EDNA BAILEY SUSSMAN FUND

Applicant's name: Thomas Mann

Date: January 27, 2020

Address: 1211 Madison St
Syracuse, NY 13210

Graduate program and degree sought: Forest Resources Management, M.S.

Telephone number: (502) 410-9245

Faculty Sponsor: Dr. Ruth D. Yanai

Email: thmann@esf.edu

Internship organization and address:
US Forest Service Northern Research Station
271 Mast Road
Durham, NH 03801

Internship objectives:
I will collect soil samples from forest stands that have received nine years of annual nitrogen and phosphorus additions. I will then analyze their soil organic matter content for its mass and chemical composition to contribute to our understanding of nutrient controls on the decomposition of organic matter and carbon sequestration in soils.

Period of work: 1 June 2020 through 7 August 2020 (14 weeks)

Salary provided by organization: None

Amount requested from Sussman Fund: $7,350.00
14 weeks x 35 hours per week x $15 per hour = $7,350.00

Faculty Sponsor

Applicant

(Signature)

(Signature)

Thomas Mann
Student Proposal

Over the last 150 years, the global carbon cycle has been violently disrupted by the anthropogenic enhancement of atmospheric carbon dioxide concentrations. Vast reserves of carbon that for millennia had been stored belowground as fossil fuels have been released to the atmosphere, altering not only the quantity of carbon moving through Earth systems but also the delicate equilibrium of carbon distribution across global pools. Because carbon is a fundamental element of all life on Earth, a powerful driver of global climate, and a key component in biogeochemical processes, it is critically important that the scientific community have a thorough understanding of the mechanisms that control carbon movement through natural systems.

As decaying organic matter is broken down into progressively smaller components, those smaller particles are better able to form aggregates with mineral soil, protecting them—and the carbon they contain—from rapid decomposition. This fraction of soil organic matter bound to mineral aggregates can persist in soils for hundreds of years, effectively increasing the quantity of carbon they sequester. However, as nitrogen is added to natural systems through the combustion of fossil fuels, plants incorporate more nitrogen in leaf tissue, ultimately increasing the nitrogen content of decaying organic matter. Could such changes to the chemistry of natural systems affect the rate at which soil organic matter aggregates to mineral soil? Would changes to that rate alter the long-term carbon-sequestration capacity of soils?

With funding from the Edna Bailey Sussman Foundation, I propose to analyze the chemical content of soil organic matter in three forest sites in New Hampshire that have received annual nitrogen and phosphorus additions since 2011. Using the density fractionation method, each sample will be divided into three fractions, each bound more tightly to mineral soil and better protected from decomposition than the last. Those fractions will then be analyzed (1) to measure whether nitrogen and phosphorus additions have affected the chemistry of soil organic matter; (2) to determine whether nutrient additions alter the quantity of soil organic matter in each fraction; and, if those changes are too small to detect, (3) to determine the minimum detectable difference for a sample of this size. This analysis will help to integrate our understanding of the carbon and nitrogen cycles and will improve the scientific community’s ability to account for carbon on a global scale.

My internship will be supervised by Dr. John Campbell, a US Forest Service researcher who uses experimentation and modeling to explore how environmental changes affect the biogeochemistry of forest ecosystems. Dr. Campbell will offer guidance in soil sampling, chemical analysis, and model parameterization, and I will meet with him regularly throughout data collection and analysis. Data from this project will be used in my MS thesis, which will involve the parameterization of two soil chemistry models to develop projections for the long-term effect of nutrient additions on the chemistry of soil organic matter. I will acknowledge the Edna Bailey Sussman Foundation in presentations and publications produced through this project, including publications of my master’s thesis.

Word count: 500
Letter from Internship Sponsor
Dear Edna Bailey Sussman Foundation,

I am writing in strong support of the work proposed by Thomas Mann to evaluate how additions of nitrogen and phosphorus in forest ecosystems may affect carbon storage in soils. Thomas will measure the carbon bound on mineral soil at three sites in New Hampshire to determine susceptibility to decomposition. This research will address important questions about how human activities have influenced the long-term carbon sequestration capacity of soils.

The proposed project is part of a larger study called the Multiple Element Limitation in Northern Hardwood Ecosystems (MELNHE) project that is funded through the National Science Foundation. The overarching goal of the larger project is to understand nitrogen and phosphorus acquisition and limitation through a series of nutrient manipulations in northern hardwood forests. The additional work by Thomas would leverage and complement the on-going research in the larger project, in that it would help us understand impacts on carbon cycling that are caused by human-induced changes in nitrogen and phosphorus cycling.

I will gladly serve as the Internship Sponsor for Thomas. I will supervise Thomas and mentor him during all phases of the project. The work will be performed at three sites in the White Mountain National Forest in New Hampshire, two of which are experimental forests that are operated by my work unit at the US Forest Service. The proposed internship will take place from May through August 2020. This internship will result in a research paper, led by Thomas, that will be submitted for publication in a peer reviewed journal.

Please do not hesitate to contact me if you have any questions.

Sincerely,

John L. Campbell, Ph.D.
Research Ecologist
Letter from the Student’s Faculty Advisor
January 27, 2020

To the Edna Bailey Sussman Foundation (c/o The Graduate School)

I am writing in support of Thomas Mann’s application for a Sussman Internship with Dr. John Campbell of the Northern Research Station of the USDA Forest Service. The internship will start on June 1, 2020, and run through August 7, 2020.

Thomas is interested in soil organic matter, and this project will allow him to conduct research that will contribute to his MS thesis. The project will take place in a long-term nitrogen and phosphorus addition experiment that is located on US Forest Service property, including two Experimental Forests that are run by the Northern Research Station. One of these is the Hubbard Brook Experimental Forest, which has been a focus of John Campbell’s research career. John’s understanding of the study system will provide valuable context for Thomas’s work. The project is exciting because it relates to changes in global carbon storage as well as contributing a mechanistic understanding of the importance of mineral-associated organic matter to nutrient cycling in forests.

I hope that this important project will merit selection by the Sussman Foundation. Please contact me if I can be of any further assistance in this matter.

Sincerely,

Ruth D. Yanai

Professor
SUNY College of Environmental Science and Forestry
210 Marshall Hall, 1 Forestry Drive, Syracuse, NY 13210
office: 1-315 470-6955  mobile: 1-315 345-7412  e-mail: rdyanai@syr.edu
http://www.esf.edu//faculty/yanai
Graduate Transcript

State University of New York College of Environmental Science and Forestry
State University of New York
College of Environmental Science and Forestry
1 Forestry Drive
Syracuse, New York 13210

Student: Mann, Thomas Alexander
I.D. No: XXX-XX-8535

Basis for Admission:
Bachelor of Arts - Univ Notre Dame
Bachelor of Arts - Univ Notre Dame

Record of Attendance:
08/26/19 - Entered in MS program

Program: Forest Resources Management
Area of Study: Ecology and Ecosystems

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***** End of MS Transcript *****

Print Date: 1/27/2020
OFFICE OF THE REGISTRAR
SUNY College of Environmental Science and Forestry
Syracuse, New York 13210
315-470-6655

NAME
This institution was known as the "New York State College of Forestry at Syracuse University" until May 24, 1972 at which time it was changed to its present form.

OFFICIAL TRANSCRIPTS
Transcripts of credits earned at the College of Environmental Science and Forestry are prepared by this Office in accordance with the policies of the American Association of Collegiate Registrars and Admissions Officers. Transcripts are sent only upon the written request or consent of the student. Where SUNY-ESF transcripts show only credit hours earned at other institutions, the official transcript from these institutions have become a part of the student's permanent record in the office. SUNY-ESF does not make copies of other institutions' transcripts. It is necessary to obtain such transcripts directly from the institutions concerned. Official transcripts are imprinted with the seal of the College and the signature of the Registrar. A raised seal is not required.

CONDITIONS OF RELEASE OF INFORMATION
This transcript has been forwarded to you at the request of the student with the understanding that it will not be released to other parties. The Family Educational Rights and Privacy Act of 1974 prohibits release of this information without the student's written consent. Please return this material to us if you are unable to comply with this condition of release.

THE CREDIT UNIT
The unit of credit at the SUNY-ESF is the semester hour represents one class period of fifty-five (55) minutes in length each week for fifteen weeks, or the equivalent. Laboratory or field courses require two or three class periods per week minimum for each hour of credit.

THE GRADING SYSTEM
The following grading system went into effect in September 1978.

DEFINITIONS OF GRADES USED AND GRADE POINT INFORMATION

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GRADE POINT AVERAGE
Grade point averages are calculated by taking the number of grade points earned and dividing by the number of credits carried toward GPA. Grades of I are not calculated in the grade point average until one year after the end of the course at which time they are calculated as F's.

THE COLLEGE CALENDAR
The College operates on the semester basis. The fall and spring semesters consist of fifteen weeks of instruction. The summer sessions are of various lengths and are offered at the several campuses of this institution.

TO TEST FOR AUTHENTICITY: Translucent globe icons MUST be visible from both sides when held toward a light source. The face of this transcript is printed on green SCRIP-SAFE® paper with the name of the institution appearing in white type over the face of the entire document.

ADDITIONAL TESTS: The word COPY appears as a latent image. When this paper is touched by fresh liquid bleach, an authentic document will stain brown. A black and white or color copy of this document is not an original and should not be accepted as an official institutional document. This document cannot be released to a third party without the written consent of the student. This is in accordance with the Family Educational Rights and Privacy Act of 1974. If you have any questions about this document, please contact our office at (315) 470-6655. ALTERATION OF THIS DOCUMENT MAY BE A CRIMINAL OFFENSE!

16127216
Undergraduate Transcripts

Post-baccalaureate studies at the University of Kentucky
January 27, 2020
RE: Sussman transcript Mann

Dear reviewer,

You will find transcripts from two undergraduate institutions included in this application. For that reason and because my academic history is somewhat unique, I thought I would include a brief explanation of that history here. After graduating from the University of Notre Dame, I taught middle and high school for three years but ultimately left the teaching profession to pursue a career in ecological research. In order to strengthen my application to graduate programs, I enrolled in courses and worked in research labs at the University of Kentucky for the fall 2018 semester. The unofficial transcript included in this application is for that semester, and an official transcript has been requested to be delivered to S. Scott Shannon. The order confirmation for that request is attached below. I have included my transcripts from the University of Notre Dame in this application as well. Please do let me know if you have any questions regarding my application, academic history, or these transcripts.

Sincerely,

Thomas Mann
Was the ordering process easy? Share your experience using the Clearinghouse Transcript Ordering site and complete a short survey at https://www.surveymonkey.com/r/8YH6j8M

This is to confirm your transcript order. You can track your transcript order by entering the order number on this email and the email address you used to place the order on the following web page: https://tsorder.studentclearinghouse.org/TrackOrder

YOUR ORDER DATE: 01/27/2020 10:30 PM ET
YOUR ORDER #: 43630393
YOUR SCHOOL: University of Kentucky (001989-00)

RECIPIENT: EDNA BAILEY SUSSMAN FOUNDATION
DELIVERY METHOD: Electronic PDF
*IMPORTANT*: Shortly after your request is processed by your school, your transcript recipient will be emailed a link to a secure Internet page where he or she can retrieve your official transcript. Upon that email notification, your credit card will be charged. The National Student Clearinghouse will guarantee that your recipient is notified that your transcript is ready for retrieval at the email address you provided when you placed the order; however, we cannot be responsible for whether or not your recipient retrieves or accepts the transcript. Because this is a new technology, we suggest that you contact your recipient and verify that he or she is willing to accept your transcript via this delivery method. The accuracy and correctness of the electronic transcript is solely the responsibility of your school.

TOTAL FEES FOR THIS ORDER: $12.50
Your credit card will not be charged until the transcript(s) are sent.

Questions? Go to https://mystudentcenter.org/transcripts/

National Student Clearinghouse
www.studentclearinghouse.org
**UNOFFICIAL TRANSCRIPT**

To order an official transcript, go to:
myUK > myRecords > Official Transcripts

To view this information online, go to:
myUK > Degree Planning and Registration > Menu > Academic History

**Requested by:** Thomas Alexander Mann, Jr.

**SCHOOLS ATTENDED**
Secondary Schools:
Saint Xavier High School

**2018 Fall Semester**

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Cumulative | 17.0 | 17.0 | 17.0 | 68.00 | 4.000
Status | Dean's List
Status | Good Standing

*** End of Undergraduate Academic Record ***
Undergraduate Transcripts

Undergraduate Studies at the University of Notre Dame
Mann, Thomas A  
Student ID: XXXXX2437  
Soc Sec No: XXX-XX-8535  
Birth Date: 03-28-XXXX  
Issued To: Thomas Mann  
ttomjr2@gmail.com  
Student Email: ttomjr2@gmail.com  

Degree Awarded: Bachelor of Arts  
Date Conferred: May 18, 2014  
College: College of Arts and Letters  

Course Level: Undergraduate  
Program: Bachelor of Arts  
College: College of Arts and Letters  
Major: Spanish  
Maj/Conc: Honors Track  
Minor: AL/SC Honors Program  

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UNIVERSITY OF NOTRE DAME CREDIT:  
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ALHN 13950  Honors Seminar  
CHEM 10171 Intro to Chemical Principles  
MATH 20550  Calculus III  
MUS 11300  Piano for Non-majors  
PE 10000  Physical Education  
PHIL 13195  Honors Philosophy Seminar  
ROSP 27500  Aprch Hspnic Culture by Writng  

Total  
Good Standing  
Total 59.334 17.500 17.500 16.500 3.596 49.500 49.500 16.500 3.596  

Spring Semester 2011  
First Year of Studies  
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**Fall Semester 2011**

**College of Arts and Letters**

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**Spring Semester 2012**

**College of Arts and Letters**

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**Fall Semester 2012**

**College of Arts and Letters**

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This PDF document may be validated. A printed copy cannot be validated. See attached cover page for additional information.
Mann, Thomas A  
Student ID: XXXXX2437  
Soc Sec No: XXX-XX-8535  
Birth Date: 03-28-XXXX  
Issued To: Thomas Mann  
ttiomjr2@gmail.com  
Student Email: ttiomjr2@gmail.com  

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Spring Semester 2013  
College of Arts and Letters  
BIOS 30344 Vertebrate (Human) Physiology 3.000 B 9.000  
PHYS 30220 Physics II 4.000 B 12.000  
ROSP 30810 Survey of Spanish Amer Lit I 3.000 A 12.000  
ROSP 40530 Gender/Nat'l Iden Sp Cinema 3.000 A 12.000  
SOC 33001 Soc, Self, Cath Soc Trad 3.000 A 12.000  
SOC 46000 Directed Readings 3.000 A- 11.001  
Good Standing | Total | 68.001 | 19.000 | 19.000 | 19.000 | 3.579 | 140.500 | 140.500 | 101.500 | 3.626 |
| Dean's List |                                        |        |      |      |        |        |      |        |        |      |        |        |      |

Fall Semester 2013  
College of Arts and Letters  
MUS 10161 The Soundtrack of History 3.000 A 12.000  
ROSP 63891 U.S. Latino/a Lit and Culture 3.000 A- 11.001  
SOC 30902 Methods Sociological Research 3.000 A 12.000  
SOC 30903 Stats Sociological Research 3.000 A 12.000  
SOC 33090 Proseminar 1.000 S 0.000  
SOC 48002 Doing Soc: Resrch Practi 3.000 B+ 9.999  
THEO 33950 Soc Con Sem: Appalachia 1.000 S 0.000  
Good Standing | Total | 57.000 | 17.000 | 17.000 | 15.000 | 3.800 | 157.500 | 157.500 | 116.500 | 3.648 |
| Dean's List |                                        |        |      |      |        |        |      |        |        |      |        |        |      |

Spring Semester 2014  
College of Arts and Letters  
ALHN 43951 Senior Moral Prob. Colloquium 1.000 S 0.000  
ROSP 40769 19th-Cent Wm Wrtrs in Lat-Am 3.000 A- 11.001  
ROSP 40976 Rio de la Plata 3.000 A 12.000  
ROSP 63010 Intro Thry Rsrch Hispanic Lit 3.000 A- 11.001  
SOC 43110 Sociology of Media, Tech, Socty 3.000 A 12.000  
SOC 48009 Senior Thesis Capstone Project 3.000 A 12.000  
Good Standing | Total | 58.002 | 16.000 | 16.000 | 15.000 | 3.867 | 173.500 | 173.500 | 131.500 | 3.673 |
| Dean's List |                                        |        |      |      |        |        |      |        |        |      |        |        |      |

CONTINUED ON PAGE 4
Mann, Thomas A  
Student ID: XXXXX2437  
Soc Sec No: XXX-XX-8535  
Birth Date: 03-28-XXXX  
Issued To: Thomas Mann  
Student Email: ttomjr2@gmail.com  

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********************** END OF TRANSCRIPT ****************************
GRADING SYSTEM - SEMESTER CALENDAR

Previous grading systems as well as complete explanations are available at the following website: http://registrar.nd.edu/students/gradefinal.php

THE LAW SCHOOL GRADING SYSTEM

The current grading system for the law school is as follows: A (4.000), A- (3.667), B+ (3.333), B (3.000), B- (2.667), C+ (2.333), C (2.000), C- (1.667), D (1.000), F or U (0.000).

Effective academic year 2011-2012, the law school implemented a grade normalization policy, with mandatory mean ranges (for any course with 10 or more students) and mandatory distribution ranges (for any course with 25 or more students). For Legal Writing (I & II) only, the mean requirement will apply but the distribution requirement will not apply. The mean ranges are as follows: for all first-year courses (except for the first-year elective, which is treated as an upper-level course), the mean is 3.25 to 3.30; for large upper-level courses (25 or more students), the mean is 3.25 to 3.35; for small upper-level courses (10-24 students), the mean is 3.15 to 3.45.

For current and historical grade point averages by class, as well as additional information regarding prior grading policies and current distribution ranges, see: http://registrar.nd.edu/gradefinal.php
Resume
Thomas Mann

· 2815 S Camden Ln, Crestwood, KY 40014 · 502-410-9245 · tomjr2@gmail.com

EDUCATION

State University of New York College of Environmental Science and Forestry, Syracuse, NY
- Master of Science
  Coursework: Biogeochemistry, plant physiology, sampling methods
  Expected Spring 2021

University of Kentucky, Lexington, KY
- Post-baccalaureate studies
  Coursework: Forest ecology, fundamentals of soil science, horticultural entomology, principles of plant pathology, apprenticeship in sustainable agriculture
  Fall 2018
  GPA: 4.00/4.00

University of Notre Dame, Notre Dame, IN
- Master of Education
- Master of Arts in Iberian and Latin American Studies
- Bachelor of Arts
  Majors: Spanish and sociology; Supplementary Major: Arts and Letters Pre-Health
  Minor: Glynn Family Honors Program
  Relevant coursework: Biology, organic and inorganic chemistry, physics
  July 2017
  May 2015
  May 2014
  GPA: 3.67/4.0

RESEARCH

State University of New York College of Environmental Science and Forestry
Graduate Student
Multiple Element Limitation in Northern Hardwood Forests
- Conducting tree demography study assessing germination responses of sugar maple (Acer saccharum) and American beech (Fagus grandifolia) to nitrogen and phosphorus additions
- Analyzing nine years of data to test for a response of total leaf litter mass to annual nitrogen and phosphorus additions

Lab Assistant
University of Kentucky
Rhizosphere Science Lab
- Assisted in research of phosphorus cycling from soil organic matter
- Prepared soil gels for root imaging and process plant material to analyze phosphorus content
- Conducted Fourier-transform infrared spectroscopy to analyze CO₂ evolution from test soils

Independent
University of Notre Dame
- Researched juxtapositions of infinity and humanity in the author’s short stories
- Defended research before faculty panel

WORK EXPERIENCE

State University of New York College of Environmental Science and Forestry
Field Research
Multiple Element Limitation in Northern Hardwood Forests – Field Crew Leader
- Guided undergraduate interns in data collection and analysis
- Scheduled and managed the routine upkeep of a long-term study
  June 2019 – Aug 2019

Soils
State University of New York College of Environmental Science and Forestry
Introduction to Soils Teaching Assistant
- Instructed and evaluated lab activities for a section of 22 students
  Aug 2019 – Dec 2019

University of Kentucky Division of Regulatory Services
Soils Laboratory Technician
- Analyze soil samples from across western Kentucky for pH and nutrient content
  Feb 2019 – May 2019

SKILLS AND HONORS
- Data wrangling and visualization using R; proficient in GIS applications using ArcMap
- Fluent in Spanish (12 years of formal study; 1 semester of study in Puebla, Mexico)
- Eagle Scout

REFERENCES
- Ruth Yanai – 315-470-6955 – rdyanai@esf.edu
  Advisor at SUNY ESF
- Russell D. Briggs – 315-470-6989 – rdbriggs@esf.edu
  Instructor of introduction to soils course at SUNY ESF