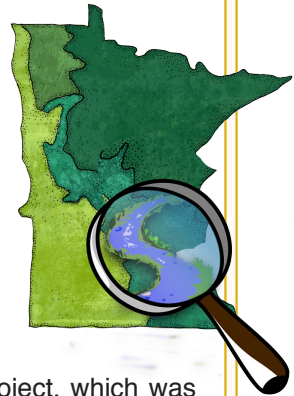


# Summer Institute for Climate Change Education 2013

## Fort Snelling State Park

Dear Educator,

Welcome to the Will Steger Foundation's 8th Institute for Climate Change Education! Our Institutes are the pinnacle of our professional development opportunities and you are joining a group of over 700 educators from around the country that have attended them over the years. Each Institute has had a unique focus within climate change education and has included prestigious keynote speakers such as Dr. James Hansen, Dr. Naomi Oreskes and Bill McKibben. This year we are excited to be partnering with the National Park Service, the Mississippi River Fund and Ft. Snelling State Park and situating Minnesota's Changing Climate in a local context: the Mississippi River watershed.



This year's Institute focuses on the Minnesota's Changing Climate project, which was funded through the Environmental and Natural Resources Trust Fund and received the Environmental Initiative's 2012 Environmental Education Award. Minnesota's Changing Climate was developed because we believe that environmental sensitivity and action begins with a local connection and sense of appreciation, or environmental sensitivity, towards the natural environment. As educators, you have the unique opportunity to lead your students through the environmental education continuum of knowledge, awareness, and skills that lead to an informed and active environmental citizenry. Minnesota's Changing Climate is a great place to start because it follows this model of developing an appreciation and understanding of Minnesota's natural environment and inspiring action.

Climate change is the definitive environmental issue of our time. There is an overwhelming scientific consensus that the planet is warming, the climate is changing and that this is a largely human induced phenomenon. We applaud you for making climate change a topic you deem important to include in your educational setting. We hope that the next two days provide you with the knowledge, awareness and skills to include this important topic in your teaching and to develop the next generation of informed and active environmental stewards.

Thank you for your time and dedication,

A handwritten signature in black ink, reading "Kristen Poppleton".

Kristen Poppleton  
Director of Education

A handwritten signature in black ink, reading "Nicole Rom".

Nicole Rom  
Executive Director

A handwritten signature in black ink, reading "John Smith".

John Smith  
Education Assistant

A handwritten signature in black ink, reading "Will Steger".

Will Steger  
President,  
Will Steger Foundation

# Summer Institute for Climate Change Education 2013

Fort Snelling State Park

## AGENDA DAY 1 August 6, 2013

Time	Activity	Location
8:00 AM	Registration & Breakfast	Visitor Center
8:30 AM	Welcome and Overview	Visitor Center
9:45 AM	Introduction to Minnesota's Changing Climate	Visitor Center
10:00 AM	Make Images of Climate Science	Visitor Center
10:30 AM	Share Images: Review of the Basics	Visitor Center
11:00 AM	What does the data show?	Visitor Center
11:45 AM	Break: Pick Up Lunch	Visitor Center
12:00 PM	Lunch: Lark Weller "Climate Change Impacts on the Mississippi"	Visitor Center
1:00-1:20	Introduction to Weather, Phenology and Documentation	Visitor Center
1:20-4:40	Fifty Minute Rotations with Five Minute Passing Time Rotation 1: Phenology and Climate Change Rotation 2: Weather and River flow Rotation 3: Journals and Science Notebook	Ft. Snelling Beach
4:40	Service Project: Invasive Species and Climate Change	Ft. Snelling Beach
5:15	Large Group Reflection of the Day	Ft. Snelling Beach



Will Steger Foundation 2801 21st Ave S, Suite 110, Minneapolis, MN 55407  
612-278-7147 [info@willstegerfoundation.org](mailto:info@willstegerfoundation.org)

# Summer Institute for Climate Change Education 2013

Fort Snelling State Park

## AGENDA DAY 2 August 7, 2013

Time	Activity	Location
8:00 AM	Breakfast & River Trip	Visitor Center
12:15 PM	Lunch	Visitor Center
1:00 PM	Taking Your Students Outside	Visitor Center/Outside
1:45 PM	Presentation: Cole Norgaarden "Youth in Action"	Visitor Center
2:15 PM	Curriculum Planning Time	Visitor Center/Outside
3:00 PM	Share out in Specialist Groups	Visitor Center
3:30 PM	Evaluation and Group Reflection	Visitor Center
4:00 PM	Departure	Visitor Center



Will Steger Foundation 2801 21st Ave S, Suite 110, Minneapolis, MN 55407  
612-278-7147 [info@willstegerfoundation.org](mailto:info@willstegerfoundation.org)

## Stay Connected

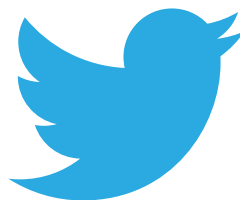
Find WSF on social media



willstegerfoundation



willsteger1

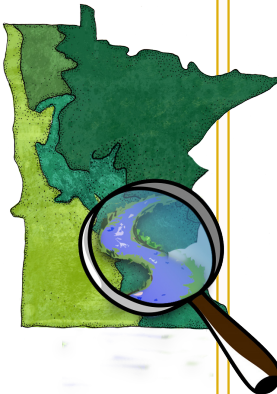


@willstegerfound

### Speaker, Staff and Session Leader Bios

#### Keynote Speaker: Climate Change Impacts on the Mississippi River

**Lark Weller** is the Water Quality Coordinator for the Mississippi National River and Recreation (a unit of the National Park Service). She works with park partners to minimize the negative impacts of human activities on the park's water resources. Lark enjoys the challenge of communicating complex water resource issues to people in non-technical ways, and hosts a monthly meeting series (the Mississippi River Forum) for water resources practitioners and decision-makers. Lark has her master's degree in urban and regional planning, and a B.S. in agriculture, sociology, and anthropology both from the University of Minnesota.



#### Staff and Session Leaders

**Lyndon Torstenson** is the Manager of Educational Partnerships for the Mississippi National River and Recreation Area, National Park Service, where he has worked for 18 years to coordinate numerous partnerships with over 75 local organizations. These partnerships have engaged over 80,000 students in outdoor and boat-based, hands-on learning about the Mississippi River. Prior to his federal service he was a licensed teacher (elementary) in Minnesota. His Post-Baccalaureate (Education) and Bachelor's Degrees (Art/ Urban Studies) are from Augsburg College, Minneapolis, MN. Awards include: 2007 Partnership of the Year from Minnesota Environmental Initiative (for the Big River Journey partnership – coordinated by Torstenson), and 2001 National Park Partnership Award for Education from National Park Foundation (awarded for one partnership in the National Park System).

**Krista Jensen** is the Lead Interpretive Naturalist at the Minnesota Department for Natural Resources in Fort Snelling State Park. After graduating from Ashland College, Krista was a naturalist in various parks, including the Eagle Bluff Learning Center and the Dakota County Parks. Krista also spent five years working as an Outdoor Education Coordinator where she coordinated and implemented a year-round program that includes recreation, environmental, cultural and historical activities and events.

**Kristen Poppleton** is the Director of Education at the Will Steger Foundation and began her work with WSF as a participant in their first Summer Institute for Climate Change Education in 2006. She has authored several of WSF's curricula resources, implements professional development opportunities for educators, and coordinates local and national collaboration around climate literacy. She has a MEd in Environmental Education and a MS in Conservation Biology.

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

**John Smith** helps support and expand the education work of the Will Steger Foundation. He is currently a Board Member of the MN Association for Environmental Education and an Executive Committee Member for the MN Green Schools Coalition. As a professional naturalist, he has taught thousands of students over the course of hundreds of hours in and out of the classroom at Wolf Ridge Environmental Learning Center and Tamarack Nature Center. He also co-leads an after-school program at Rivers Edge Academy.

**Michael “Mick” Wirtz** is a district assessment coordinator with St. Paul Public Schools. Mick has been an invaluable volunteer and supporter of the Will Steger Foundation since it was founded.

**Pete Cleary** is a naturalist and curriculum coordinator for Dodge Nature Center. He is active in the Minnesota Association for Environmental Education and has worked closely with teachers and students at Garlough Environmental Magnet School in West St. Paul for the past eight years.

**Cole Norgaarden** is the outgoing Co-Chair of the Will Steger Foundation’s YEA! MN high school environmental leadership program and has been involved with the program for the past 5 years. He is a 2013 graduate of Blake High School in Hopkins, MN and will be attending Cornell University in Ithaca, NY. Check out the documentary film he just produced on fracking called *The Driftless Project* at [http://youtu.be/kYKSa8\\_nEyK](http://youtu.be/kYKSa8_nEyK).

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park



### 2013 SUMMER INSTITUTE ON MINNESOTA’S CHANGING CLIMATE REFLECTIONS

*“There is something to journaling that is extremely important...it’s a way of learning where you absorb yourself...you put your mind and your attention and your focus on one observation. It’s a mechanism of where you are going through your curiosity and your thought and you’re documenting and you’re writing down... it’s a learning process.”*

- Will Steger

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

### Opening

Reflection: Why are you here? What do you hope to get out the next two days? What is one thing you are looking forward to? What is one thing you are nervous about?

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

### Make Images of Climate Science

Reflection: Could you use the Making Images of Climate Science activity in your education setting? How might you adapt it? Draw your favorite image from the activity.

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

### **What does the data show?**

Reflection: What figure was most interesting or compelling? How could you use this activity with your students? Will you plan on borrowing a Biome Kit from the Will Steger Foundation or St. Paul Public Schools in the upcoming school year?

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

### **Keynote Speaker: Lark Weller**

Reflection: What is one thing you don't want to forget about this presentation? Was there anything referenced in the presentation that you will think about tomorrow during the canoe paddle?

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

### **Phenology and Climate Change Breakout Session**

Reflection: How could you incorporate phenology into your educational setting? How would you explain to your students why phenology observations are important in reference to climate change?

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

### **Phenology and Climate Change Breakout Session Continued**

Create a Ft. Snelling State Park phenology checklist for this season based on what you learned this afternoon.



Weather and River Flow Breakout Session  
Data Sheet

Today's Temperature:

Historic Normal Temperature

High:	
Low:	

Barometric Pressure (unit = in/Hg or "inches of mercury")

Precipitation in last 24 hours:

Wind Speed (mph)

According to Beaufort Scale:	
According to weather station:	

Wind Direction (where is it blowing *from*?)

Clouds

% Sky Cover:	
Cloud Type:	

River Temperature

River Flow

Weather and River Flow Breakout Session Continued

Reflection: What is the difference between weather and climate? What is your *weather* prediction for 100 years from today - and what information would you need to inform your prediction? What is your prediction for the quality of the Mississippi River 100 years from now (temp, flow, etc.)? Why?



Summer Institute for Climate Change Education 2013  
Fort Snelling State Park

**Journals and Science Notebooks Breakout Session**

I noticed:

I wonder:

Summer Institute for Climate Change Education 2013  
Fort Snelling State Park

**Journals and Science Notebooks Breakout Session**

Reflection:

Summer Institute for Climate Change Education 2013  
Fort Snelling State Park

**Journals and Science Notebooks Breakout Session Continued**

Summer Institute for Climate Change Education 2013  
Fort Snelling State Park

**Journals and Science Notebooks Breakout Session Continued**

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

### **Service Project**

Reflection: What service projects can you do with your students? How can you make them ongoing service-learning experiences rather than one-time projects?

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

### **End of Day Reflection**

Reflection: What was your highlight today? What questions were not answered that you want to make sure to get answered tomorrow?

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

### Welcome Back

Reflection: What did you reflect on last night and what questions do you want to make sure are answered today?

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

### Silent Paddle Reflection

Reflection:

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

### **Transects at the Tip of Pike Island**

Reflection: Transect Activity

Pace out an area that is approximately two paces by two paces.

#### Biotic Observations

##### Animal Life:

1. Note and record the various kinds of animals at your site (insects, birds, reptiles, fish, amphibians, mammals).

2. Record evidence of wildlife such as scat, tracks, burrows, or chewed leaves. Which is the most dominant?

##### Plant Life:

1. Observe the various types of plants at your site (large trees, small trees, shrubs, small plants, grasses).

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

2. Record the most-common types of plants found in the site. Which is the most dominant?

#### Abiotic Observations:

1. What is the air temperature? Describe the weather conditions.

2. Observe and record any non-living features at your site. Are they human made or natural? Is there evidence of human activity at your site?

3. What conclusions can be made about the water near your site?

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

### **Transect Continued**

Draw a picture of your transect area or read the following essay and write something similar about another common species on Pike Island.

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

### **A Natural History of the Cottonwood-Katherine A. Gleason**

Trees survive despite the weather

Once upon a time, all cottonwood trees stood alone. Two or three slim trunks dotted the same hillside, but they never grew close enough together that they could hear one another. Cottonwoods liked their privacy. They had enjoyed peace for many decades, some say centuries, when Weather, that unpredictable force, altered their lives permanently.

It had been a particularly rainy spring. Leaves thrust out from twigs early, bark glistened, moss grew. Rain spilled down for days, which turned into weeks. The cottonwoods basked in the moisture, soaking, reveling, gulping, filling themselves swollen. They drank until they could drink no more. And the Rain washed them, sluicing through the sky, massaging the ground, tattooing their leaves.

The doddering Sun hoisted herself above the horizon every day, and yet the cottonwoods became unsure of her presence. Without her warmth, without the phototropic draw of leaf toward sky, the cottonwoods lost their sense of direction—which was up and which was down? The shimmering green of their leaves paled to a dingy yellow.

It started as a murmur, a whispering of foliage: Alone. Lost. Gone. And as the grayness persisted, the complaints grew in intensity and in volume. For the first time, the cottonwoods heard the rustle of each other's voices. Alone. Lost. Gone. Despite their distress, the sound buoyed them, engendering strength and the hope of change. All the while, clouds held back the mirth of the Sun. Rain pelted the cottonwoods, soaked their bark, moldered their drooping leaves, until they could stand no more.

"She has abandoned us," they cried. Their voices surged together, a wave that broke through the clouds and reached the very Sun herself.

"I have done no such thing," the Sun replied, and she turned her gaze on the muddy cottonwoods, their limp leaves and water-weakened boughs. The clouds hovering over the cottonwoods boiled into vapor. Mists swirled from the Sun-warmed puddles at their feet. The grayness sprinted from her fierce smile, and she gave chase. Summer bloomed. The Sun grinned down on the complaining trees, ferreted out the last corners of shadow, the last vestiges of mold.

In her brightness, the cottonwoods trembled and fell silent. At first their tremor mimicked the normal shimmer of their re-greening leaves. After some time had passed, some say weeks, others months, and still no cloud had flickered through the sky, the cottonwoods shook at their roots, and their roots shifted in the Rain-loosened soil.

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

The dryness of early summer turned to drought. The cottonwoods shook and shimmered, their once-green leaves enveloped in dust. Browning, their leaves rattled in the scorching wind. Peering from their hillsides, the cottonwoods fixed upon the flowing water of the valley. They shifted toward the gurgling, and, as their roots remained unmoored, they glided, just slightly, downhill. Eager to slake their thirsts, they pressed on, crackling the underbrush, skirting the burning faces of boulders. Cowering from the Sun, they traveled at night and settled on the banks of the River. There they drank, their leaves plumped, and their boughs rounded. Some say at twilight they even frolicked, splashing each other and lolling in the shallows. But soon the River dried to dust, and the Earth began to harden around their roots. Their movements slowed. All play stopped.

The cottonwoods, eyeing the wetness in each others leaves, sensing the humidity of root, the underside of bark, crept into pairs. They sidled closer, and by the end of the dry summer, as the planet moved into an arid fall, the trees touched. At first, twig brushed twig. Then they intertwined. Branches drew each other in and trunks pressed close. They drank of each others' sap. Equally matched in thirst and strength, they neither drained each other nor were they drained. The fluids re-circulated from tree to tree, and because of this movement, the limited waters sufficed. Twining, twisting together, each pair of cottonwoods bonded, forming a single, massive trunk.

Eventually, the Rain returned, the River poured itself the length of its bed, and the Sun, mollified, laughed lightly. The pairs of cottonwoods forgot the quiet height of their hillsides and rooted themselves in their valley homes. Over time, each cottonwood forgot that it had ever lived alone. Now the cottonwoods imagine that they have always been stout, river-dwelling trees. Despite the sweetness of the Sun and the nourishment of the Rain, each pair of cottonwoods clings close, together as one. To this day, they dare not let go. And that is how the cottonwood learned to embrace.

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

### Silent Paddle Reflection

Reflection:



## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

### **Post Paddle Reflection**

Reflection: How did the paddle go for you personally? Do you think you would be interested in doing something similar with your students?

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

### **Taking Students Outside**

Reflection: Do you have any barriers to taking your students outside? How might you overcome them? Are you interested in arranging a field trip to Ft. Snelling during the next school year?

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

### Youth in Action

Reflection: Is there a place and time to incorporate student action projects in your educational setting?

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

### Curriculum Planning Time

Reflection: What was one idea you heard shared that you would like to remember?

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

### Closing

Reflection: Make a commitment to try something new with your students next year based on what you learned the last two days. What will it be?

## Summer Institute for Climate Change Education 2013

Fort Snelling State Park

Notes:

Summer Institute for Climate Change Education 2013  
Fort Snelling State Park

Notes:

Summer Institute for Climate Change Education 2013  
Fort Snelling State Park

Notes:

Summer Institute for Climate Change Education 2013  
Fort Snelling State Park

Notes:

Summer Institute for Climate Change Education 2013  
Fort Snelling State Park

Notes:

Summer Institute for Climate Change Education 2013  
Fort Snelling State Park

Notes:

Summer Institute for Climate Change Education 2013  
Fort Snelling State Park

Notes:

Summer Institute for Climate Change Education 2013  
Fort Snelling State Park

Notes:

Summer Institute for Climate Change Education 2013  
Fort Snelling State Park

Notes:



# Summer Institute for Climate Change Education 2013

Fort Snelling State Park

Notes: