

Bonanza Creek  
LTER



**Bonanza Creek**  
Long-Term Ecological Research



# **Bonanza Creek LTER Education and Outreach**

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## Long-Term Ecological Research



## K-12 Teachers and Students

- Coordinating a local Science Fair and judging science fair/symposium projects
- Mentoring Students on their Science Fair or High School Symposium projects





## K-12 Teachers and Students

- Mentoring/ Collaborating with Teachers

# Bonanza Creek LTER Ecologist in the Classroom



Andrea Deutsch and Karina Selby,  
North Pole Middle School  
&  
Katie Spellman, BNZ LTER





# GOALS

- Enrich 7<sup>th</sup> grade Life Science and Extended Learning Program curriculum
- Build BNZ and North Pole Middle partnership to produce meaningful ecological data
- Generate student excitement about science careers





# PROFESSIONAL DEVELOPMENT

- ED 595 Invasive Plants of Alaska for Educators
- July 2011
- Instructors:  
Katie Spellman  
Christine Villano  
Christa Mulder



Invasive Plants of Alaska for Educators Course  
at Bonanza Creek LTER's Caribou Poker Creeks  
Research Watershed



# ACTIVITIES

- GLOBE Stream Monitoring



Field titrations to measure dissolved oxygen levels.



Recording temperature and conductivity



Measuring stream turbidity



# ACTIVITIES

- Adapting current LTER research to middle school classrooms

Pollinator interactions  
between invasive and  
native plants

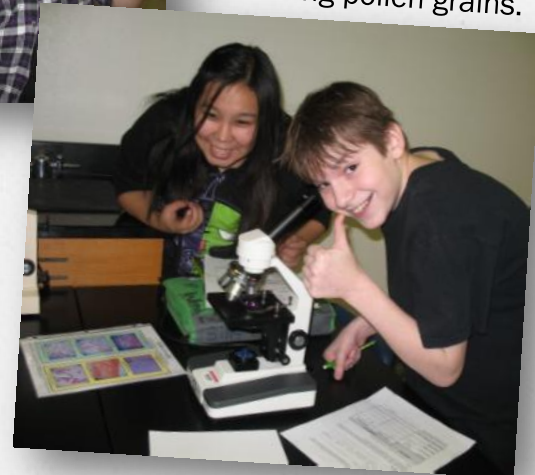


Observing pollinators on native and invasive plants.



Making stigma squashes on slides.

Identifying and counting pollen grains.





# ACTIVITIES

- Adapting current LTER research to middle school classrooms

Stream Invertebrates and  
European Bird Cherry Invasion



Making native and invasive leaf packs to put in stream.



Pulling leaf packs to count stream invertebrates.

# ACTIVITIES

- Planning a field ecology trip to Kachemak Bay to compare interior and coastal ecosystems





# Thank you LTER!





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- Mentoring/ Collaborating with Teachers
- Workshops/Courses for Teachers





## K-12 Teachers and Students

- Workshops/Courses for Teachers

# Invasive Plants of Alaska for Educators

## ◊ Instructors:

Katie Spellman,  
Chris Villano and  
Christa Mulder



- ◊ the ecological and societal impacts of invasive species
- ◊ identification of problematic invasive species of Alaska
- ◊ methods for invasive plant control





Explaining the experimental design of our field sites



Learning how to do vegetation transects at CPRW





Observing *Vaccinium* phenology at one of our CPCRW field sites as a training for our citizen science monitoring project





Attacking the CPRW  
vetch population!



Pulling the vetch infestation  
near the CPRW bridge





The teachers and  
course instructors  
after a successful  
lunchtime CPCRW  
service project



- Acting out the timeline of succession near burned and unburned stands at CPCRW





Counting pollen grains  
on invaded and uninvaded stigmas



Pollinator observations  
in an invaded site





Acting out the timeline of  
succession near burned and  
unburned stands at CPCRW

# Pedagogical training in scientific journaling with primary students





- Observing invasive plant infestation sites on the UAF campus
- 21 educators from Valdez, Fairbanks, North Pole, Takotna, Healy, Homer, Shageluk, Wasilla participated



# Citizen Science Invasive Plants and Pollinators Project



◦ enables educators to incorporate real world data into classroom activities

<http://www.youtube.com/watch?v=6xt-A08H8wM>



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### Other Workshops/Courses for Teachers

#### GLOBE Seasons and Biomes Workshops :

- June 2011 - one week workshop, 3 credits
- March 2011- Voru, Estonia
- October 2011- Baska, Croatia
- November, 2011 Eupen, Belgium

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### Other Workshops/Courses for Teachers

GLOBE Seasons and Biomes Workshops held at professional conferences

- GLOBE Annual Meeting , July 2011
- Alaska Math and Science Conference-  
Oct 2011



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*2-day class and field trip to BNZ LTER  
by Glenn Juday*

### *Ecology and People of the Arctic*

- 10 Mexican undergraduate students
- 10 North Slope Inuit & Interior Athabaskan high school students

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### Osher Lifelong Learning program

- Science of climate change
- Role of humans in ecological change
- Energy and economics
- Predator Prey Relationships



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### Bringing BNZ Research to Faith Based Groups

- One People, One Earth – Faith and Stewardship Conference – Terry Chapin & Katie V. Spellman
- Spellman initiated an ecologist speakers bureau program in Fairbanks
- Juday is Lead Scientist and Trainer for the Catholic Coalition on Climate Change

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### Other Presentations by LTER Scientists

- Local Knowledge for the Study of Sustainability and resilience in indigenous villages



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Science, arts and humanities outreach  
program.

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