlet at Sault Ste. Marie. However, because the Earth's crust was depressed by the weight of the ice sheet, that elevation was about 250 feet below its present level. The St. Louis River and its tributaries began to cut down into the soft lake sediments that had been exposed (Superior, WI; Gary-West Duluth to Fond du Lac).

• The Earth's crust gradually rebounded after the weight of the ice was gone, and the outlet at the Sault rose to its present level about 5,000 years ago. The rising lake level flooded back into the recently-eroded valleys, forming the St. Louis River estuary. Lake Superior waves and currents have built up the great bay-mouth bar of Minnesota and Wisconsin Points since then.

• Wave and stream erosion and soil formation continue to the present, as successive generations of forest vegetation have colonized the land.

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ASIDE FROM THE GRANDER ASPECTS of the landscape resulting from geological processes, most of the beautiful and interesting natural history we see along the trail involves the abundant plant life.

Ecologically, the Duluth area's native vegetation is part of the Laurentian Mixed Forest province, which can be subdivided topographically into the North Shore Highlands and the Glacial Lake Superior Plain.

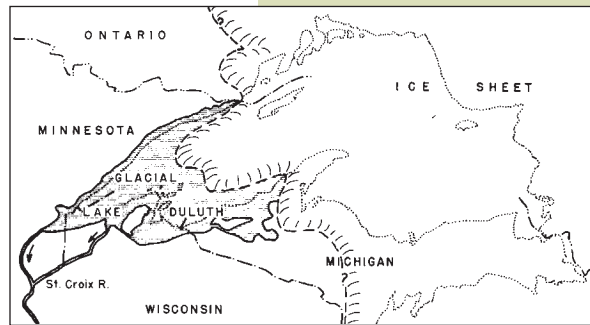
Development of the Forest

Although most of the Duluth area's vegetation has been strongly modified since Euro-American settlement, starting in the 1850's, there are several tracts through which the SHT passes that show little or no effects of human disturbance. The largest of these old-growth areas has recently been protected by the City of Duluth as the Magney-Snively Natural Area, a 1,800-acre forest lying north and southwest of Bardon's Peak, but several other smaller ones also lie like gems along the trail.

Maple woods with Pennsylvania Sedge carpet, September



Basswood leaf and fruit



Striped area shows the probable extent of Glacial Lake Duluth which existed for several hundred years as the continental glacier was melting back to the northeast



Large-flowered Trillium and Bellwort, May



Old White Pine stump, August



Buckthorn berries, October

The **major natural influences** on the vegetation are local moisture, soil texture and depth, and the type of, and time since, the last forest disturbance. **Soils** can be quite variable, but in general we see four main types. The most common occur mainly on the uplands, and are developed from glacial deposits that consist of a wide range of particle sizes, from boulders down to sand, silt, and clay. Another common type, found below the old shoreline of Glacial Lake Duluth, consists of finer-grained, easily eroded silt and clay, typically red, made from the old lake-bed sediments. These have low permeability and drain poorly, and the trail tends to avoid such areas where possible. A third type, found on the rocky, open hills where the ice sheet didn't deposit much of anything, consists just of local rock decomposed in place by weathering and frost action. Few plants will grow to any size in this environment, and moisture is scarce. A fourth type is organic soil, formed in low, poorly-drained, boggy and swampy areas where partly-decomposed plant material has accumulated over time. Some plants are well adapted to these conditions.

Typical **forest disturbances** in this region are wildfire, insect infestation, and windthrow; more recently, introduced European earthworms have drastically altered the groundcover locally. Of course, logging and land clearing have been important for the last 150 years. Even in some of the more pristine-looking old hardwood forests, occasional large stumps testify that widely-scattered old White Pines were selectively extracted during the late 1800's.

One aspect of the vegetation is whether a species is **native or exotic**—and whether an introduced species is relatively benign (such as common Ox-eye Daisy) or invasive and obnoxious to native communities (such as buckthorns).

If you keep your eyes peeled, you might easily find about 26 native species of trees along the trail, plus various species introduced for landscaping in town

(see page 15). A similar number of shrub species can be found along the trail (page 20), along with fourteen kinds of fern (page 14).

Plant Communities

Aside from the scattered groves of majestic, 150-250 year old White Pines, several other plant communities are of special interest here.

- Some of the oldest, most stable forests in the area belong to the **Northern Hardwoods** community. Growing generally on deep, moist but well-drained soils, they are dominated by Sugar Maple. Yellow Birch, Basswood, and Red Oak, along with the smaller Ironwood, are common minor species. Occasional tall White Spruce and White Pine may have escaped logging. Many of these old-growth hardwood patches have an open understory, with a beautiful variety of wildflowers such as Blue-bead Lily, Bellwort, and Large-flowered Trillium. Others have a prominent shrub layer, especially Hazel. Still others are open and park-like with a solid carpet of low, grass-like Pennsylvania Sedge, an indication of infestation by European earthworms that eliminate tree seedlings, wildflowers and other species.

- Another special plant community grows on **exposed, rocky knobs and ridges**, where soil is hard to come by and rainfall drains off and dries out rapidly. Since the Ice Age, wildfire has helped to wash away any original glacial soils and limit the age of surviving trees. Red Oak and White Spruce especially try to gain a root-hold in the thin soils or cracks in the bedrock, along with shorter-lived aspens, Paper Birch, Mountain-ash, and Pin-cherry. Shrubs dominate some of this habitat, especially Round-leaved Dogwood, Juneberry, Choke-cherry, Sumac, Low-bush Blueberry, Bush Honeysuckle, and wild Rose. Tartarian Honeysuckle is a common invasive species in such areas. Cracks in open rocky areas are favorite sites for Rusty Woodsia ferns, Pale Corydalis, Alumroot, Red



Yellow Birch bark, October



Bush Honeysuckle, June



Rusty Woodsia, October

ON THE TRAIL

FERNS AND FERN ALLIES

- Field Horsetail
- Woodland Horsetail
- Wire Horsetail (Dwarf Scouring Rush)
- Bristly Clubmoss
- Running Clubmoss
- Ground Cedar
- Round branched Ground Pine
- Ground Pine
- Rock Spikemoss
- Rattlesnake Fern
- Cinnamon Fern
- Interrupted Fern
- Lady Fern
- Fragile Fern
- Woodfern
- Fragrant Fern
- Oak Fern
- Ostrich Fern
- Sensitive Fern
- Common Polypody
- Bracken
- Long Beech Fern
- Rusty Woodsia

Columbine, and Three-toothed and Tall Cinquefoil. Shadier rocks may be decorated with Common Polypody and Fragile Ferns.

Some of the most interesting flora on rocky sites are the lichens, which may completely cover the rock surface. Some of these are uncommon, and all are susceptible to heavy boot traffic; please stay on the trail.

- **Poorly-drained, flat or low areas** support other common forest types adapted to these wet conditions. Canopy trees can be either coniferous (especially White Cedar) or deciduous (especially Black Ash or Balsam-Poplar). Big, old Black Willows shade streambanks. Red Maple, Yellow Birch, Paper Birch, Balsam-Fir, and White Spruce may be present locally, and common shrubs are willows, Speckled Alder, and Mountain Maple. These wet areas support Ostrich, Interrupted, and Sensitive Ferns, as well as very tall herbaceous flowering plants such as Cow Parsnip (up to 6 to 7 feet) and Tall Meadow Rue.

One of the most widespread forest types is the **aspen-birch forest**, which has developed after major disturbances such as land clearing and forest fires (or a combination of the two). The devastating Cloquet Fire of October, 1918 burned much of the outskirts of Duluth. This forest type, dominated by either Quaking or Big-toothed Aspen and Paper (White) Birch, was able to colonize the barren land by wind-borne seeds and surviving roots. Gradations between this and other forest types such as the Northern Hardwoods or wetland types are common. In many places you can spot old pine stumps scattered through these woods. Hazel, Round-leaved Dogwood, and Bush Honeysuckle are common shrubs, and the herbaceous ground cover may have abundant Wild Sarsaparilla, Nodding Trillium, Rosy Twisted-stalk, Large-leaved Aster, and Bracken fern.

Where a seed source is available, Balsam-Fir commonly grows up underneath the aspen-birch

canopy and may eventually succeed it, though this species is also relatively short-lived and is subject to periodic defoliation and mortality by Spruce Budworm outbreaks.

- A final habitat type traversed by the trail is **open meadows**. Although several species of grass occur here, probably the most dominant is Reed Canary Grass, which has recently spread widely, outcompeting most others. The invasive exotic Tansy forms rank, dense patches crowned by yellow, button-like flowers in August, and tall, fragrant Valerian has spread widely in such places. Red-osier Dogwood and Thimbleberry are locally abundant shrubs that thrive in open areas.



Interrupted Fern developing, June

ON THE TRAIL | TREES TO LOOK FOR

- White Cedar
- Balsam Fir
- Tamarack
- White Spruce
- Black Spruce
- Scotch Pine
- Jack Pine
- Red (Norway) Pine
- White Pine
- Red Maple
- Silver Maple
- Sugar Maple
- Box Elder
- Yellow Birch
- Paper (White) Birch
- Ironwood (Hornbeam)
- Red Oak
- Black Ash
- Green Ash
- Mountain Ash
- Rowan (European Mountain Ash)
- Pin Cherry
- Balsam Poplar
- Big toothed Aspen
- Quaking (Trembling) Aspen
- Black Willow
- Basswood
- American Elm



White Pine cone and needles

Wildlife



Northern Crescent butterfly on Spreading Dogbane, July

WHITE-TAILED DEER ARE BY FAR the most abundant large **mammals** to be seen along the trail, and their evidence in the form of pellets, footprints, and browsed-off shrubs is ubiquitous. In fact, they have become so common that the City of Duluth started in 2005 a special deer-harvest bowhunt season in selected areas in hopes of reducing their garden depredations and traffic hazards. (Best to wear some blaze orange on the trail during the fall.)

Black Bear are typically shy and rarely encountered. Snowshoe (Varying) Hare (brown in summer), Cottontail Rabbits in the city, Striped Skunks, Porcupines, Red Squirrels, Gray Squirrels (in town), and Eastern and Least Chipmunks are common medium-sized herbivorous species; predators include Red Fox, Pine Marten, weasels, and rarer Fisher, Bobcat, and Coyote. You might come across a Red Squirrel sitting on a rock or root and dismembering a pine, spruce,



Snowshoe Hare tracks

or fir cone for its seeds. Secretive but abundant small mammals include White-footed (Deer) Mice, shorter-tailed Meadow and Red-backed Voles, and shrews. Porcupines like to chew on thin tree bark; look for them or their bark-chewings up in hardwood trees.

Amphibians are mostly represented by frogs and toads, which are most obvious when they are singing their mating calls in the spring and summer. On the trail, Wood Frogs (sporting a black mask) and American Toads are the most likely to be seen.

The most likely **reptiles** to be encountered on the trail are Common Garter Snakes and the smaller Redbelly Snakes.

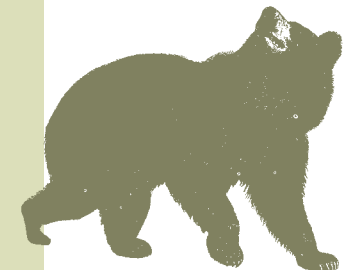
About 150 species of **birds** inhabit the forest and upland openings in this area. Some are year-round residents; others are here only during the breeding season (roughly June and July); and still others are seen only during migration. Some northern species only visit during the winter.

Hawk Ridge is world-famous for its raptor migration in the fall (late August through November; see sidebar in Hawk Ridge Spur description), but other bare, rocky ridges along the trail, from Ely's Peak north, are also excellent vantage points for this remarkable phenomenon both in spring (March, April, May) and fall. See the Hawk Ridge Bird Observatory's website (www.hawkridge.org) for both historical and up-to-date migration records. Millions of smaller birds too use this important continental flyway during spring and fall migration. Some species, such as Robins, Blue Jays, blackbirds, and Crows, are easily seen flying south in flocks during the fall migration, but many others, such as warblers, vireos, and sparrows, migrate only at night and rest and feed in the woods during the day.

The northern Minnesota forests are among the richest in North America for bird diversity. For



Gray Tree Frog (green phase), August



Black Bear



Red Admiral,
September

instance, about 18 species of colorful little warblers, which migrate to and from Central and South America each year, raise their families in these woods (*see list below*).

Insects are another essential and obvious element of the North Woods biota not to be overlooked. Whether annoying (biting types trying to make a living from our blood, like mosquitoes, Black Flies and Deer Flies) or enchanting (butterflies, dragonflies), they are all part of the great web of life that enriches our environment. Some of the most common butterflies you might encounter include Monarch, Mourning Cloak, White Admiral, Painted Lady, Northern Crescent, Canada Tiger Swallowtail, Cabbage White, Orange Sulfur, Compton Tortoiseshell, Common Wood-nymph, Northern Pearly-eye, and species of fritillary, checkerspots, commas, and skippers.

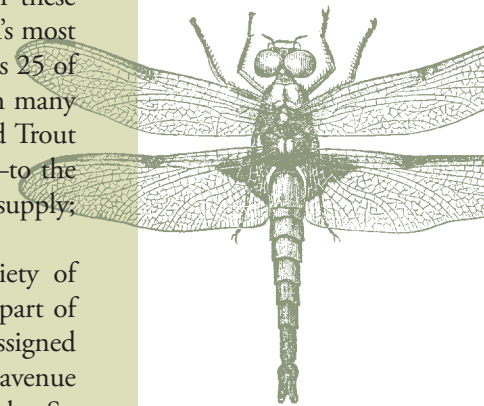
And of course, don't forget the Wood Ticks!



Gabbro ledges,
Knowlton Creek,
September

BEING A CITY OF HILLS in a humid climate, Duluth is also a city of streams. All the rain that falls and snow that melts soaks into or runs off the land and eventually into Lake Superior. Several of these stream gorges are the focus of some of Duluth's most scenic parks. The Superior Hiking Trail crosses 25 of these watercourses that are named, along with many smaller tributaries. Some are DNR-designated Trout Streams, and all contribute—for good or ill—to the water quality of the Lake, Duluth's water supply; please keep them clean!

The names of these streams have a variety of origins, outlined below. In the southwestern part of the City, the Duluth Stormwater Utility has assigned names to some minor creeks according to the avenue or street closest to where the creek enters the St. Louis River estuary. From south to north, more traditionally-named streams include:



ON THE TRAIL |



Mourning Warblers
with young

Corel photo by Larry Parsons

- Blurb: Warblers, you're most likely to see....**
- Tennessee (in migration)
 - Nashville
 - Northern Parula
 - Yellow
 - Chestnut sided
 - Magnolia
 - Cape May (in migration)
 - Yellow rumped (Myrtle)
 - Black throated Green
 - Blackburnian
 - Blue (in migration)
 - Black and white
 - American Redstart
 - Ovenbird
 - Mourning
 - Common Yellowthroat
 - Wilson's (in migration)
 - Canada



Juneberries (Serviceberries), August



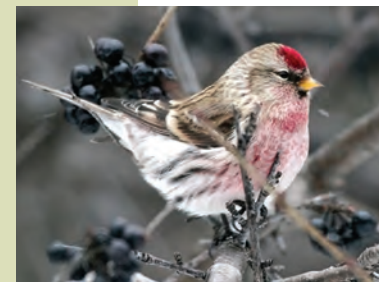
Tartarian Honeysuckle berries, September

- **Mission Creek:** for the 1830's to 1850's mission to the Ojibway at Fond du Lac
- **Sargent Creek:** for George B. Sargent, land agent for railroad magnate Jay Cooke
- **U.S. Steel Creek:** for former steel mill, 1915-1972, on lower reaches
- **Morgan Park Creek:** neighborhood around lower reaches, after financier J. P. Morgan
- **Snively Creek:** Mayor Sam Snively, promoter and builder of the Skyline Parkway
- **Stewart Creek:** for a Dr. Darwin A. Stewart
- **Knowlton Creek:** for Joseph E. Knowlton, early settler from Maine; became surveyor
- **Kingsbury Creek:** for William Wallace Kingsbury, Pennsylvania native and early settler
- **Keene Creek:** for Freeman Keene, 1831-1902, Maine native and early settler (1854) in western Duluth
- **Merritt Creek:** for the Merritt brothers, discoverers of the Mesabi Iron Range, 1890
- **Miller Creek:** for Robert P. Miller, Civil War veteran
- **Buckingham Creek:** for F. A. Buckingham, 1859 settler in western Duluth
- **Chester Creek:** for Prof. Albert H. Chester; helped develop the Vermilion Iron Range, 1880's
- **Tischer Creek:** for the Tischer family, early settlers of eastern Duluth



Sugar maple glory, October

THE SUPERIOR HIKING TRAIL is a trail for all seasons! **Winter** opens up more views through the trees, and often brings encounters with cheery Black-capped Chickadees, inquisitive Red-breasted Nuthatches, Ravens, Blue Jays, and Downy and Hairy and maybe Pileated Woodpeckers. Listen for the wonderful croaks and squawks of a group of Ravens having a conversation somewhere off the trail. Traveling groups of "winter finches"—Pine Siskins, Redpolls, Purple Finches, Goldfinches or Pine Grosbeaks—may share the woods, eating birch or conifer seeds up in the treetops. Mountain-ash berries may host Robins or Bohemian Waxwings.



Redpoll in Buckthorn, January

Mike Furtman photo

Be on the lookout for animal tracks along or crossing the trail. Commonly seen are White-tailed Deer, Snowshoe (Varying) Hare, Red Squirrel, White-footed Mouse, and vole and tiny shrew tracks. The tracks of Man's Best Friend are much more likely than coyote or Wolf, though those are possible! With luck you may see the paired, roundish tracks of Pine Marten (*photo, right*)



Pine Marten tracks, March

ON THE TRAIL

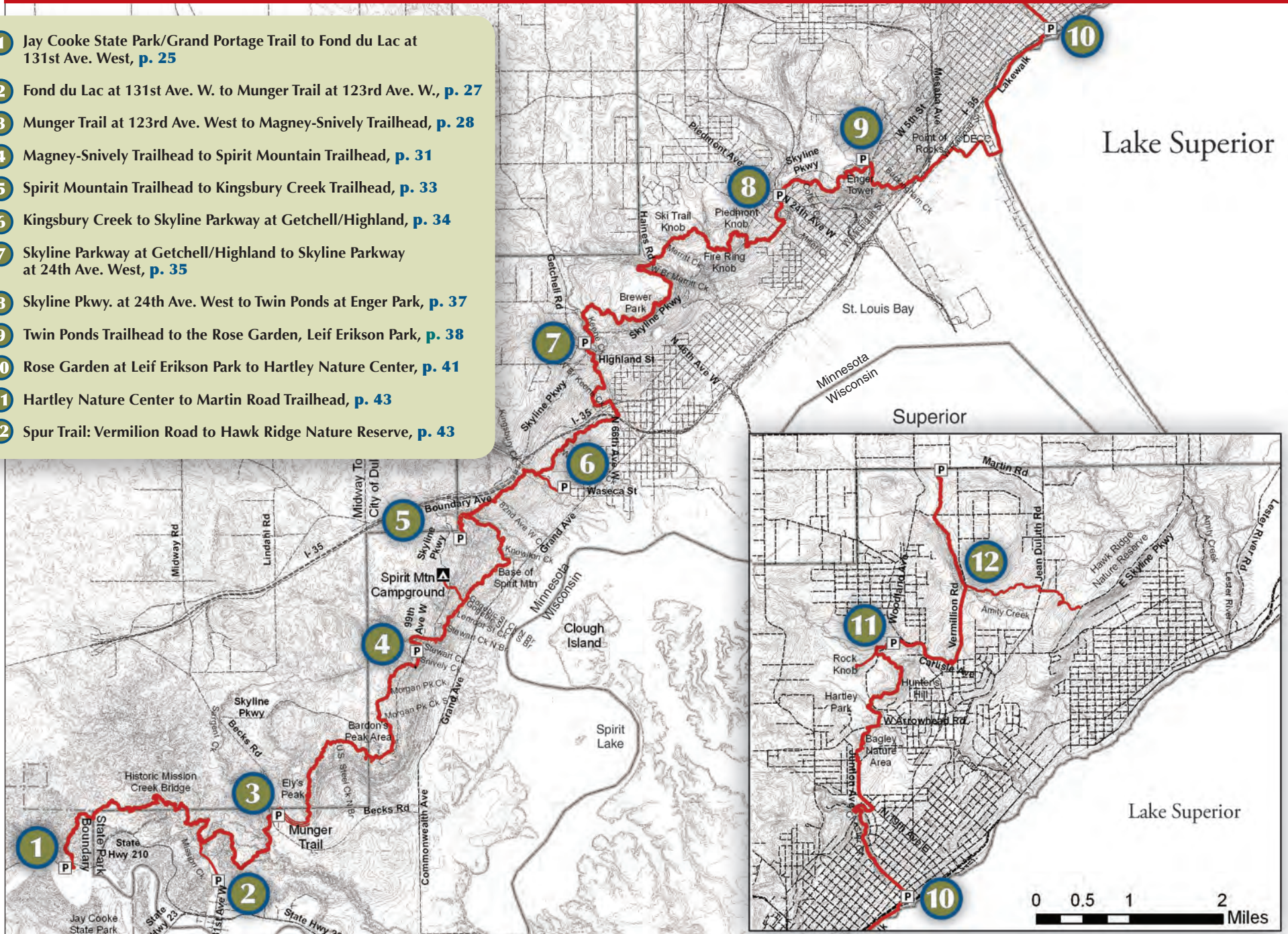
- Ground Juniper
- American Yew
- Mountain Maple
- Staghorn Sumac
- Speckled Alder
- Beaked Hazelnut
- Bush Honeysuckle
- Tartarian Honeysuckle
- Fly Honeysuckle



• Currant species

The Superior Hiking Trail through Duluth

- 1 Jay Cooke State Park/Grand Portage Trail to Fond du Lac at 131st Ave. West, [p. 25](#)
- 2 Fond du Lac at 131st Ave. W. to Munger Trail at 123rd Ave. W., [p. 27](#)
- 3 Munger Trail at 123rd Ave. West to Magney-Snively Trailhead, [p. 28](#)
- 4 Magney-Snively Trailhead to Spirit Mountain Trailhead, [p. 31](#)
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Wood Anemones, May



Dewberries, June



Thimbleberries, July

or Fisher. Black Bears and Chipmunks are hibernating.

Watch out for icy spots on rocky areas!

Spring is beautiful, but during and just after snowmelt the trail can be muddy and slippery; it's best to give the trail a rest at these times. But amorous Chorus and Wood Frogs and Spring Peepers may be starting to call out their availability from wet areas.

Later, from early May to early June the trees are leafing out and the woods are alive with beautiful "spring ephemeral" wildflowers and migrating birds. These woodland wild-

flowers grow and bloom while there's plenty of light energy, before the tree canopy closes in. Look for Bloodroot, Dutchman's Breeches, Spring-beauty, Wood Anemone, Wild Ginger, Bellwort, and Large-flowered Trillium (see page 12).

Summer (mid-June into mid-September) finds these woods in full production. Leafed-out trees are giving welcoming shade, wildflowers abound, and it's berry season – for us and the birds and animals. In July, expect to find such delicacies as Blueberries, Raspberries, Dewberries, Wild Strawberries (two kinds), and Juneberries. Later in the season wildlife favorites such as Mountain-ash, dogwoods, Arrowwood, Tartarian Honeysuckle, Sumac, and Chokecherry ripen up and decorate the landscape.

Fall brings the excitement of bird migration over and through the forest, and of course from late September well into October the glory of fall colors in the trees and shrubs. For yellows we have Paper and Yellow Birch, the aspens, and Sugar Maple, which can also glow orange. Red Maple is more of a scarlet, Red Oak is crimson or russet, and dogwoods and Arrowwood may be scarlet to burgundy.

Trail section descriptions



Looking down Ely's Peak ridge to St. Louis River valley, May

Jay Cooke State Park/Grand Portage Trail to Fond du Lac at 131st Ave. West: 4.2 miles.

FEATURES: ridge with old oaks, White Pines; hardwood forests; historic bridge; Mission Creek valley.

This and the next section of trail are unique topographically for the entire SHT between Duluth and the Canadian border. The land here is made of soft, weak sedimentary deposits (clay, silt, and sand) that were deposited by the St. Louis River into this corner of Glacial Lake Duluth about 10,000 years ago, when the lake elevation was much higher (~1,050 feet) than today's (602 feet). This formed a rather flat surface as the lake bottom filled up with this muddy material. Later, the lake level dropped, the lakebed was exposed, and the river and its developing tributaries cut down easily into this soft sediment. The largest of these tributaries in this area are Mission and Sargent Creeks. Forest vegetation has stabilized the slopes for the most part, although high, steep slopes are still subject to failure (slumping). The western approach to Mission Creek is a good example of these steep slopes.



Hike #1



Old pines on ridge, Jay Cooke S. P., August



Ironwood and red oak trunk and bark, October

The first half-mile of the trail north of Highway 210 runs along the crest of a narrow ridge that exemplifies this area's stream-eroded history. The ridge is not an esker; it is simply land that was left after the valleys on either side were excavated by little creeks.

The vegetation through this trail section is mostly a mix of Northern Hardwood forest (Sugar Maple, Basswood, Red Oak, Ironwood, rare Yellow Birch) and younger White Birch, ash, and aspen. A few great old White Pines have survived the logging era, such as on the ridge in the northeast corner of Jay Cooke State Park (page 25).

This trail segment includes several historically interesting features. The spur trail from the Grand Portage Trail parking lot/trailhead starts along the old grade of the Lake Superior and Mississippi Railroad. Completed in 1869-1870, this was the first rail connection between the growing port of Duluth and the Twin Cities and the expanding farmlands on the western prairies. It was built by the rail baron Jay Cooke (for whom the park is named), who used the St. Louis River valley for his railroad to climb out of the Lake Superior basin.

Named "End of the Lake" by 17th century French explorers, Fond du Lac was the site of a fur trading post established by John Jacob Astor in 1817. In 1834 the Rev. Edmund F. Ely established a school and mission to the local Ojibway here.

Much of this segment lies within Duluth's Mission Creek Park, which was the scene of much local tourism and recreation in the late 1800's and early 1900's. A

large ski jump was built overlooking what is now the SHT's Fond du Lac trailhead, and roads were constructed up the Mission Creek valley and connecting to the State highway; some of these are crossed or used for short distances by the SHT. The Mission Creek road was once the western part of Duluth's Skyline Parkway, but it was abandoned after a big storm flood in 1958 washed out parts of it



Old Mission Creek bridge, May

and destroyed some of the bridges. The SHT uses one of the remaining bridges (above Fond du Lac) to get across this large creek.

Fond du Lac Trailhead at 131st Ave. West to Munger Trail at 123rd Ave. West: 2.7 miles.

FEATURES: Fond du Lac Sandstone; old White Pines; hardwood forests; slumping clay banks; Sargent Creek valley

As the spur to/from the Fond du Lac trailhead goes up the Mission Creek valley toward the main SHT, it passes a red-brown cliff-bank across the creek. This is the Fond du Lac Sandstone, a deposit formed about 1 billion years ago, after the volcanism and rifting events of the Midcontinent Rift System (see geologic history section). A bit more of this sandstone is in the bank as the spur starts up the old Mission Creek Trail to join the main SHT.

Soon the trail cuts up to the right, between some great old White Pines, and up another ridge left by erosion of the adjacent valleys. Most of this trail segment goes through mixed hardwoods, including many oaks and some brushy areas. East of the Mission Creek valley, the trail runs along the top of a long, steep slope that is actively slumping in a couple of areas. Look for step-like land surfaces with steep scarps below the trail. This is an active process; in a few years the trail may well have to be moved back here and there. Farther on, as the trail descends gradually, it traverses the "Enchanted Forest" grove of tall pines.

One plant that is relatively uncommon elsewhere along the SHT is fairly abundant in this section: Dwarf Scouring-rush. This low groundcover forms thin to thick mats of 3 to 5-inch long, green, crooked, wiry stems. It likes moist, shady, fine-grained soils such as these.

Near the eastern end of this segment the trail passes through the floodplain of Sargent Creek, crossing on a big wooden bridge. This moist, shady zone supports



Hike #2

SEE COMPLETE TRAIL MAP ON PAGES 22-23



Ostrich ferns, Sargent Creek valley, May



Dwarf Scouring Rush, August



Yellow lady slippers,
June



Hike #3

SEE COMPLETE TRAIL
MAP ON PAGES 22-23

a lush growth of Ostrich Ferns, as well as some large White Spruce, Yellow Birch, and ash trees. Look for Yellow Lady-slippers in July as the trail rises out of the valley toward Beck's Road.

From the highway at Beck's Road, near the eastern end of this trail segment, a big quarry can be seen in the hillside to the north. This is in old basalt lava flows of the North Shore Volcanic Group.

As the trail approaches the trailhead, it runs through a large patch of May-blooming Hawthorn bushes, uncommon in the area.

Munger Trail at 123rd Ave. West to Magney-Snively Trailhead: 4.3 miles.

FEATURES: Bedrock hills; panoramic views; deep hardwood forests; spring wildflowers; stately pine grove; cool creek valleys; Magney-Snively Natural Area.

The Munger Trail, where this segment starts, was built on the bed of the old Northern Pacific Railway, and allows the SHT to cross the active iron-ore hauling tracks of the Canadian National Railway. This popular recreational trail was named for Willard Munger (1911-1999), who championed many environmental issues during his long tenure as Representative from western Duluth to the Minnesota Legislature.

But the trail soon leaves this industrial scene for some of the least-human-impacted parts of the area, as it climbs the exposed, rocky ridge leading to Ely's Peak, a favorite haunt of the local missionary (*see page 26*). Spectacular views emerge on the way up, and especially from the top via a short spur (*see pages 3, 9, 25*).

What are those big, black birds with small heads soaring around overhead or over the valley? They're probably Turkey Vultures, which are often seen riding the thermals at Ely's Peak and Bardon's Peak.

The bedrock here is 1.1 billion-year old basaltic lava called the Ely's Peak basalts (*see the geologic map*). We can see some volcanic features, especially amygdules, in several places here and along the ridge to the north of Ely's

Peak (*see photo*). Amygdules are former gas bubbles in the lava flows that have been filled in later with various minerals.

This ridge was scoured off and sculpted by the Ice Age glaciers, which left smooth rock surfaces decorated in places by big grooves, scraped out by rocks embedded in the bottom of the slowly moving ice. The direction of ice movement (spreading out of the Lake Superior basin, here going southwest to west) can be easily inferred from these grooves. The ice also plucked out and carried away blocks of the bedrock, leaving the steep, cliffy slope on the west side of the ridge. *See page 8.*

Special plants, too, occur on this rocky ridge, including tufts of the short fern called Rusty Woodsia (*page 13*), two herbaceous plants with tall flower spikes (Alumroot and Tall Cinquefoil), the uncommon low, creeping Rock Spikemoss (*Selaginella*), and the delicate blue Harebell. This is a "circumboreal" species, found in open areas in northern latitudes all around the world. Note also that many of the shrubs (Juneberry, sumac, etc.) along this open ridge are heavily browsed by deer. Look for blueberries north of Ely's Peak, but leave some for the next hiker! The trail also passes a few Jack Pines, which are uncommon in this area.

To the north, the open rocks eventually give way to some nice open hardwood forest of oaks and maples, here and there with a ground cover of grassy-looking Pennsylvania Sedge. After a hill and a couple of dips with more basalt bedrock poking through, the trail crosses a geologic boundary or contact, and the next ledge to the left is made of coarser-grained gabbro. This is the lowest part of a huge mass of intrusive rock, the Duluth [Gabbro] Complex, which extends from this area north for 80 miles almost to Ely and east almost to Hovland. In Duluth it forms the high ground on which the SHT is built, from Bardon's Peak north to Enger Hill overlooking the downtown area (*see geologic map*).

The next valley, occupied by the North Branch of U. S. Steel Creek, belies its industrial name and features more high-quality old growth Northern Hardwoods, with abundant Yellow Birches. Here we are entering the



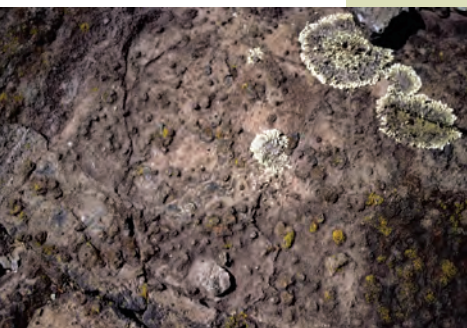
Selaginella, Ely's Peak
ridge



Harebells, July



Serviceberry flowers,
June



Amygdules in basalt,
north of Ely's Peak



Layering in olivine gabbro

1,800-acre Magney-Snively Natural Area, a preserve protected from development by the City in 2003-2005. A Broad-winged Hawk has occasionally nested in a tree near the trail just east of the creek.

From here the trail rises gradually in mixed forests and over occasional gabbro outcrops, and sports two spur trails that strike off to the right (south). They lead to more rocky knobs with fine views to the south. Look for tall shrubs of Round-leaved Dogwood along this stretch. In this area the gabbro shows strong layering, made by the buildup of crystals of different minerals (mainly olivine and plagioclase) on the bottom of the “chamber” of hot, crystallizing magma. The olivine is darker, and weathers red-brown; the plagioclase is gray and weathers lighter gray.

Soon the trail rises abruptly to cross the Skyline Parkway. This road, one of Duluth’s most famous and popular features, was built between 1889 and 1939 through the length of the City by visionary leaders such as mayors William K. Rogers and Samuel Snively and Parks Director F. Rodney Paine. This road roughly follows the old shoreline of Glacial Lake Duluth. Just to the south of the trail crossing is a turnout with a view of Ely’s Peak. The layering in the gabbro is well illustrated in the road cut and boulders here.

Just to the north of the road, the trail rises to the high area called Bardon’s Peak after early West Duluth resident John Bardon. From there it goes generally north over rocky ledges in a mixed hardwood forest with scattered spruces, growth-challenged by the thin soil. A couple of spurs lead off to fine views over the St. Louis River valley, and all the way to downtown Duluth and Lake Superior.

Farther north the trail traverses several more areas of old-growth hardwoods, including some old Yellow Birches as well as the dominant Sugar Maples. As elsewhere in these forests, large patches of Pennsylvania



Pincherry flowers, May

Sedge make for a park-like scene under the canopy, but show how exotic earthworms have eliminated many native wildflowers and tree seedlings (see page 11). Elsewhere, rich groundcovers of plants such as Wild Leeks, Large-flowered Bellwort, Blue Cohosh, Zigzag Goldenrod, and Jack-in-the-pulpit appear, and just before Morgan Park Creek is a large patch of Toothwort. A few small populations of other less-common species such as Spring-beauty, Moschatel, and Dutchman’s Breeches have also been seen along this stretch.

As the trail starts to descend to cross Skyline Parkway again, it enters an area of tall White Pines; a whiff of their needles is a welcome sensual gift. Below the road is a larger pine grove, as well as a spur to another viewpoint. The trail then traverses into the charming valley of Snively Creek (note several ancient, rotting pine stumps on the way down) before rising through more pines to the spur to the Magney-Snively trailhead parking lot.

Magney-Snively Trailhead to Spirit Mountain Trailhead: 3.2 miles.

FEATURES: historic stone bridge; abandoned homesite; pine grove; mysterious rock cut; Knowlton Creek

From the spur to the trailhead, the SHT rises in mixed forest (note patch of Long Beech Fern) to emerge onto the Skyline Parkway. This quarter-mile road-walk avoids a difficult crossing of the deep and rocky Stewart Creek gorge. At a big right bend, the road crosses a remarkable bridge, built in the 1920’s of local gabbro rocks and listed on the National Register of Historic Places.

After passing 100th and 99th Avenues West, the trail dips down into mixed woods. A spur to the right leads to a view of the lower Stewart Creek gorge and in the valley, the community of Morgan Park (named for financier J. P. Morgan), and Spirit Lake and Clough Island in the St. Louis River estuary. Eventually the trail comes to the abandoned upper end of Lanigan/Gogebic Street, too steep and rocky for modern times, which once connected with Skyline Parkway not far above.



Wild leek fruit, September



Hike #4

SEE COMPLETE TRAIL MAP ON PAGES 22-23



Long Beech Fern, July

Here next to a grove of cedars is the old cellar-hole of a house that was occupied about 1930-1945. Note the well-built stonework of gabbro blocks that were used to channel the little North Branch of Stewart Creek here. Many garden escapes such as Creeping Bellflower, Lily-of-the-valley, Tartarian Honeysuckle, and grapevines are abundant in this fringe residential area.

Soon the trail crosses under a power line and climbs over a rocky rise of crumbly gabbro in young, soil-challenged hardwoods. Gabbro ledges form the bed of Lenroot Street Creek, the next watercourse, and in the next level stretch of trail watch out for some Poison Ivy. The South Branch of Gogebic Street Creek comes next, with a few spruces and Yellow Birch. Rising to two big White Pines, the trail provides a vista out to Clough Island and the Riverside marina.

At the next old pine spur trail heads uphill to the Spirit Mountain Recreational Area's campground. Just beyond to the north is an intriguing, large, two-tiered excavation blasted out of the gabbro bedrock many years ago. Could this have been an aborted railroad cut? Look for rock-loving plants here such as Fragile Ferns and Red Columbine.

Soon the trail crosses the North Branch of Gogebic Street Creek and a Spirit Mountain mountain-bike trail by a big Red Oak. After traversing a small pine grove, the trail levels off (more Poison Ivy here), goes through a rocky area, and into degraded hardwoods with Buckthorn shrubbery. More mixed woods follow, as it descends to the base of the Spirit Mountain ski hill. Here the trail continues north above

the parking lot and over to the top of the bank of Knowlton Creek by old White Pines.



Poison ivy, May



Gabbro ledges, Knowlton Creek

The SHT makes its way up the lower part of Knowlton Creek, jogging back and forth a couple of times on service roads, and then resumes its way up the left (south) bank. Here it is closer to the stream, with open gabbro ledges under a cool canopy of spruce, cedar, and Yellow Birch, followed by White Pines. A spur to the left gives a view of Clough Island and the estuary over the open ski run.

Soon the trail continues uphill in more spruce, cedar, and birch and eventually into mixed hardwoods. After a level stretch with a Bunchberry carpet, it rises again to an old road, where the trail jogs to the right (look for Interrupted Fern) to a larger road where it joins a large gravel road, the old Knowlton Creek Boulevard. From here, the spur trail to the Spirit Mountain trailhead goes sharply uphill to the left. The main SHT goes right, to cross Knowlton Creek on a large bridge.

This spur passes up through a nice patch of Northern Hardwood forest, with Wild Leeks and Pennsylvania Sedge as ground cover, on the way to the trailhead parking lot.

Spirit Mountain Trailhead to Kingsbury Creek Trailhead: 2.0 miles

FEATURES: maple glade; Kingsbury Creek gorge

After crossing Knowlton Creek on the bridge by some Yellow Birches, the SHT takes the gravel road downhill until the trail turns off to the left and climbs steeply through cedars and birches to the top of the valley. Here it enters open Sugar Maple woods, with a park-like groundcover of sedge with some Wild Leeks. This gives way to mixed aspen and hardwoods before descending to cross a creeklet in an area of many grapevines and old stone piles, evidence of early occupation. The trail traverses more oak and maple woods, crosses 82nd



Gabbro ledges, Kingsbury Creek, May, low water



Hike #5

SEE COMPLETE TRAIL MAP ON PAGES 22-23



Purple Virgin's Bower clematis, May



Hike #6

SEE COMPLETE TRAIL MAP ON PAGES 22-23



Tansy, August

Ave. West Creek, and continues north not far below the railroad, passing more old stone walls and an old spruce tree. Mixed woods, grassy-open areas, and gabbro ledges take the trail over to the Kingsbury Creek valley. Here the SHT joins the City's old Kingsbury Creek trail. This turns downstream under dark cedars with close views of the creek, tumbling over gabbro ledges. Reaching an old road, it crosses the creek with a fine view upstream of the rocky streambed.

Here the spur trail takes off down the north side of the creek to the Kingsbury Creek trailhead, next to the Lake Superior Zoo. The upper part of this spur passes through Paper Birch woods, with some Purple Virgin's Bower (a Clematis) vines that enhance the scene in May. The lower part goes along a gravel road. Glacially smoothed gabbro ledges under big pines are a nice treat before the trail dips under the abandoned DWP railroad grade and through a cedar grove to the parking lot.

Kingsbury Creek Trailhead to Skyline Parkway Trailhead at Highland/Getchell: 3.2 miles.

FEATURES: open rock ledges with views; Buckthorn thickets; Keene Creek gorge

Starting from the Kingsbury Creek bridge (up the spur trail back on the SHT), the SHT rises through aspens and Buckthorn to a relatively level course northward below the railroad until descending to the Keene Creek valley. The vegetation in this area has not recovered from early settlement clearing and subsequent fires, and contains many grassy, open areas, gabbro ledges, and scattered aspens and White Birches along with shrubs of dogwood, Sumac, Tartarian Honeysuckle, Alder, and Buckthorn. Occasional Woodbine (Virginia Creeper) vines are also found along this stretch. Before descending toward Keene Creek valley, there is a nice view by some Mountain-ash trees to the northeast and east. Here we can see Interstate 35 as it comes off the hill to the west and out onto the valley toward the Stora Enso paper mill.

After crossing the West Branch of Keene Creek by some big old Black Willows, the trail comes out into an open, barely post-industrial area filled with Tansy,

dogwood, Raspberry, thistles, and Milkweed under a power line before ducking under Interstate 35. Here it rises to the left, skirting a residential area, and soon comes out at busy Cody Street where 66th Avenue West crosses it. After roadwalks on 66th Ave. W. and West Gate Blvd., the trail reenters the woods uphill (look for Canada Mayflowers), crosses under a big powerline, and goes through second (or third-) growth woods of mostly aspen and birch with Buckthorn and honeysuckle shrubbery. Ostrich Fern, Orange Hawkweed, and Large-leaved Aster decorate the trail as it crosses several small tributaries on its way to the top of the main channel of Keene Creek.

The final stretch, along the west side of Keene Creek up to the trailhead is quite varied, in some places high on the bank, in others close by the stream and its smooth ledges of gabbro and tumbling cascades. Softening up such cityscape features as overhead powerlines, railroad tracks, sewer pipes and mysterious old stone walls are Ostrich and Lady Ferns, Forget-me-nots, Bouncing Bet, and patches of cedar and Mountain-maple. A long flight of steps leads up to Skyline Parkway and the trailhead across the street.

Skyline Parkway at Getchell/Highland to Skyline Parkway at 24th Ave. West: 5.7 miles

FEATURES: Upper Keene Creek valley; open oak forest; Brewer Park; rocky bluffs and knobs with panoramic views; hardwood forest; Miller Creek in Lincoln Park

From the trailhead, the SHT crosses Keene Creek on an abandoned "bridge to nowhere" and turns left up the east bank. Open birch woods with Bracken ferns, an old stone building wall, rocky cascades and a patch of Bunchberry and Canada Mayflower line the trail until it rises to cross Skyline Parkway again. Here it passes through alternating Sugar Maple and aspen-birch woods, then veers right to a little rocky ridge with honeysuckle bushes. After some jogs and a long boardwalk it rises gently in aspen, birch, and maples over a low rise, then descends through Basswood, Red Maple, and ash to cross a little mossy creek by a Yellow Birch



Nodding Trillium, June

SEE COMPLETE TRAIL MAP ON PAGES 22-23



Hike #7



Canada Mayflower, June



Lungwort (*Mertensia*),
June



Swamp Saxifrage, May

tree over Ostrich Ferns. The next hill has mixed hardwoods and a large glacial boulder of gabbro. Here we have entered the City's Brewer Park. After a left bend we are rewarded by a large, open oak-maple glade with Pennsylvania Sedge and Large-leaved Aster as ground-cover. Crossing another little creek, the SHT descends the creek valley through more hardwoods, with a low cliff of gabbro on the left.

The trail then cuts up out of the valley onto a rocky hill with views of the paper mill, the Bong Bridge (US Hwy. 2), the Murphy oil refinery, I-35, Spirit Mountain, the iron ore docks, grain elevators, the Blatnik Bridge, Minnesota Point, and Enger Tower. The rock underfoot here is anorthositic (plagioclase-rich) gabbro, and plants such as Goatsbeard, Tall Cinquefoil, and Alumroot have been able to eke out a living. After a couple of minor dips in young aspen and birch woods, and more open rocks with views, the trail swings gently to the left to overlook the glacially-gouged valley of the West Branch of Merritt Creek. Here more mixed hardwoods with some Mountain-ash are underlain by Bush Honeysuckle, Bluebells (Lungwort), and Bunchberry. The bedrock is more anorthositic gabbro, here cut by many parallel fractures due to stresses in the earth's crust.

Eventually the trail heads downhill, crosses the West Branch of Merritt Creek and Haines Road, and reenters the forest. A series of rises, alternating with dips, support a nice hardwood assemblage of Sugar Maples, Basswood, and Yellow Birch, interspersed with aspens. Look for Ostrich Ferns and Swamp Saxifrage in the moist drainages. The trail then climbs a rocky slope to open ledges of a fine-grained intrusive rock called ferrodiorite. Known as Ski Trail Knob, this offers another fine view and a short path to/from the Piedmont city ski trail system. The white blooms and fragrant, ferny foliage of Yarrow are common here.

Continuing to the east, the trail dips into more mixed hardwoods with Round-leaved Dogwood to more open ledges with a view over a big powerline. It crosses the main stem of Merritt Creek in alders and Yellow Birch with Sensitive Fern, and then rises in aspens to the next rocky hill with views, Firing Knob, made of

anorthositic gabbro. Passing through young, open aspen and birch woods and over bedrock ledges across the top, the SHT then crosses another dip (lots of Bunchberry here) and climbs stone steps to another rocky rise with a fine view. After this grassy, open area, with patches of Bush Honeysuckle and occasional wild rosebushes, the trail winds its way through brushy areas and young willow-aspen-alder woods and past a big Mountain-ash to open-topped Piedmont Knob with its magnificent views. Common flowering plants here are Alumroot and both Three-toothed (white) and Common (yellow) Cinquefoil.

From Piedmont Knob the trail winds downhill in mixed forest, past gabbro ledges, to cross Skyline Parkway. Below Skyline the route zigzags down through a brushy zone dominated by alders and aspens and Choke- and Pincherry trees and punctuated by gabbro outcrops and wet drainages. This comes out at a covered water reservoir at the southwest extension of West 10th Street. Crossing 27th Avenue West, a short roadwalk passes under ash and willow trees, but the trail soon cuts up into aspen woods and winds around over ledges, through mixed forest to a big Mountain-ash and an old Apple tree before crossing a tributary of Miller Creek by a big old Black Willow. Rising again, the SHT crosses a gravel road and soon Lincoln Park Drive before descending to a steel bridge over Miller Creek in Lincoln Park. The stream, shaded by Yellow Birches, here tumbles over dramatic cascades in reddish ferrodiorite. Across on the east side of the creek, the City's trail leads up through hardwoods to the trailhead where 24th Avenue West meets Skyline Parkway.

Skyline Parkway at 24th Avenue West to Twin Ponds at Enger Park: 1.7 miles

FEATURES: Coffee Creek; open fields; Enger Tower; Enger Park; Peace Bell; views of downtown and Lake Superior.

Crossing busy Piedmont Avenue on the Skyline Parkway overpass, the SHT sets off to the east through an area of degraded, Buckthorn-filled woods, scattered



Bunchberries,
September

SOMEONE HAS BEEN HERE BEFORE!

*"Then he climbed the rocky headlands,
Looking o'er the Gitchee Gumee,
Perched himself upon their summit."*

(From *The Song of Hiawatha*, by H. W. Longfellow)



Hike #8

SEE COMPLETE TRAIL MAP ON PAGES 22-23



Spotted Coral-root,
June

SEE COMPLETE TRAIL
MAP ON PAGES 22-23



Hike #9



Mountain-ash berries,
August

Mountain-ash and planted spruce and Red Pines and brushy openings, crossing Coffee Creek and a tributary on the way. An open field provides a sweeping view, and a big, black boulder of basalt beside the trail contains large, white quartz amygdules (former gas pockets in the lava). The trail rises to cross Skyline again, then curves right through aspen-birch-dogwood woods (look for Spotted Coral-root) to cross Hank Jensen Drive where the road up to Enger Tower branches off. The SHT cuts left across that road into Enger Park through hazel and dogwood shrubs and into aspen-pine-birch woods on a City trail. After a spur trail up to Enger Tower with its panoramic view, the trail swings up to the top area, between brushy gabbro ledges to the north and the nicely landscaped oak and maple-shaded picnic area to the south. Here is the Peace Memorial bell, "Water's Journey," a 1994 gift from Duluth's sister city, Ohara, Japan.

The SHT then descends the northeast end of the hill over more anorthositic gabbro through rather scruffy aspen woods to another crossing of Skyline Parkway. Here a spur crosses the dam at Twin Ponds to the trailhead parking lot at the opposite corner.

Twin Ponds Trailhead to the Rose Garden, Leif Erikson Park: 3.8 miles.

FEATURES: Point of Rocks; views over industrial Duluth; the Lakewalk; Bayfront Festival Park; Great Lakes Aquarium; Duluth Entertainment and Convention Center; Maritime Museum; Lift Bridge; Vietnam Veterans Memorial; Leif Erikson ship and Park.

From the trailhead parking lot, the spur crosses Skyline Parkway and the Twin Ponds dam (and Buckingham Creek) to rejoin the SHT, which dips down and to the right through aspen-birch woods, Service-berry and Buckthorn. Between West Fifth Street and Third Street it passes through an open grove of Jack Pine, unusual for this area. Below Third Street (note sandstone curbs) it comes to the back of an abandoned quarry cut in a fine-grained, reddish granitic rock called granophyre. (Near the front of this quarry,

off the trail, a glacially-smoothed ledge shows nice striations indicating the direction of ice movement.) The trail cuts to the northeast through woods past a big Basswood tree to 14th Avenue West, down the avenue and across First Street shaded by tall Cottonwoods. Curving left past a high gabbro ledge it descends to a big open rock full of old iron bolts from some long-gone construction. After taking in the industrial scene below, note the Round-leaved Dogwood behind you and the yellow Sedum, a garden escape, in cracks in the rock. Tartarian Honeysuckle and Virginia Creeper are also common here.

To the northeast, the trail winds down through more brushy woods to another abandoned quarry (with a paved floor). Below this a grassy bench full of goldenrod and Tansy leads through aspens past a rocky knob and old willow with Creeping Bellflower out to the corner of Glen Place and West Michigan Street. The sidewalk leads to the pedestrian overpass over I-35, where we have a good view uphill to the anorthositic gabbro promontory known as Point of Rocks.

From the overpass, the SHT cuts left down a ramp to a paved trail, enhanced by city landscaping. Note planted species such as Quaking Aspen, Blue Spruce, Tamarack, Mountain-ash, Juniper, Scotch Pine, Ninebark, and dogwood, along with "volunteers" such as Tansy, Boxelder, Sweet-clover, Deadly Nightshade, and Valerian. For some distance the trail is surrounded by coarse, crushed rock. Much of it is fine-grained basalt, some with amygdules; look also for some pieces of red-brown sandstone and diabase. Note the little cat-tail marsh on the left. This island of habitat hosted a Spotted Sandpiper in June.

Beyond Bayfront Festival Park on the right, the SHT turns right, goes past the Great Lakes Aquarium and passes around the bay side of the Duluth Entertainment and Convention Center. Under flowering cherry trees,



Glacial striations at
old quarry



Round-leaved Dog-
wood in bloom, June

ENGER TOWER

The great stone tower planted on top of Enger Hill is a memorial to Bert J. Enger, 1864-1931, a pioneer Duluth merchant and native of Norway who gave the land for the park to the city. It was dedicated in a grand celebration in 1939 highlighted by a speech by Crown Prince Olaf.

POINT OF ROCKS

This rock mass was considered an obstacle to progress in Duluth's early days, and at least four plans were made for its removal between 1906 and 1948. Another idea, of the lemon-to-lemonade variety, was to have the monumental sculptor Gutzon Borglum, of Mt. Rushmore fame, carve it into a likeness of Daniel Greysolon, Sieur duLhut, "discoverer" of this city's site in 1679. However, Mr. Borglum declined after an inspection visit in 1939.



Ring-billed gull

Janet Green photo



Bedded taconite riprap, Lakewalk

take a rest on one of the granite benches, brought from central Minnesota's St. Cloud-Rockville quarry district. At the Minnesota Slip several historic ships are on display. Across the pedestrian drawbridge, the trail skirts large buildings to dip under the iconic, 1929 Aerial Lift Bridge next to the Corps of Engineers building and its Maritime Museum. This entry to the Duluth harbor was famously excavated extra-legally in 1870 by Duluth shipping promoters through the great sandbar called Minnesota Point.

Here at Canal Park the Lakewalk officially begins. This is one of the best places to observe Ring-billed Gulls close-up; these opportunists, smaller than the other common Herring Gulls, have learned to hang out at tourist and fast-food hot-spots. The big blocks of riprap protecting the shore from the great waves of the Big Lake are mostly of gabbro, with some basalt, diabase, and concrete; around the bend at the corner of the lake are some more exotic blocks of bedded sandstone and white limestone made of fossilized algae (stromatolites —probably from Lake Huron). Look for Canada Anemone and Beach Pea on the beach.

Farther along the Lakewalk outcrops of massive basalt lava begin, near the Northland Vietnam Veterans' Memorial. This memorial wall is made of coarse, black gabbro; notice also the walkway of flagstones of exotic micaceous quartzite, a metamorphic rock. Big blocks of bedded taconite (lean iron ore) from the Mesabi Iron Range make up much of the riprap beyond. Finally the trail crosses the outlets of Brewery and Gray's Creeks and rises into landscaped Leif Erikson Park.

Behind the 1927 stone amphitheater on the shore are interesting rock outcrops of a basaltic lava flow overlain by cross-bedded sandstone. This generally tan-colored sandstone has very little quartz, because it was made (by streams or wind) of sand particles eroded from the barren, volcanic landscape of the time, that didn't have any quartz in its rocks.

The trail then passes the Leif Erikson "Viking ship", a converted fishing boat sailed across the Atlantic by a Norwegian crew in 1927, and finally crosses the railroad tracks on a pseudo-rock bridge to the Rose Garden and the SHT trailhead.

Rose Garden to Hartley Nature Center: 4.5 miles

FEATURES: Chester Creek valley; old pines; UMDuluth campus; Bagley Nature Area hardwood forest; Hunter's Hill oak woods; Hartley Pond; Hartley Nature Center

City sidewalks take the SHT up 14th Avenue East from the trailhead to East Fourth Street, where it enters the city's Chester Park. The trail goes up the right (northeast) side of the valley under big Cottonwood trees with some ash and Silver Maples and a few basalt outcrops. Trailside vegetation includes Buckthorn, Round-leaved and Red-osier Dogwood, Valerian, Creeping Bellflower, and Large-leaved Aster.

Soon a footbridge takes the trail over Chester Creek to the left bank, where it continues upstream past Cow Parsnip and Bush Honey-suckle under White Birch, Red and Mountain maples, aspen, Pincherry, Black Willow, Elm, and Mountain-ash trees. The creek is soon confined to a deep, cliffy gorge with cedars, White Pines and spruce. Passing under a high bridge (East Ninth Street), the trail goes by more willows, a few Sugar Maples, and some big White Pines, and past a footbridge (not the SHT) over basalt cascades. Continuing up the left bank, look for American Yew (not all devoured by deer!), Yellow Birch, Zigzag Goldenrod, Fireweed, Deadly Nightshade, Blue Lettuce, and Lady and Long Beech Ferns. The trail finally climbs up over more basalt under pines to Skyline Parkway.

From here, city sidewalks take the SHT across the creek, and past the entrance to Chester Bowl, where

SEE COMPLETE TRAIL
MAP ON PAGES 22-23



Hike #10



Cross-bedded sandstone, Leif Erikson Park



Zig-zag Goldenrod, August



Wild Sarsaparilla, June



Rose Twisted-stalk, June

there is a big ski jump erected in 1905. It continues around to West Kent Street, on it to 19th Avenue East, and up it to College Street. After crossing College Street, the sidewalk along Junction Avenue goes north along the upper side of the campus of the University of Minnesota Duluth to the top of a rise, where the SHT cuts through a parking lot and reenters the woods. This is the University's Bagley Nature Area, centered around Rock Hill and featuring a Sugar Maple-dominated hardwood forest with oak, Basswood, and Ironwood with some aspens. At the top of the hill there is a short spur to an observation deck with a fine view of Minnesota Point, the Murphy oil refinery in Superior, WI, and the UMD campus. The oil refinery taps crude oil from a pipeline from Alberta.

Descending the steep north end of the hill via six flights of steps, the trail crosses a small creek, bends right, and then branches left up to Arrowhead Road. After a short jog to the east, the SHT crosses Arrowhead Road and enters mixed, brushy woods climbing onto a rocky rise of basalt under some big old White Pines. The trail has now entered the city's Hartley Park. Continuing westward, the trail descends, crosses the creek, and goes up to the Old Hartley Road, which it follows to the left (northwest) through mixed woods. After cutting off to the right, it soon starts uphill under maples and White Pine up to the top of the Hunter's Hill ridge. Following this to the northeast, the trail passes basalt ledges through open oak and maple woods with some Ironwood, Basswood, Big-tooth and Trembling Aspens.

Eventually the trail drops north off the ridge, heading toward Hartley Pond and crossing several ski trails and old Red Pine-Norway Spruce plantations and old White Pines on the way. After crossing the Hartley Pond dam, the SHT takes the trail eastward along the open north bank of Tischer Creek to the energy-efficient Hartley Nature Center building (built 2003) and the trailhead at its parking lot. Here you can connect with an extensive system of foot trails through the Park; visit the building and obtain a map.

Hartley Nature Center Trailhead to Martin Road: 3.1 miles

FEATURES: roadwalk; Amity Creek valley

The SHT exits the east end of the parking lot and follows Tischer Creek downstream alongside a tall spruce and pine plantation, with mixed forest along the creek. After cutting up to Woodland Avenue, it takes a roadwalk to the east up Carlisle Avenue under Sugar Maples, oaks, and a big Silver Maple on a crooked course to Vermilion Road. This goes north, between two large cemeteries, with a border of tall spruces on the left and eventually on the right as well. At the top of a long rise the road (and SHT) reenters mixed hardwoods, and descends to cross Amity Creek. Here on the north bank the SHT spur branches off to Hawk Ridge (*see below*), while the main trail cuts left into the woods and little, undeveloped Downer Park. This area is shaded by mixed hardwoods including many oaks and maples, and the trail soon rises over a prominent open knoll of gabbro. It continues along this impressive, rocky valley through brushy-open areas and mixed woods, sometimes at the edge of a cliff. Locally the rock is red, fine-grained granite (granophyre).

Rising through aspens to cross Pleasant View Road, the SHT passes through more rocky, open woods of birch and aspen before dipping through a grassy, moist ash grove. It continues northward through mixed hardwoods, crosses a little creek, and rises over a Sugar Maple knoll before coming out at the Martin Road Trailhead (shared by the North Shore State [snowmobile] Trail).

Spur: Vermilion Road to Hawk Ridge: 1.7 miles

FEATURES: Amity Creek valley; northern hardwood forests; old pine plantations; diabase ridges; Skyline Parkway roadwalk; Hawk Ridge

The spur cuts eastward from Vermilion Road along the top of the marshy Amity Creek valley in shrubby, open areas alternating with mixed hardwoods. Much of this stretch goes through nice, open glades of oak, maple, and Basswood, and at one point the trail dips to overlook a rocky, abandoned channel of Amity Creek



Hike #11

SEE COMPLETE TRAIL MAP ON PAGES 22-23



Red Pine plantation, SE of Amity Street, August



Hike #12

SEE COMPLETE TRAIL MAP ON PAGES 22-23

**BY THE NUMBERS:
Fall raptor records
at Hawk Ridge**

Number in one day:
102,321 on 9/15/2003

Daily high for Bald
Eagles: 743 on
11/22/94

Daily high for
Red-tailed Hawks:
3,991 on 10/24/94

Seasonal high for
Broad-winged Hawks:
160,776 in 2003

Seasonal high for
Sharp-shinned Hawks:
22,344 in 1997



"Kettle" of Broad-winged hawks, Sept.
Debbie Waters photo



**View of Moose Mtn.
from Hawk Ridge, Oct.**

where beavers have felled many large aspens. Farther on, the topography becomes hummocky, with many small "vernal" pools, the result of the melting of great ice blocks in a glacial moraine deposit about 12,000 years ago. Occasional cedars dot the aspen-dominated hardwoods to the east. Finally the trail crosses a creeklet and comes out at busy Jean Duluth Road.

Across the highway, the SHT takes a short roadwalk east along Amity Street to its corner, where the trail reenters the woods via a little jog to the right. At first in a moist, Alder-Buckthorn draw, it rises in aspens and birches to an abrupt cliff of diabase shaded by some old Sugar Maples, and soon climbs to the top. Turning right, it continues up this rocky diabase ridge past an open oak glade and through some old planted pines. After reaching the top, the SHT heads off to the east again through more tall planted Red Pines and open maple woods. It then descends through mixed, brushy woods and more planted pines to Skyline Parkway.

The area to the east along Skyline is the city's Hawk Ridge Nature Reserve, managed by the Hawk Ridge Bird Observatory. About 1/2 mile to the northeast along the road is the Main Overlook for Hawk Ridge; this is the major observation point and official hawk-counting station during the fall raptor migration, August-December (*see sidebar this page*). A network of hiking trails, including to other great views and hawk-observation spots, can also be accessed here; pick up a map at the overlook in season or at the website www.hawkridge.org. This diabase ridge has little soil but many berry-bearing shrubs in August and September, such as dogwoods, Tartarian Honeysuckle, Chokecherry, Arrowwood, Serviceberry, Buckthorn, and Sumac.

For Further Information

The following publications could help you enjoy and learn more about the natural history of this area.

Minnesota Audubon, 2006, *The North Shore Birding Trail*, 70 p. See www.mnaudubon.org.

Minnesota Department of Natural Resources, 2003, *Field Guide to the Native Plant Communities of Minnesota: The Laurentian Mixed Forest Province*. MN DNR, St. Paul, 352 p.

Green, John C., 1996, *Geology on Display: Geology and Scenery of Minnesota's North Shore State Parks*. Minnesota Department of Natural Resources, St. Paul, 97 p.

Miller, J. D. Jr and Green, J. C., in prep., *Bedrock geologic map of the Duluth area*. Minnesota Geological Survey, St. Paul

Oslund, Clayton and Michele, 2001, *What's Doin' the Bloomin'?*. Plant Pics LLP, Duluth, MN, 308 p.

Ownbey, G. B. and Morley, Thomas, 1991, *Vascular Plants of Minnesota: A Checklist and Atlas*. University of Minnesota Press, Minneapolis, 307 p.

Stensaas, M.S. and Kollath, Rick, 2003, *Wildflowers of the BWCA and the North Shore*. Kollath + Stensaas Publishing, Duluth, 105 p.

Tekiela, Stan, 1999, *Wildflowers of Minnesota*. Adventure Publications, Cambridge, MN, 410 p.

Weber, Larry, 2001, *Butterflies of the North Woods*. Kollath-Stensaas Publishing, Duluth, 172 p.

For information and maps of connecting trails, see the following websites:

- www.ci.duluth.mn.us/city/parksandrecreation/ (City of Duluth)
- www.hartleynature.org (Hartley Nature Center)
- www.hawkridge.org (Hawk Ridge Bird Observatory)
- www.shta.org (Superior Hiking Trail Association)

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**Bigtooth Aspen leaves,
October**



THE 39 MILES OF THE Superior Hiking Trail through the City of Duluth pass through many areas of fascinating landscape, including world-famous geological features with rocks over a billion years old, spring wildflowers, stunning panoramas, shady old-growth forests, and many other ecological land types. This booklet will help hikers appreciate the remarkable natural history made accessible by the trail.



John C. Green is a retired geology professor, naturalist, hiker, and author who has spent countless days roaming the hills of Duluth and the North Shore. He helped lay out the route of the Superior Hiking Trail through Duluth.

For other basic and essential information about the trail, including detailed directions, directions to trailheads, mileages, parking, etc., please consult the *Guide to the Superior Hiking Trail*, published by the non-profit Superior Hiking Trail Association (www.shta.org), which built and maintains the trail.