Future Ecologists Program

Ecologists throughout the world are working to study the environment. Through their work, we learn about everything from the small to the big, simple to complex. New York is not only a melting pot of cultures and ideas, but it is ecologically varied and its parks are a source of continual interest to ecologists around the world. As we seek to learn more about how our ecosystem functions, the unique ecology of New York City is important to our understanding of the world around us.

You have taken your first steps into this world through the Ranger Conservation Corps (RCC) program. As a member of this environmental community, you have had an introduction to the vast and complicated ecology of New York City parks. Your efforts have cleaned up trails, restored natural areas and educated the public about environmental issues in the parks. You have helped to support local wildlife and gone on natural expeditions throughout New York City.

Here is an opportunity to venture into nature on your own! By participating in the Future Ecologists Program (FEP), you are encouraged to further their investigation by choosing a topic to study on an individual basis, conducting field research and presenting the results in a scholarly paper.

In RCC, you've learned about various issues, the Future Ecologists Program is an opportunity to investigate what interested you the most, building on the investigative skills learned in RCC. The Rangers will be there to act as mentors, providing guidance, suggestions, and supplies.

Everyone will get the opportunity to present their work at the Annual RCC meeting.

An important part of ecologists' work is to share their results and exchange ideas. At the end of the Spring RCC semester, there will be a conference for all RCC students to meet and share the work they have done, both as groups and individually. Every participant in the Future Ecologist Program will have the opportunity to present his/her paper and share his/her work. One research paper from each grade level (7-12) will be chosen for inclusion in a publication and special recognition at this ceremony. All entrants in the Future Ecologists Program will have their names and project titles listed in this publication as well.

Getting started!

The first step in your research project is choosing a topic. Your investigation might be based from your group RCC experiences or other park experiences. If you know of a place you would like to study, but don't have a topic, visit the area to get ideas. By visiting the area, you can notice the wildlife, animal behaviors, human use, etc. Then, choosing a topic is as easy as thinking of a question. For example: Why is the lake so green? What do birds eat in the winter? What are the differences in animal life in a native plant environment and an environment populated with non-native invasive plants? Your question may have come from something you noticed, like erosion from a construction site affecting a nearby pond, or a bird you never saw before suddenly taking over a feeder. Whatever the question is, it should be something that you are interested in investigating. Don't worry about making it new to the scientific community; just find a topic that is new and interesting to you. Formulating a question is important: you'll need it to develop your hypothesis and help focus your work.

Planning your Project

Formulate a hypothesis

Your investigation needs to have a narrow, well-defined focus. Your hypothesis is a concise way to describe the situation you're studying and explain what you think is the cause. This is a very important step in the investigation process: a well-developed hypothesis will guide your research and help you draw good conclusions. Start with your question and try to develop what you think the answer might be. For example, your question might be: Why are the fish in this lake so undersized? Your hypothesis may be: The fish in this lake are undersized due to overpopulation.

Determining your methods of investigation

Once you've decided on a topic and developed a hypothesis, you need to figure out what methods of investigation will work best. These methods will be determined by what you are studying and the site you are using. Let's refer back to the example hypothesis: methods for investigating overpopulation could include fishing, seining, setting fish traps, or possibly tagging fish. Be sure to use sound, scientific investigation techniques that are appropriate for your site and safe for the environment. If you are not sure how to collect the information you want, the Rangers can help you. Your cooperating Ranger can help you find appropriate investigation methods, help you secure the necessary materials and point you in the right direction.

Keeping Records

Building upon the skills you've learned in RCC, you know keeping a field journal in important in studying nature. It's a great place to keep track of your progress, your findings and questions that arise. It will also be of great help in compiling your final paper, providing detailed records of your processes, approaches and conclusions. In addition to keeping notes and observations, you can use your journal for drawing and storing photographs of your research, which should also be included in the final paper. Techniques for record-keeping vary, experiment and learn what works best for you. Basic field journal equipment and advice is available at any Nature Center.

Additional Research

All your questions may not be answerable through observation alone. Research involving outside sources, such as libraries or the Internet is an important part of any investigation. Nature Centers are a great place to start and the Rangers can help you find more information. Rangers can also help connect you with experts in the field. As you conduct research, keep careful records about the sources you use, see the bibliographic guide included in this packet.

Compile the paper

At this point, you've collected information through observation, field studies and research. It's time to draw conclusions and see how your research corresponds to your hypothesis. Did your findings support your original hypothesis? If so, explain how. Did you find different information than you expected? This happens often, so write a paper drawing conclusions on your work and how you could investigate this in the future. Maybe your findings were inconclusive? That's okay, too. You can write a paper describing the work you accomplished and then discuss what further research might lead to a strong conclusion.

Presenting your information

In writing your paper, don't just present your findings. Take the reader along the path of your research. Describe how you chose your topic, how you formed a hypothesis, how you conducted your investigation and how you formed your conclusions.

Rules and Regulations

Please read the following rules and regulations before beginning your investigation. By following the rules, you make sure that your project will not be disqualified. Please consult a Ranger if you have any questions regarding the eligibility of your project.

Eligibility

1. You must be a student in grades seven through twelve and are currently enrolled in school.
2. You must have participated in the Ranger Conservation Corp (RCC) within the last year.

Entry rules

1. Each student can submit only one entry
2. The essay must be the work of one student. Group essays are ineligible. However, projects can be based on a previous group project, like an RCC restoration as long as the student expands the project by conducting his/her own research and formulating a new hypothesis to study.
3. Essay lengths must fall within the following limits:

Grades 7-8	500-700
Grades 9-10	750-2,500 words
Grades 11-12	1,000-3,000 words

4. The final paper can be no more than 20 pages. The format should be double-spaced in a legible 12-point font, like Times New Roman or Arial.
5. Each essay must be accompanied by the FEA entry form. The first part is filled out by the student; the second part is filled out by the parent, teacher or mentor.
6. Photograph of student, such as passport photo or school picture.
7. Entries for the 2007 Future Ecologist Awards must be received by the Urban Park Rangers no later than Monday, April 30th, 2007. Please submit the entries as early as possible to avoid missing the deadline. Entries may be submitted at any Urban Park Ranger Nature Center. The papers, plus all entry paperwork, must be submitted together; late or incomplete entries will be disqualified.

Awards

Entries will be judged according to the guidelines included in this packet. The highest scoring essay from each grade level will be included in a publication and recognized at a ceremony at the end of the Spring RCC semester. Winner will also receive prizes related to environmental studies or activities. All participants in the Future Ecologists Program will have the opportunity to present their research at this RCC conference.

In addition, one graduating senior will be named the RCC Distinguished Scholar. This annual scholarship award of $1,000 will be given to a dedicated RCC student, based on their service in the program and their individual research project. Further details on this award are included in this packet.

Judgment Criteria

Each grade level will be judged separately based on the following categories:

Field Study and Research – 70 Points Total

Hypothesis and topic: 10 points.

How unique and interesting is the topic?

Investigation and Research: 25 points.

How well did you follow the Scientific Method? Did you use good methods of data collection? What outside sources did you use and how did you integrate this information with your field study?

Interpretation and Conclusion: 25 points.

Explain how you drew your conclusions. How did they relate to your original hypothesis? Did your findings support your theory? If not, why do you think that happened? Can you form a new hypothesis based on what you did find? If your findings were inconclusive, why do you think they didn't give you enough information? What further studies might help you reach a conclusion?

Documenting your Sources: 10 points.

Did you keep careful records of your field investigation? Do you have sources for your information? Use a variety of resources, not just the Internet or encyclopedias. Rangers and librarians can help by suggesting other books and magazine to consult.

Writing the Paper – 30 Points Total

Writing Style: 10 points.

Keep your essay interesting: don't just give an account of what you did. Describe how you discovered your information, what were your reactions, your feelings? Write your paper in first-person, this paper should present they way your accomplished your research, not just your findings. The tone does not have to be formal, try writing in your personal voice; it makes the research more interesting to your reader.

Structure: 10 points.

Spelling and grammar are important; they make sure your meaning gets across. Use a dictionary, thesaurus and other writing tools to help vary your language and sentence composition. Varying language helps keep the paper interesting and informative. Don't start each sentence or each paragraph the same way – be creative!

Visual Aids: 10 points.

Your research can be improved through the use of visual aids. Not only do they help you in the field and when developing your conclusion, they can help you explain your work to the reader. It is important, though, all drawings and photographs must be your original work. If you find an illustration in another source, you must draw it yourself and then cite where you found the original drawing in parenthesis and in your bibliography.

Frequently Asked Questions

1. Do I have to conduct my investigation in the same park as my RCC program?
   No, you can conduct your investigation in any New York City park. Ask your cooperating Ranger for information on other parks. The Ranger can also put you in contact with resources in that area.
2. By entering the RCC Distinguished Scholar program, am I still eligible for the Future Ecologists Award?
   Yes, but you cannot win both.
3. My project requires me to compare data from a New York City park with a park outside of the city. Do both parks need to be part of New York City Parks Department?
   No. As long as part of your research paper is based in a New York City park, your work will qualify.
4. Where can I get the supplies I need for my project?
   The Rangers have some supplies that you can borrow. If you need something not available through us, we can refer to another environmental agency that might be able to help you. Please talk to your cooperating Ranger early to make sure that he/she can help you find the equipment you need!
5. Is there a minimum amount of time I need to spend conducting field research?
   No. Every project requires different levels of field research, but this project does need to be based on field studies.
6. What happens if my research is not complete by April 30th due to the nature of my project?
   No big deal, keep working on the project and participating in RCC and you will be eligible to submit your results next year! It is more important to conduct your project thoroughly than rush the results to make this year's deadline.
7. What needs to be turned in by April 30th?
   Everything needs to be turned in: your final research paper, the entry form, including your photograph and information from your cooperating Ranger. Please talk to your Ranger in advance so that they can prepare! See the entry form for the list of required documents.

RCC Distinguished Scholar

What it is: A scholarship competition for all RCC members in a graduating senior class. A $1,000 award will be given to the winning student to use in furthering his or her education. Students will submit the Future Ecologists Paper and accompanying forms. The winner will be chosen through a combination of their research paper and their dedication and involvement with the RCC program.

Eligibility: Students must be a member of the graduating senior class who have participated in RCC during the past year and have submitted the required documents:

- ❑ Future Ecologists Program research paper and FEA entry packet.
- ❑ RCC Distinguished Scholar Application.
- ❑ Ranger Nomination Form.

How will it be judged: 30% Ranger Nomination Form
30% Distinguished Scholar Application
40% Future Ecologists Program Paper

Future Ecologists Program Entry Form

Please type or print neatly using black ink

Part I (to be completed by the student)

Grade 7 8 9 10 11 12

First Name_____Last Name_____Age_____

Home Address_____

City_____State_____Zip_____

Phone Number with Area Code_____E-mail Address_____

Essay Title_____Number of Pages_____

By signing this entry form, I certify that I have read, understood and complied with the rules and regulations of this competition and that I meet all the eligibility requirements. I certify that the essay is my own work.

Student Signature: _____Date:_____

Part II (to be completed by the Cooperating Ranger)

RCC Program:_____

This student has participated in _____ Semester(s) of RCC.

Please list RCC topics covered in these Semester(s):

To what extent did the student work independently on this project?

I certify that, to the best of my knowledge, the investigation and the essay are the result of the student's original work and that all application materials have been submitted in this packet.

Ranger Signature:_____Date:_____

RCC Distinguished Scholar Application

Part I (to be completed by the student)

Name:_____ Age:_____

Home Address:_____

City:_____ State:_____ Zip Code:_____

Phone Number:_____ E-mail:_____

School Name:_____ Graduation Date:_____

Essay Title:_____Number of Pages:_____

Cooperating Ranger:_____

Semesters Participated in RCC:_____

Topics Covered in RCC:_____

_____

_____

Please answer the following questions on a separate sheet of paper.

1. What was your favorite part of the RCC program?
2. What was the most valuable skill you learned in the RCC program?
3. How do you plan to use this experience in the future?

By signing this entry form, I certify that I have read, understood and complied with the rules and regulations of this competition and that I meet all the eligibility requirements. I certify that the FEP Research Paper and the essays for this application are my own work.

Student Signature:_____ Date:_____

RCC Distinguished Scholar Application

Part II (to be completed by the Cooperating Ranger)

Name:_____ Park:_____

How many RCC has this student completed?_____

How was his/her attendance? poor fair good excellent

What was his/her level of participation? poor fair good excellent

Please write a short evaluation of this student's participation in the RCC program and a general recommendation for this student's entry in the RCC Distinguished Scholar competition.

Ranger Signature:_____ Date:_____

Bibliographic Guide

Any information you use from an outside source needs to be properly cited, including quotation marks for any direct quotes. For example, if you want to use an opinion from a book by Robert Marshall, you could write in your paper, "According to Marshall, an excess of nutrients in a body of water can lead to an algae bloom." (Marshall, 1998) This book by Marshall would then be listed in your bibliography.

The bibliography should be the last page of your research paper. The entries should be listed in alphabetical order, by the author's last name or the first word in the entry. If the entry is longer than one line, the second line should be indented (see examples below). Each entry should be ended with a period.

For a book with one author:
Last name, first name. Title of the book. City published: Name of publisher, year published.
For example:
Welty, Eudora. One Writer's Beginnings. Cambridge: Harvard University Press, 1984.

For a book with two or more authors:
Last name, first name and additional author names. Title of book. City published: Publisher, year.
For example:
Leghorn, Lisa, and Katherine Parker. Woman's Worth. Boston: Routledge Press, 1981.

For a book with an editor:
Last name, first name, ed. Title of the book. City published: Name of publisher, year published.
For example:
Valdez, Luis and Stan Steiner, eds. Aztlan, An Anthology of Mexican American Literature. New York: Knopf, 1972.

Signed article in a reference book:
Last name, first name (of author of the article). "Title of the article." Title of the reference book. Ed. Editor of the reference book. Number of total volumes. City published: Publisher, year published.
For example:
Holt, Robert R. "Freud, Sigmund." International Encyclopedia of the Social Sciences. Ed. David L. Sills. 18 vols. New York: Macmillan, 1968.

Unsigned article in a reference book:
"Title of Article." Name of reference book. Year published, ed.
For example:
"Ireland." Encyclopedia Britannica. 1974, ed.

Newspaper Article:
Last name, first name. "Title of the article." Name of the newspaper. Date month year: Section and page.
For example:
Dullea, Georgia. "Literary Folk Look for Solid Comfort." New York Times. 16 Apr. 1986: C14.

Magazine Article:
Last name, first name. "Title of the Article." Name of the Magazine. Month year: page numbers.
For example:
Roosevelt, Anna. "Lost Civilizations of the Lower Amazon." Natural History. Feb. 1989: 74-83.

Website Article:
Last name, first name (of author, if available), *Title of the Web Page*. Web Site. Retrieved from the World Wide Web on date Month year. Web site address.
Jenner, Elizabeth. *Dynamics of the Salt Marsh*. Department of Natural Resources. Retrieved from the World Wide Web on 21 May 2003. http://water.dnr.state.sc.us/marine/pub/seascience/dynamic.html.

For other types of sources not listed here, consult a writer's stylebook or textbook on bibliographic styles.