

Engaging & Mentoring the Next Generation of Conservation Leaders

Abby Beissinger & Laura Cisneros
CLEAR Webinar
January 30, 2018







Meet the Hosts





Abby Beissinger CAP Coordinator



Laura Cisneros
CTP & TPL Coordinator



Webinar Outline

- 1. Current state of youth in conservation fields
- 2. Overview of NRCA programs
- 3. Best practices for effective youth mentoring
 - a) Procedures
 - b) Communication
 - c) Youth empowerment
 - d) Recruitment
 - e) Additional considerations
- 4. Questions





Current State of Youth in Conservation Fields





CT Land Use & Conservation Decisions Operate at the Local Level





Local Conservation Dependent on Volunteers





8,184
Full-Time and
Part-Time Staff



15,779Board Members



207,646

Other Active Volunteers



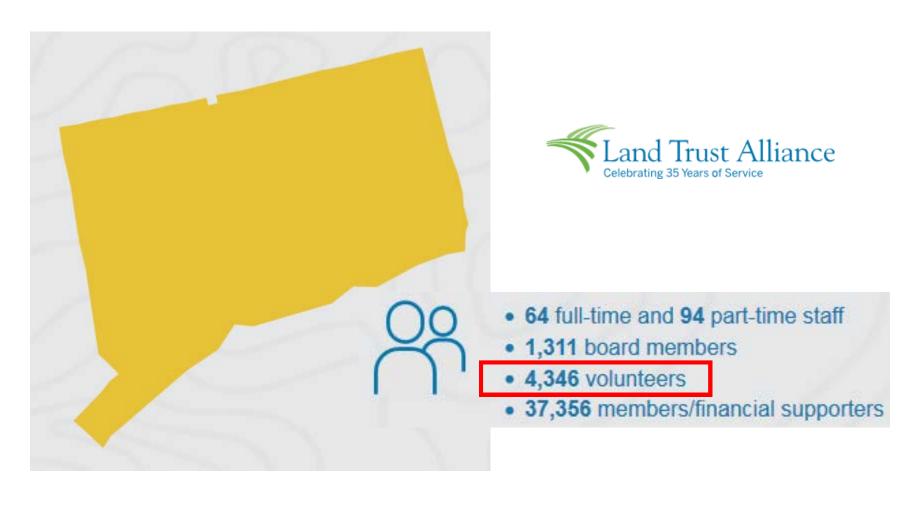
4.6 MILLION

Members & Financial Supporters





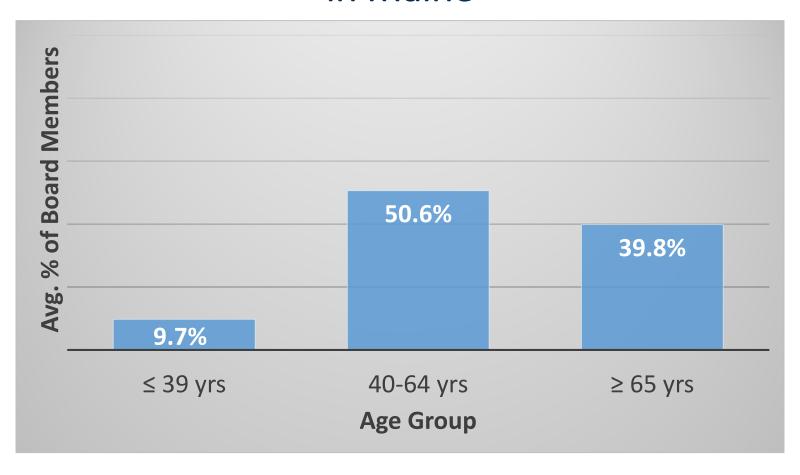
Local Conservation Dependent on Volunteers







Average Age of Land Trust Board Members in Maine

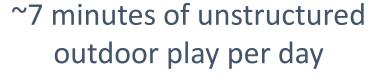




A Disconnect from Nature

Half as much time in outdoors as previous generations





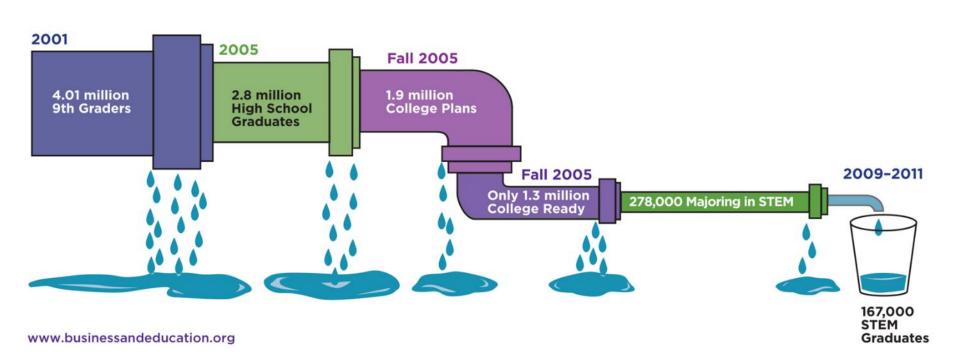


~7.5 hours in front of electronic media per day



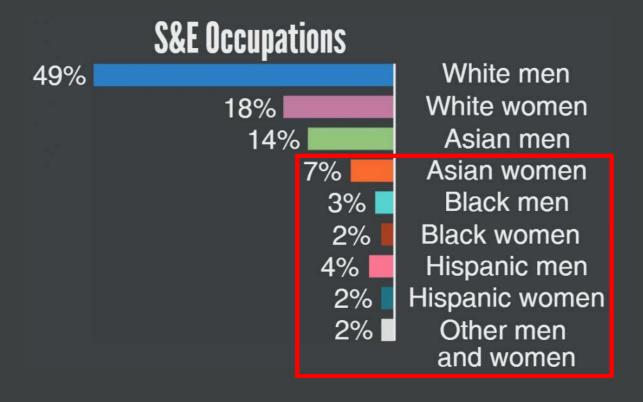


STEM Pipeline – Leaking!





Workers in science and engineering occupations





Source: National Center for Science and Engineering Statistics, National Science Foundation Women, Minorities, and Persons with Disabilities in Science and Engineering: 2017 https://nsf.gov/statistics/wmpd/



Overview of NRCA Programs







Engage teens, adults and teachers in natural resource science and service-learning efforts

Participants execute a conservation project or curriculum in their own towns throughout CT

http://nrca.uconn.edu





or Teens

For Teens & Adults

For Middle & High School Teachers

About NRCA -

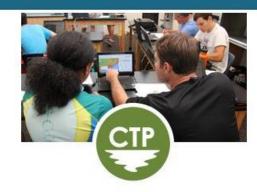
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Contact

Environmental Programs for Teens, Adults & Teachers



Teens

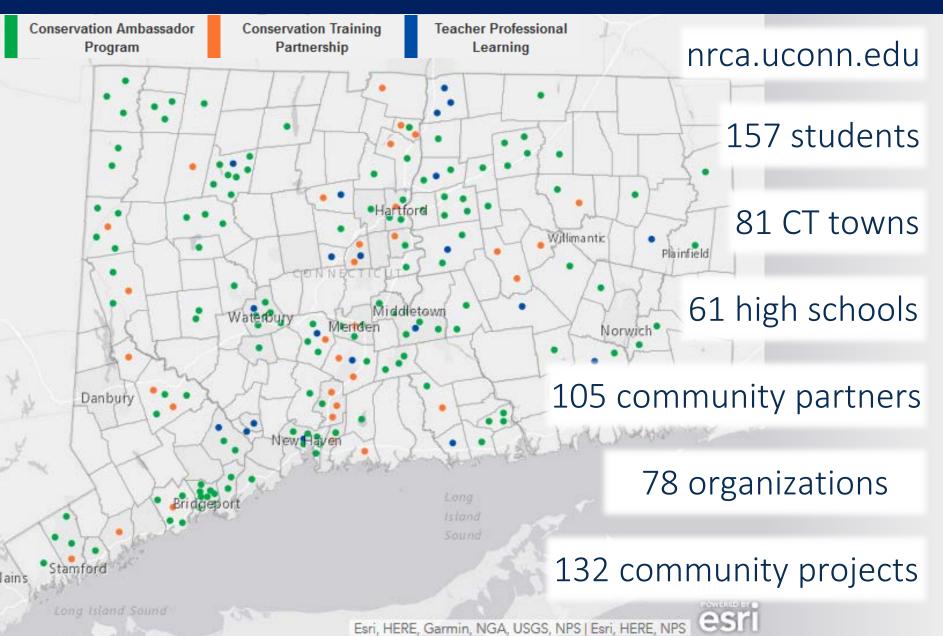


Teens & Adults



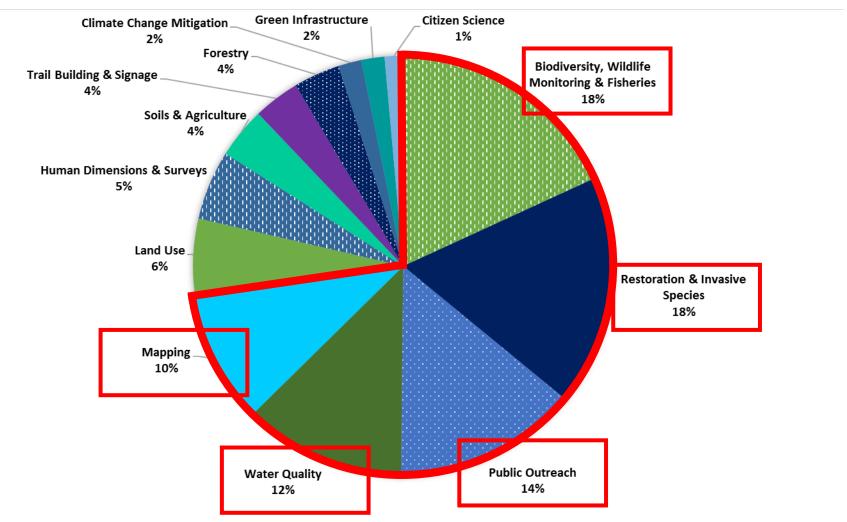
Teachers







NRCA Projects 2012-2018







What kinds of projects would benefit your organization?



A

For Teens

For Teens & Adults

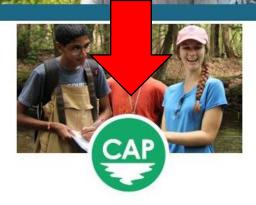
For Middle & High School Teachers

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Environmental Programs for Teens, Adults & Teachers



Conservation Ambassador Program

For Teens

10-month program for high school students (grade 9-11) interested in the environment or science. The program includes a one-week field experience at UConn and an individual community conservation project.

LEARN MORE



Conservation Training Partnerships

For Teens & Adults

2-day workshop for high school students and adults that introduces online mapping technology that can be used to address local conservation issues. Teen and adult partnerships will be formed to carry out a local conservation project.

LEARN MORE



Teacher Professional Learning

For Middle & High School Teachers

3-day professional development workshop for secondary school teachers who teach in the Earth Sciences (via integrated or stand-alone courses), which will immerse participants in relevant local and regional water resource issues and online mapping tools to study these issues further. The workshop will offer curricular and technological resources underpinning particular NGSS Earth and Space Science Performance Expectations.

LEARN MORE



Conservation Ambassador Program

- One-week Field Experience at UConn
- > 7-10 month Conservation Project
- > 9 to 11th grade students may apply









http://nrca.uconn.edu/students/











2018 Program

- > Field Experience: July 15-21, 2018
- > Conference & Graduation: March, 2019







A

For Teens

For Teens & Adults

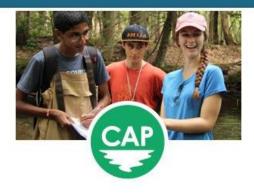
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Conservation Training Partnerships

- > Team of teen & adult participate together
- 2-day Conservation & Geospatial technology workshop



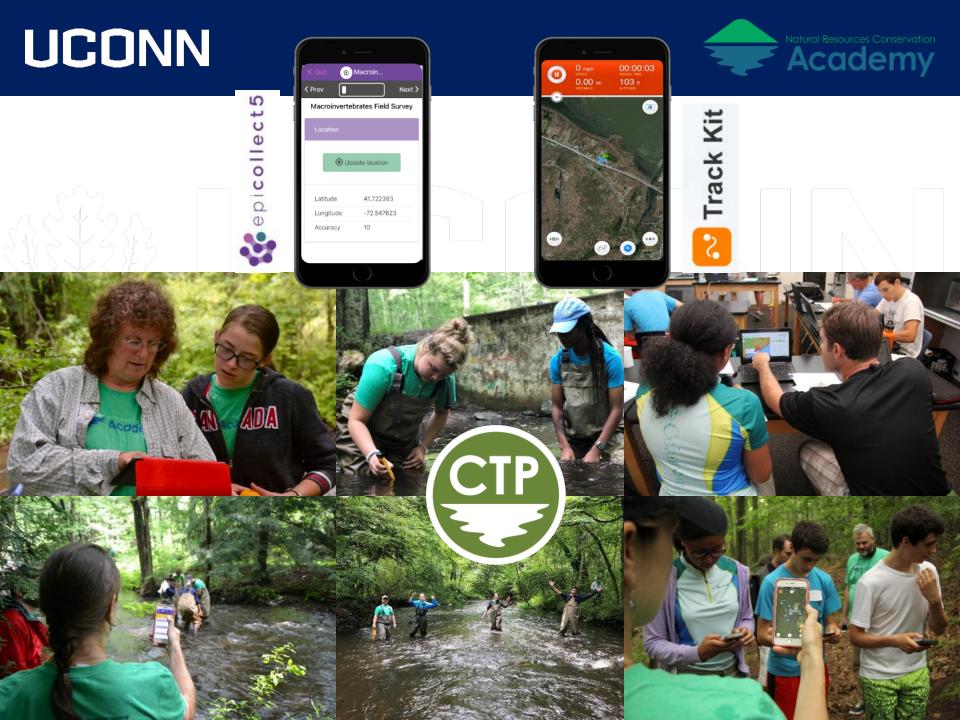
Conservation Project (any intensity or duration)







http://nrca.uconn.edu/students-adults/





2018 Program

- > 8th to 11th grade students & adult conservation volunteers may apply
- 2018 Workshops:
 - Kent, CT: April 28-29
 - Groton, CT: June 2-3
 - Hartford, CT: June 21-22
 - New Fairfield, CT: June 25-26
- > Conference: March, 2019







A

For Teens

For Teens & Adults

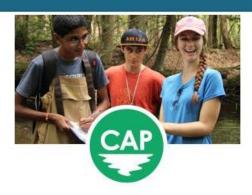
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LEARN MORE



Teacher Professional Learning

- 3-day Workshop at UConn
- Technology to study regional & local water resource issues



NGSS-aligned Water & Sustainability Curriculum







2018 Program

- Secondary science teachers may apply
- > August 13-15, 2018







Best Practices for Effective Youth Mentoring







What are your reservations working with youth?





What makes you excited about working with youth?



Average Day of a Teenager

Wake up ~5:30 am Sports Internship

School begins ~7:00 am Debate team Have fun

Eat? Part-time job Sleep?

Homework College applications

Midterms SAT/ACT test prep





Procedures





Beginning

- ☐ Get to know student's interest & share yours
 - Develop project of interest to student & beneficial to org.
 & community
 - Interested → sustained motivation → project completion
 - Real impacts → empowers student
 - Lead to diverse conservation solutions!





Beginning

- ☐ Get to know student's interest & share yours
- ☐ Get to know student's availability
 - School hours & peaks in assignment deadlines/exams
 - Sports, theater, other extracurricular activities
 - Family commitments
 - Avoid discouraging if there is limited time; be flexible & scale project accordingly

Remember: an impactful project can be done in short time



Beginning

- ☐ Get to know student's interest & share yours
- ☐ Get to know student's availability
- ☐ Clear expectations & realistic goals
 - Time commitment? <
 - What <u>can or needs</u> to be accomplished? ←
 - Responsibilities?
 - Establish regular check-ins

Remember: may be student's first independent project



Beginning

- ☐ Get to know student's interest & share yours
- ☐ Get to know student's availability
- ☐ Clear expectations & realistic goals
 - Avoid:
- Research wildlife survey protocols by next week
- survey 50 sites for wildlife
 3x a week
 - Vegetation assessment at 50 sites
- ID vegetation samples by next week
- Research restoration protocol by next week
- Put on restoration outreach event
- Make an interactive map of results found at each site
- Make a website to accompany map
- Research how to make ESRI story maps for website



Beginning

- ☐ Get to know student's interest & share yours
- ☐ Get to know student's availability
- ☐ Clear expectations & realistic goals
- Outline multiple components of project
 - Manageable units
 - Can always ditch aspect of project



Beginning

Project Plan & Timeline

	Tentative Project Timeline					
Motiva	Project Task	Description	Resources Needed	Date to Accomplish Task		
Object or the						
List W						
-						



Middle

- ☐ Carry out project
- □ Regular check-ins (note: CC parents)
 - In-person
 - Email
 - Call or Text
 - Web conferences or Skype
- □ Reassess progress & modify as needed
 - Taking longer than expected? No problem! Scale back!



LEGACY!!!!

End

epicollect5

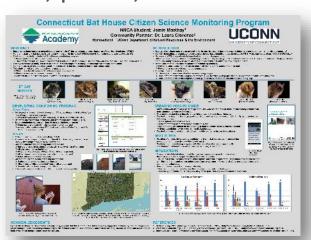
- Data storage and/or document project
 - Legacy binder!

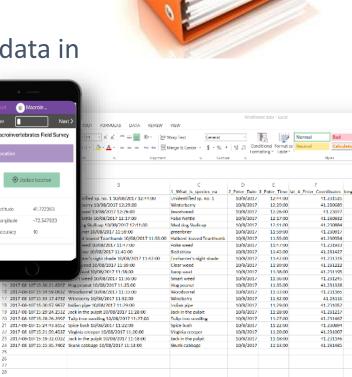
Data spreadsheet (Epicollect exports data in

excel spreadsheet)

iNaturalist, eBird, etc.

Report, poster, videos





Connecticut Bat House Citizen Science Monitoring Program

INTRODUCTION

· The objectives of this study are to:



NRCA Student: Jamie Masthay1

Community Partner: Dr. Laura Cisneros² 1Homeschool; 2UConn Department of Natural Resources & the Environment



ABSTRACT

- Bats provide important pest control but are declining in CT due to a fungal disease known as White-Nose Syndrome (WNS).²
- . Monitoring bats and bat houses is particularly important in the face of WNS to record bat numbers and species types in CT.
- · First part of the study included a CT bat house monitoring program: . Visited and studied 46 houses throughout CT.
- *Those with bats (all Big Brown) had common features (all dark in color, all near known water source, etc. see Results for details).
- Findings from above study and from scientific literature helped to create guide on proper bat house installation.
- · Monitoring program and guide assisted in the creation of bat house monitoring citizen science app.
- · This study aimed to answer the following questions:
- ❖ What characteristics make CT bat houses most successful?
- * What species use bat houses the most in CT?
- . How can the public become more involved in CT bat conservation?

CT BAT **SPECIES**







Little Brown Bat* (Myotis Jurifurus)



Northern Long-Eared Bat (Myotis septentrionalis)



Indiana Bat* (Myotis sodalis)



. Because of WNS, it is particularly important to monitor bat populations.

· Bat houses contribute to conservation and monitoring efforts by:

· Develop a citizen science bat house monitoring program;

· Providing an easy way to monitor bat populations.

their uncertainty as to how to do so, an easy and accessible bat citizen science program is vital.

. Providing safe spaces for mothers to raise their young during summer months; and

Silver-Haired Bat* II asignyctoris noctivagans



Use information from the program to create a guide instructing on proper bat house construction and installation; and

. Bats are vitally important to pest control in North America, saving the corn-growing industry alone more than 1 billion dollars annually.1

Yet, CT hibernating bat populations (see species below) have significantly declined due to WNS, with some populations <10% pre-WNS size.²

- Citizen science has contributed to monitoring efforts of many taxa (e.g. birds)3, but few exist for bats. Given public interest in helping bats but

Hoary Bat* If asignus cinerous



Eastern Red Bat* (Lasiurus borealis)

Fig 6. Mock-up of



Tri-Colored Bat* (Perimyotis subflavus)

DEVELOPING MONITORING PROGRAM Steps Taken

- · Developed bat house network throughout CT by creating and distributing flyer describing citizen science project.
- Surveyed network of bat houses from August 13 to September 20, 2016. Recorded environmental, structural, and bat data for each house (Fig. 1).
- Began monitoring houses with bats 30 minutes before sunset to:
- . Count number of bats living in house as they exited; and
- Acoustically monitor using Wildlife Acoustics Echo Meter Touch and iPad to determine species (Fig. 2).

Results

- · 46 bat houses in original network (Figs. 3 & 4).
- 4 houses were occupied by bats (Fig. 3)—all Big Browns (Eptesicus fuscus).
- · Colony sizes ranged from 12 to 47 individuals.
- · Common characteristics among houses with bats:
- Habitat: all were in developed areas, with clear evidence of humans;
- All were mounted on buildings;
- Height: all were located at least 12 feet above the ground;
- All had known water sources nearby (within ¼ mile); and
- Color: all were painted a dark color.
- · Characteristics that did not affect bat inhabitants:
- Noise pollution: varied based on location;
- · Size: houses with bats ranged from small to large; and
- Number of chambers: ranged from 1 to 4. · Presence/absence of bats potentially influenced by survey dates.







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Fig 1. Example of the two pages of the survey form used to

Fig 2. The above photos show the process of acoustically monitoring an inhabited bat house.

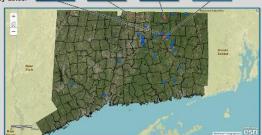


Fig 3. Locations of the 46 bat houses throughout CT that were included in this study. Blue dots indicate uninhabited houses: red dots indicate inhabited houses where additional monitoring took place. Pictures of each inhabited bat house are shown.

CREATING HOW-TO GUIDE

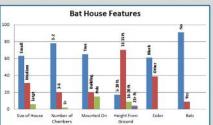
- · Surveys showed that a large percentage of houses were constructed or installed incorrectly (installed on trees, painted light color; see Fig. 4).
- · Most people do not know that there is a right or wrong way to install houses.
- · Created guide detailing how to properly construct and install a bat house in CT (Fig. 5) that includes the following information:
- Descriptions of CT bat species;
- . List of threats to bats, with special focus on WNS:
- . Materials and procedure for constructing a three-chamber 'nursery' bat house; and
- . Steps describing how to properly install a bat house.
- . Created bat house based on instructions in guide to provide instructional photos.

NEXT STEPS

- · Creation of citizen science app to continue monitoring bat houses, using monitoring
- procedure from this project and the how-to guide. · Continuation of monitoring program with the help of newly-created app (Fig. 6).
- · Installation of bat house I created in an East Windsor, CT location.

IMPLICATIONS

- · Given the short distribution time of the flyer, many people responded, indicating that a large number of people are interested in helping bats.
- . Though it is difficult to monitor bats, this program will make it easier for a larger number of people to help with bat monitoring and conservation via an easy-to-use app, informational guide, and portable acoustic monitoring technology.
- · How-to guide will assist with conservation by:
- . Instructing how to create houses that bats are more likely to inhabit; and
- Informing the public on CT bats, how they are helpful, and why conservation is necessary.



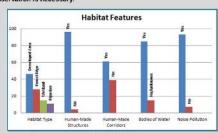


Fig 4. The above graphs show the percentage of the 46 bat houses with particular structural and habitat features.

ACKNOWLEDGEMENTS

I would like to thank Dr. Cisneros for not only being a wonderful NRCA coordinator, but also a very supportive community partner; my parents for providing support and transportation help as we monitored bat houses across CT; and Melissa Maltese, Director of Parks and Recreation in East Windsor, for being supportive of this project.

REFERENCES

- 1. BatRescue.org. 2017. Amazing Bat Facts. [Accessed Feb. 6, 2017]. http://www.batrescue.org/batfacts/batfacts.html
- 2. WhiteNoseSyndrome.org. 2017. Frequently Asked Questions. [Accessed Feb. 9, 2017]. https://www.whitenosesyndrome.org/faqs
- 3. Bonney, R. et al. (2009) Citizen Science: A Developing Tool for Expanding Science Knowledge and Scientific Literacy. BioScience 59, 977-984.



Laura Cisneros for a full copy

(laura.cisneros@uconn.edu)



End

- □ Data storage and/or document project
- ☐ Showcase work
 - Community event
 - Present at organization meeting (e.g. town hall, land trust meeting)
 - Regional conference





Connecticut Conference on Natural Resources







Connecticut Land Conservation Conference

Wesleyan University, Middletown, CT March 17, 2018







Communication





Communication

- □ Agreed upon communication routine
 - Include parents
- Meet students halfway
 - Email
- Facebook

- Text
- Skype
- Phone
- Google Hangouts

- ☐ Multiple support networks
 - Parents
 - Teachers
 - Others?















Communication

Respectful

- Instead of
 - You need to Would you be able to? Could you please? I'd really appreciate if you...
 - Why haven't you.... I'm wondering when? Could you update me? Could we please set up a meeting to check-in?
 - What's wrong with you... Just checking in to see how things are progressing... hope everything's going okay.

Remember: these are volunteers





Communication

Understanding

- School will take priority
 - Students usually can't meet until after school
- > May be their second or third extracurricular
 - Era of over committed teens



Communication

Positive

- Might need gentle reminders, friendly pushes, and encouragement
 - You've done a really great job on your project so far! Let's finish strong.
 - I know this is a very busy time for you. Is there anything I can do to help make things easier?
 - We were very ambitious with your project. Let's work together to figure out how to make things more manageable!



Youth Empowerment





Youth Empowerment

- > Ideally, mentoring students can help youth
 - Develop leadership skills
 - Feel accomplished & empowered







Youth Empowerment

Ownership Give them a Listen of the choice project Relationship Give them a with the youth Collaborate and not their voice guardians Provide them Venue for Be positive with other creativity opportunities



Youth Empowerment











Recruitment





Recruitment

- High schools
 - Teachers
 - Career centers
 - Guidance councilors
- Local non-profits
- Town libraries
- Town Facebook groups
- Girl/Boy Scout troops
- Museums

- Mentor organizations
 - United Way
 - Boys & Girls Club
 - YMCA
- Descriptive flyers to distribute
- Require a short application







Other Considerations





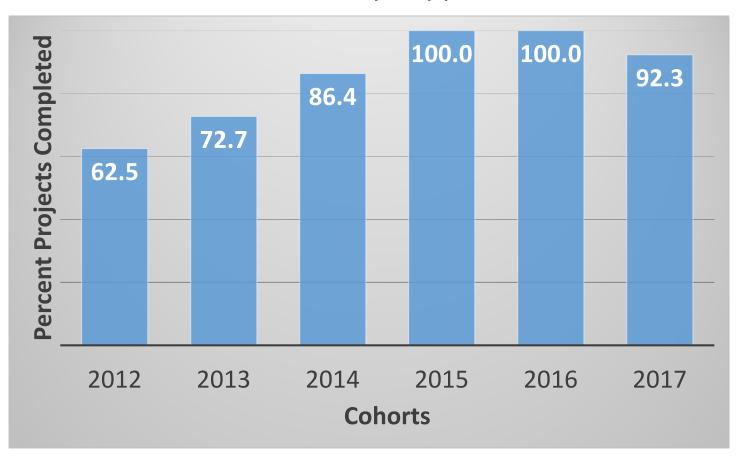
Other Considerations

- □ Adult to student ratios
 - Age of youth
 - Public locations vs. remote/isolated locations
- □ Transportation
 - Permission
 - Number of students
- □ Waivers
 - Field work-related (e.g. operating equipment, boating, swimming, etc.)
 - Photos
- Background screening



Percentage of NRCA Projects Successfully Completed

Project completion \(\ \) with clearer expectations \(\ \ \) refinement of mentorship support





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Email: nrca@uconn.edu

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Location	Field Exp. Date	App. Due Date
UConn Storrs	Jul 15-21	Apr 1

Location	Workshop Date	App. Due Date		
UConn Storrs	Aug 13-15	May 1		

Location	Workshop Date	App. Due Date	
Kent	Apr 28-29	Mar 17	
Groton	Jun 2-3	Apr 21	
Hartford	Jun 21-22	May 10	
New Fairfield	Jun 25-26	May 14	



Thank You For Joining Us!







Thank You To NRCA Mentors #NationalMentorMonth

