Is That a Career?

Inspiring the Next Generation with Multimedia Conservation Biology Role Models

Jim MaKinster, Hobart and William Smith Colleges

Nancy Trautmann, Cornell University

Crossing Boundaries Project

- Science teacher professional development
- Curriculum development
  - Environmental issues
  - Mexico, Kenya and Brazil
- CB Conservation Scientists
  - Cornell graduate students

CROSSING boundaries

Conservation Scientists

- Susan Cook-Patton
- Taza Schaming
- Anna Savage
- Mike Booth
- Marita Davison
- Nate Senner

Conservation Scientists

Taza Schaming

Will climate change spell the end of the Clark's Nutcracker in the Greater Yellowstone Ecosystem?

Taza Schaming is studying the impacts of climate change and an invasive species on whitebark pine trees and Clark's Nutcracker populations in the Greater Yellowstone Ecosystem. She aims to help design management solutions to protect and restore these key ecological communities.

Susan Cook-Patton

Biodiversity and ecosystem functioning: Understanding interactions of native and exotic species

Susan Cook-Patton studies plant diversity and communities both above and below ground. Her work in central New York State is an important step towards understanding our changing landscape.

Mike Booth

Creative problem solving with technology: Using new tools to study fish movement and behavior

Mike Booth has used technology in creative ways to study how the movement of fish influences the ecology of the

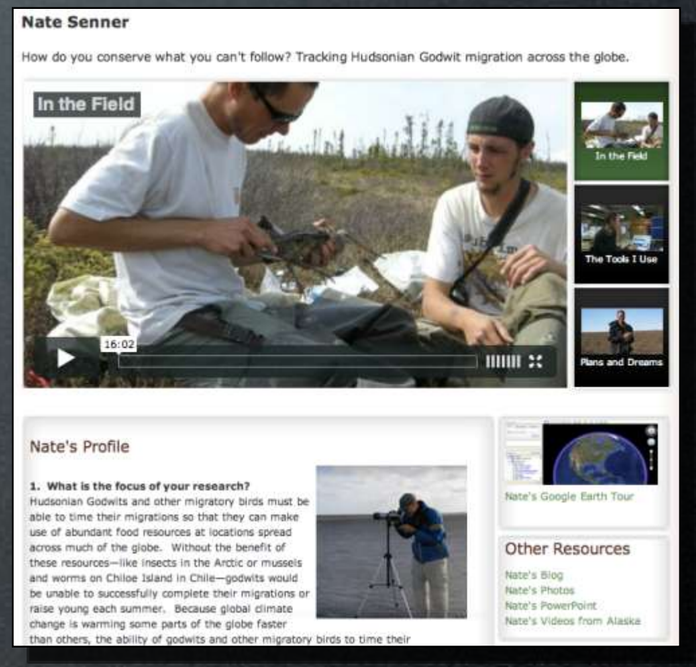
Anna Savage

Hunting for an invisible killer: How do genes determine susceptibility of frogs to a deadly fungus?

Anna Savage is studying the evolution and genetics of declining leopard frog populations in the Southwestern

Conservation Scientist Profile

- Written biographic profile
- Three videos
- Google Earth tour/expedition
- PowerPoint presentation
- Blog about field research
- Supplementary images and resources



Conservation Scientists
Susan Cook-Patton
Taza Schaming
Anna Savage
Mike Booth
Marita Davison
Photos: Marita
GE Tour: Marita
Nate Senner

Marita Davison

Remote and precarious: How do Flamingos affect lake ecology in the Bolivian Andes?


In the Field


The Tools I Use


Plans and Dreams

Marita's Profile

1. What is the focus of your research?
My research explores how human activities affect individual species and the ecosystems in which they live. I am investigating the potential impacts on lakes if flamingos in the Andes mountains of Bolivia were to become extinct. In my experiment, I fence flamingos out of some sections of the lakes and then I measure changes in ecosystem processes (such as primary productivity). These measurements will help me understand what might happen if flamingos became extinct. My goal is to provide a picture of what these lakes might look like


Google Earth Exploration

Marita's Blog
Marita's Photos
Marita's PowerPoint

Driving Questions

- How do Flamingos affect lake ecology in the Bolivian Andes and why does this matter?
- How do you conserve what you can't follow?
- How do genes determine susceptibility of frogs to a deadly fungus?
- How can we invent tools to study fish movement and behavior in the desert Southwest
- Will climate change spell the end of the Clark’s Nutcracker in the Yellowstone Ecosystem?
- How do the interactions of native and exotic plant species compete with one another above and below ground?

Goals: Conservation Scientist Profiles

- Help students see scientists as real people
- Model science as a process of inquiry that is both methodological and personal
- Develop an awareness of and interest in careers that use technology to investigate, address, and communicate about conservation-related issues
- Empower students with the vision that they can become scientists

Goals: Conservation Scientist Profiles

- Help students learn specific scientific concepts that are grounded in field research
- Increase student awareness of their role as global citizens
- Enable students to appreciate the powerful ways in which they can use ICT to analyze resource issues and evaluate management options


PLAY VIDEO

Teacher Perspectives

- “They loved the way the videos were set up where it wasn’t just somebody presenting their information and their research and sitting in a lab and talking about it. They see these scientists as someone that they can really picture themselves as. They’re young and they have these wonderful ideas and they’re out in the field and they’re getting dirty and they’re problem-solving and they’re just rolling with it. When something goes wrong, it shows what they do to solve that problem. So they just really seemed, they were real people for my students, whereas a lot of times, when they read about scientists on other places, they seem so far away from my students’ reality that they can’t make a personal connection with them and the Crossing Boundaries scientists were able to cross that. They were able to make an impact on my students where they had them saying, “What do I have to do to be a researcher like that?” and “I want to study frogs. What would I do in order to achieve that goal?” It was very neat to see them excited like that.” (Teacher Interview - 2012)

Teacher Perspectives

- “My students were thinking ‘Hey, there are places in the world you can go that are not just like my city block. They’re people not much older than me, you know, going out and doing something.’ It got some of the kids really excited. It gave them an opportunity to see something different, like a different opportunity, a different possibility for them.” (Teacher Interview - 2012)
- “So I think to see college-aged students that aren’t that much older than my students, working in the field and being excited about science is really great. They’re very energetic and exciting and they’re really excited about what they do and my students love them. They just think they’re so great and they still talk about it at the end of the year and it’s just something about how they deliver or convey their passion for what they’re doing that it just really grabs the students.” (Teacher Interview - 2011)

Video Statistics

Scientist	Topic	Plays
Anna	Frog genetics in the Southwest	973
Marita	Flamingos in the Bolivian Andes	518
Nate	Godwit global migration	507
Mike	Fish monitoring technology	201
Taza	Clark’s Nutcracker in Wyoming	190
Susan	Plant diversity in New York State	189

Student Objectives

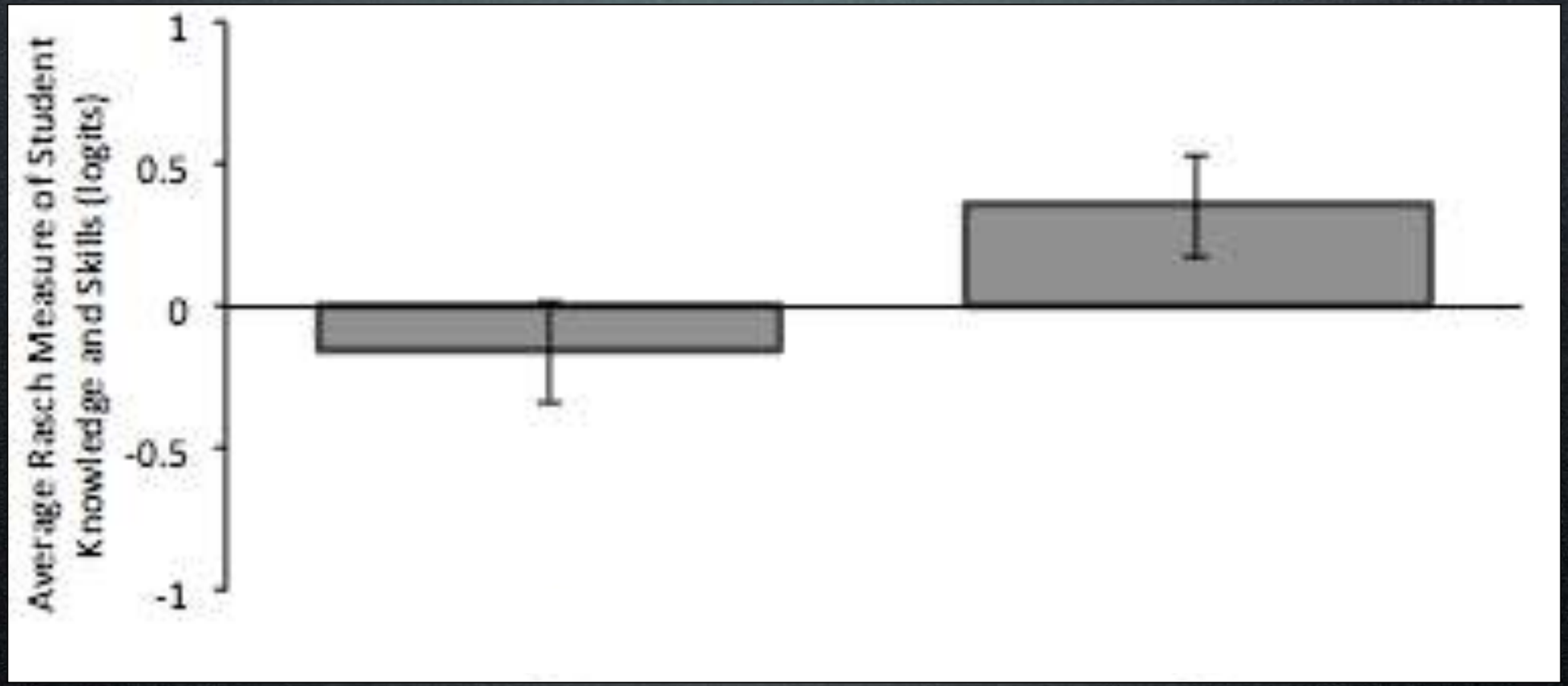


Figure 3. Average logit measures of students' perceived knowledge and skills before and after using the Conservation Scientist profiles. Error bars are 95% confidence limits. N = 164 students. The difference is statistically significant according to a paired t-Test ($p < 0.001$).

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