

Sandmeyer – 3. Course Materials – PHI/ENS300 History & Philosophy of Ecology (experimental)

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PHI/ENS300: STATEMENT OF GENERAL PEDAGOGY

This course, The History and Philosophy of Ecology, has two unique characteristics. First, this is an experimental course **designed to service the explicit needs of two different interdisciplinary programs**. Second, this course took place during the height of the pandemic and so taught fully online synchronously.

As noted, this class services two departments. First, the Environmental and Sustainability Studies program lacks a core ecology class. This class fulfills that need. It further provides (or will provide, once it is approved by the UK Senate as a regular offering) a stable offering which can fulfill an ENS major requirement. Second, the Philosophy Department has recognized the need to revise its out-of-date list of course offerings. We need in Philosophy courses that better reflect the current strengths of our department, and this class fulfills this need.

All 2021S classes were **taught fully online** at UK. The pedagogy of this course meets the demands of this unique situation. The assignment structure was very simple: just four papers of all the same kind and length. Discussion forums were designed to provide a means for isolated students to collaborate on these papers. Built-in redundancies proved successful in achieving the define outcomes. Further, I designed daily lessons as either structured lectures (lessons 3-8 or 4-21) or structured in-class discussions (lessons 3-12 or 4-14).

It almost goes without saying, but this **semester was probably the hardest** I have ever experienced. While the redundancy designed into the discussion and paper assignments were successful pedagogically, engaging students in-time all while online proved a real difficulty. Students attended without videos turned on, which was by design. They only turned their videos on during break-out sessions, and only if they were comfortable doing so. Like so many others, my classes felt at times like seances: "Can you hear me? Are you there?" Nevertheless, I did see some genuine success engaging students and generating robust participation in discussions, which was due in large measure to the intuitive design and simple-to-accomplish assignment structure of the course.

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PHI/ENS300: Syllabus & Daily Schedule

I created this class to **fulfill a basic need of the Environmental and Sustainability Studies program**. From the earliest days of this program we have, at once, recognized the fundamental importance of ecology to our students and lamented the paucity of such offerings at UK in this subject. This has become especially poignant with the retirement of the one biologist who taught ecology on a regular basis here at UK. This class was thus designed to meet this scientific need. Consequently, the course readings include a healthy selection of original articles fundamental to the development of ecology as a science.

Given the paucity of ecology education at UK and among the ENS students, particularly, it was essential to determine a baseline of knowledge coming into the class. Hence the prior- and post-knowledge assessments give students and the professor, alike, an indication of this baseline and the progress made moving that line forward.

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[Daily Schedule](#)Email Prof: bob.sandmeyer@uky.edu[\(frontpage\)](#)[Zoom Portal](#)

(password: Sandmeyer)

Classes are *typically* conducted via Zoom at the time of class.

ENS/PHI 300 History & Philosophy of Ecology

[\(Print PDF Version\)](#)

Syllabus

ENS 300.003

MWF 1:00-1:50am

PHI 300.001

MWF 1:00-1:50pm

Sandmeyer's Contact Information

Professor Bob Sandmeyer, Ph.D.

bob.sandmeyer@uky.edu

pronouns: he/him/his

ph. 859-257-7749 (leave a message)

A note on communications: I will respond usually within 24 hours. Bear in mind, though, that I can only reply to emails during business hours, i.e., M-F 9:00am – 5:00pm. So, if you send me an email over the weekend or outside of these hours, I will not be able to respond until the next business day at the earliest.

Sandmeyer's Online "Office" Hours

MWF 2:00pm - 3:00pm

Schedule an Appointment:

calendly.com/dr-sandmeyer/office-hours

(contact me, if scheduled times are inconvenient for you)

Zoom Address (for "office" hours):

uky.zoom.us/my/bobsandmeyer

Required Texts

Book(s)

- (**NE**) Worster, Donald. *Nature's Economy: A History of Ecological Ideas*. 2nd edition. Cambridge: Cambridge University Press, 1994.
ISBN: [9780521468343](https://www.amazon.com/dp/9780521468343)
- (**KG**) *The Philosophy of Ecology: From Science to Synthesis*. Edited by David R. Keller and Frank B. Golley. Athens: University of Georgia Press, 2000.
ISBN: [9780820322209](https://www.amazon.com/dp/9780820322209)

All other readings

- available in Canvas via the [Daily Schedule](#) and located in [Files: Library](#).
- a note on *recommended* texts
 - the Daily Schedule includes links to a number of recommended texts. These are typically important primary sources or elucidatory secondary source material. These materials are provided for further study and will not necessarily be integrated into to course content by the professor.

Course Description

In this class we will study both the history of ecological thought, important papers in development of ecology, and some of the philosophical problems special to ecology as a scientific discipline. Given these two aims, this class has two required texts: Donald Worster's history of ecological thought, *Nature's Economy: A History of Ecological Ideas* (hereafter *NE*), and *The Philosophy of Ecology: From Science to Synthesis*, edited by David Keller and Frank Golley. The substance of the course is divided into three units: (i) the history of proto-ecology to Darwin, (ii) the development of the self-consciously scientific discipline of ecology after Darwin, (iii) and an overview of the some of the basic paradigms at work in ecological thinking and practice today.

Students will write four short analysis papers: one per section (i) and (iii) and two per section (ii). These papers will

allow students to articulate a particular issue in precise and concise manner. Class discussion will play an important role in this class. Consequently, many days in class will be devoted solely to discussing together the readings, and students should come prepared on those days for substantive discussion of the pertinent readings with the professor and with other students in the class. These on-class discussions will be followed up online in a series of asynchronous discussion forums. Class participation in these discussion forums - both in-class and online - thus constitutes an essential component of this class.

Schedule (in Outline)

See the [Daily Schedule](#) for the day-by-day agenda.

1. Thoreau to Darwin

- A. Henry David Thoreau
 - i. the Romantic conception of nature
- B. Excursus
 - i. mechanism (René Descartes on animal-machines)
 - 2. organicism (Immanuel Kant on natural purposes)
- C. Charles Darwin
 - i. radical contingency and the new ontology of life

2. The Development of Ecology as a Science

- A. Dynamic Ecology
 - i. Frederick Clements' notion of plant succession
- B. The New Ecology
 - i. Henry A. Gleason and the individualist concept of plant association
 - 2. Arthur Tansley and the ecosystem concept
 - 3. Raymond Lindeman and trophic dynamic concept

3. Ecological Paradigms

- A. Ecology and environmentalism
- B. Essentialism, materialism, probabilism
- C. Dialectical ecology

Learning Outcomes

This class aims to lay the foundation for effective and responsible participation in a diverse society by preparing students to make informed choices in the complex or unpredictable cultural contexts that can arise in U.S. communities.

- articulate important problems in the development of ecology clearly, precisely, and concisely in writing;
- demonstrate proficiency at expressing complex and difficult ideas in clear and simple language;
- understand the development of ecology from its origins in the 19th-century to the present day; and
- explain basic ecological theoretical models using appropriate conceptual language pertinent to the discipline.

Grading

Grading Scale

A = 100% - 90%
B = 89% - 80%
C = 79% - 70%

Students will be provided with a midterm evaluation grade (by the midterm date) that reflects course performance based on criteria laid out below.

Writing Assignments

40 %

D = 69% - 60%
F = ≤59%

- four 3-5 short analysis papers of between 3 to 5 pages, each;
- score for each will be determined by a rubric;
- final forums score = cumulative earned score for all forums / total possible.

Discussion Forums

40 %

- 7 discussion forums are scheduled over the course of the semester;
- drop the lowest scoring discussion forum scores;
- score for each forum will be determined by a rubric;
- final forums score = cumulative earned score for all forums / total possible.

Attendance during Zoom sessions

10 %

- attendance will be taken via attendance survey;
 - simply completing the survey earns full credit for each survey
 - if you cannot meet during class time, you must contact the professor immediately and you may be asked to provide documentation that verifies the legitimacy of absence
 - students will be allowed to complete any missed work due to an excused absence; this work must be completed within one week upon return to the class at the very latest
- each attendance counts for 1 point; drop the 3 lowest scores (i.e., 3 absences);
- final attendance score = total attendance surveys completed / total number of attendance surveys

Prior-Knowledge Assessment

5 %

- a simple survey of knowledge of the history and philosophy of ecology administered at the beginning of term;
- 100% score = completing survey.

Post-Class Knowledge Assessment

5 %

- an online quiz on the history and philosophy of ecology administered at the end of term;
- score = total correct / total possible.

Teaching and Learning in a Time of Crisis

This class is being taught entirely online, but most of the lessons are presented at the time of lecture. Attendance during these synchronous lessons is mandatory.

By definition, a crisis is a time of decision. We have all decided to be here, either to teach or to learn, during a global pandemic whose virulence is not currently waning. But the local conditions of this global pandemic create unique difficulties. It is up to each of us to take responsibility for this decision and to make this semester as successful as possible.

- First, I want to say that **if you ever need to talk to me**, please contact me (bob.sandmeyer@uky.edu). If you are struggling, I will do what I can to help you.
- There will be many uncertainties this semester. The key to confronting these is **consistent and clear communication** between the instructor and students.
 - **Coursework**
 - Follow the [Daily Schedule](#).
 - **Check this page regularly**, at least three times a week.
 - Alterations to this schedule will be indicated by the "Date of last update" marker at the top of the page.
 - Each day's lesson(s) will be embedded the [Daily Schedule](#). Consequently, no matter if we meet in person or not, you will need to work through lessons available online.
 - Homework assignments will be announced in both the Daily Schedule and the Daily Lessons.
 - **Class-wide messages**
 - I will send messages to the class as a whole via the [Announcements](#) function in Canvas.
 - Make sure your Canvas settings push these notifications to your email or your phone: [check your notification settings](#).
 - **Individual Communications**
 - Send emails by clicking the "Email Prof" link at the top of every page in Canvas.
 - Or email the professor at bob.sandmeyer@uky.edu
 - Always include the phrase **"ENS-PHI300" in the subject of your email**.
 - I recommend *against* using the Canvas Inbox for email communication.
 - **Be Proactive**
 - Contact me *before* a problem arises. I will try to do the same.
 - If you are unable to contact me in advance of an issue, you must - at the latest - contact me as soon as you return to the class.

Academic Integrity

Everyone understands that while cheating may be tempting, in all cases it is wrong. Do not cheat or plagiarize! If the professor determines that a student or group of students has cheated, or that a student has plagiarized any part of any assignment, he/she/they may, at the very least, receive a grade of zero for the assignment without the possibility of redoing the assignment. Be forewarned, though, that *evidence of cheating or plagiarism may also result in course failure*. If the case is especially egregious, the issue will be directed to the appropriate University Dean and the student will receive a grade of XE/XF for the course.

As per the [Ombud's definition](#), academic integrity requires creating and expressing one's own ideas in all course work including draft and final submissions; acknowledging all sources of information properly; completing assignments independently or acknowledging collaboration; accurately reporting one's own research results; and honesty during examinations. Further, academic integrity prohibits actions that discriminate and harass on aspects such as race, color, ethnic origin, national origin, creed, religion, political belief, sex, and sexual orientation. **By participating in this class, you accept the injunction not to cheat in any way. You also agree to comport yourself with integrity and honor throughout the semester.** You further agree to have all or some of your assignments uploaded and checked by anti-plagiarism or other anti-cheating tools.

Further, each student affirms that they will act with honor and integrity to fellow students, the professor, and the course grader.

Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following website: <http://www.uky.edu/Ombud>; see especially "Rights and Responsibilities" and "Academic Integrity." A plea of ignorance

is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information.

Accommodations

If you have a documented disability which requires academic accommodations, please contact the professor as soon as possible. In order to receive accommodations in this course, you must provide the professor with a Letter of Accommodation from the [Disability Resource Center](#). If you have not already done so, please register with the Disability Resource Center (Suite 407 of the Multidisciplinary Science Building, 725 Rose Street, 859-257-2754, dtbeac1@uky.edu) for coordination of campus disability services available to students with disabilities.

Class Recordings

Meetings of this course will be recorded by the professor and made available to all students. These recordings are available through the Canvas shell. Go to the lesson in question; the "recording" link will be in the header of the lesson.

All video and audio recordings of lecturers and class meetings provided by the instructors are for educational use only. These recordings are not to be copied, shared, or redistributed. To repeat, any sharing or distribution of class recordings outside of the parameters of the class is prohibited and constitutes an academic offense.

Students with specific recording accommodations may be allowed to record the class for their own use. But this exception must be approved by the [Disability Resource Center \(DRC\)](#) and you should present the official documentation from the DRC granting this exception to the instructor as soon as possible.

Final Remark

This syllabus is a contract between the professor and student. Participation in the class indicates the student understands and accepts the terms of this syllabus, i.e., the expectations and requirements laid out herein.

Zoom Portal

(password: Sandmeyer)

Classes are *typically* conducted via Zoom at the time of class.**ENS/PHI 300**
History & Philosophy
of Ecology**Syllabus**
2021S

MWF 1:00pm - 1:50pm

Check this schedule regularly. Changes are likely during the semester.

(Date of last update: 05 May 21)

<i>Date</i>	<i>Day</i>	<i>Topic & Presentation</i>	<i>(due on day listed)</i> <i>Homework</i>
01/25	Mon	Welcome	
01/27	Wed	Navigating ENS-PHI300: the Arcadian Tradition in Ecology	1. Study Handout: ENS-PHI300 Syllabus 2. Recommended: Snell - The Discovery of a Spiritual Landscape 3. Recommended: Sears - Ecology: A Subversive Subject
01/29	Fri	Histories of Ecology	1. Take Prior Knowledge Assessment (assessment questions) 2. Read McIntosh - Background , pp. 6-19 3. Review Haeckel - Zoology 4. Recommended: Friederichs - Definition of Ecology
Thoreau to Darwin			
02/01	Mon	Discussion: In-Class and Online (class mechanics) (Please note: I added a task to Discussion Forum: Introductions today. The whole thing is due Friday.)	none (change in schedule)
02/03	Wed	The Imperial View of Nature	1. Read Worster - <i>Nature's Economy</i> (hereafter <i>NE</i>), pp. 31-55 2. Recommended: Linnaeus - The Oeconomy of Nature
02/05	Fri	Linnaeus & Thoreau	1. Read <i>NE</i> , 59-76 2. 01 Discussion Forum: Introductions
02/08	Mon	Thoreau and the New Natural Science	1. Read <i>NE</i> , 77-97 2. Recommended: Thoreau - Succession of Forest Trees
02/10	Wed	Excursus: René Descartes and the Theory of Mechanism 02 Discussion Forum	1. Read Descartes - Automatism of the Brutes
02/12	Fri	Excursus: Immanuel Kant's Theory of the Organism	1. Read Kant - 3rd Critique , paragraphs 64-66 2. Recommended: Kant's conception of organisms as natural ends
02/15	Mon	Excursus, redux: Kant	1. Read Mayr - Cause and Effect in Biology . (as background)
02/17	Wed	In-Class discussion: Mechanistic & Teleological Explanations 03 Discussion Forum: Darwinian Evolutionary Theory & Ecology	1. <i>NE</i> , 130-169 2. 02 Discussion Forum 3. Recommended: Humboldt - Tableau physique
02/19	Fri	Darwinian Evolution Theory - Historical Background	1. Read Darwin - Origin (selections).
02/20	Sat	Darwin	1. 03 Discussion Forum: Darwinian Evolutionary Theory & Ecology (part I)
02/22	Mon	Darwin and the Origin of Species	

02/24	Wed	Darwin and the Ontology of Life	1. Read Grosz - Darwin and the Ontology of Life
02/26	Fri	Paper Writing: Paper 1 (due Mar 5)	1. Review Learning Objectives ("Thoreau to Darwin") 2. <i>Optional</i> : formulate an essay question for a 3-5 page paper
02/27	Sat		1. 03 Discussion Forum: Dawinian Evolutionary Theory & Ecology (part II)
The Development of Ecology as a Science			
03/01	Mon	Early Ecology	1. Read <i>NE</i> , 191-204 2. Read McIntosh - Background , 39-49
03/03	Wed	Early Ecology	1. Read <i>NE</i> , 205-220
03/05	Fri	Eugenius Warming: <i>Oecology of Plant Geography</i>	1. Read Warming - Oecology of Plants , excerpt pp. 40-65 2. <i>Recommended</i> : <i>Warming - Oecology of Plants</i> , excerpt pp. 7-39 3. Submit Paper 01 (by 11:59pm)
03/08	Mon	Clements and Others on Plant Succession	1. Read McIntosh - Background , 71-85 2. Read Keller & Golley - <i>Philosophy of Ecology</i> (hereafter <i>KG</i>), 21-29; 35-41
03/10	Wed	Clements, continued	1. Read <i>NE</i> , 235-253 2. 04 Discussion Forum: Paper 01 Topics (part I due by 11:59pm)
03/12	Fri	Gleason's Individualistic Concept of the Plant Association	1. Read <i>KG</i> , 42-55 2. <i>Recommended</i> : Gleason's article in full
03/14	Sun		1. 04 Discussion Forum: Paper 01 Topics (part II due by 11:59pm)
03/15	Mon	Tansley's Ecosystem Concept	1. Read <i>NE</i> , 301-315 2. <i>Recommended</i> : Tansley's article in full 3. or, at least, read <i>KG</i> , 55-70
03/17	Wed	Lindeman's Trophic Dynamic Aspect	1. Lindeman - Trophic-Dynamic Aspect of Ecology (skim §§2.2-2.3 and all of 3)
03/19	Fri	02 Writing Assignment	
		<i>Academic Midterm (Mar 15-29 Midterm Grading window)</i>	
03/22	Mon	(no class)	
03/24	Wed	(no class)	1. 05 Discussion Forum, Part I
03/26	Fri	<i>Academic Holiday</i>	
03/28	Sun	(no class)	1. 05 Discussion Forum, Part II
03/29	Mon	Midterm grade and paper writing	1. (no reading)
03/31	Wed	Value of a Varmint	1. Read <i>NE</i> , 255-290
04/02	Fri	Aldo Leopold and the Ecological Conception of Land	1. Read Leopold - images of the land , 436-453
04/04	Sun		1. Submit 02 Writing Assignment

04/05	Mon	Elton on Animal Communities	1. Read <i>NE</i> , 291-315 2. Read Elton - Animal Communities
04/07	Wed	The New Physicians	1. Read <i>NE</i> , 359-387
04/09	Fri	The Ecology of Chaos 03 Writing Assignment	1. Read <i>NE</i> , 395 (from "Climate was the dominant reason...") - 420
Last day to withdraw from the University or reduce course load.			
Ecological Paradigms			
04/12	Mon	Ecofeminism- Plumwood's Being Prey	1. Read Plumwood - Being Prey 2. Recommended: Plumwood - Wisdom of the Balanced Rock
04/14	Wed	Ecological Science & TEK	1. Watch ESA: Exploration of Modern Indigenous Knowledge and the Power of Indigenous and Western Science (1 hour)
04/16	Fri	Ecological Science & Black Ecologies	1. ESA: Breaking down the barriers to diversity in ecology 2. Nature Ecology & Evolution: Amplify diverse voices 3. We Need Histories of Radical Black Ecology Now 1. If you are intending to write on this topic, you'll have to read: Mapping Black Ecologies , by J.T. Roane & Justin Hosbey 4. The Black Ecologies Initiative (see esp. Projects)
04/19	Mon	Succession of Paradigms <ul style="list-style-type: none"> Open now, due this week <ul style="list-style-type: none"> 03 Writing Assignment 06 Discussion Forum - Paper 03 Collaborations Open now, due by end of term <ul style="list-style-type: none"> 04 Writing Assignment 07 Discussion Forum - Paper 04 Collaborations 	1. Recommended: <i>KG</i> , 27-33 2. Read <i>KG</i> , 71-80
04/21	Wed	Course Review (& Reductionism)	1. Read 1. <i>KG</i> , 171-180 2. Read <i>KG</i> , 181-193 2. 06 Discussion Forum, Part I (due by 11:59pm)
04/23	Fri	Course Review (& "Ecology as an Integrative Discipline")	1. Read <i>KG</i> , 194-203 2. 06 Discussion Forum, Part II (due by 11:59pm)
04/25	Sun		1. Submit 03 Writing Assignment
04/26	Mon	<i>(class cancelled)</i>	1. Read <i>KG</i> , 218-225
04/28	Wed	Organism, Gene, Environment	1. Read Lewontin - Organism as Subject and Object , 85-89
04/30	Fri	Gene - Organism - Environment	1. Read Lewontin - Organism as Subject and Object , 85-106
05/02	Sun		1. 07 Discussion Forum, Part I (due by 11:59pm)

05/03	Mon	In-class Discussion: Final Papers	1. Complete Post-Class Knowledge Assessment
05/05	Wed	In-class Discussion: Final Papers	1. (see Monday's homework)
05/06	Thur		1. 07 Discussion Forum, Part II (due by 11:59pm)
05/07	Fri	Reading Day – class does NOT meet	
05/10	Mon	(no class - finals week)	1. Submit Post-Class Knowledge Assessment (by 11:59pm) 2. Submit 04 Writing Assignment (by 11:59pm)
		May 3-17 - Final Grading window	

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PHI/ENS300: Lessons (COVID class)

Given the online modality employed, generating class discussion was a true challenge. In consultation with the Center for the Enhancement of Learning and Teaching, I created the following model:

- Structure in-class discussion. This lessons indicates the way I structured regular in-class discussions. As noted in the syllabus, class discussion was an essential and significant part of this class. On discussion days, students would typically break into groups of 5 or so. (On this day, only five students were in attendance.) Once in groups, a student was either elected or assigned an executive role in the group to ensure steady discussion; and another student was elected or assigned to be a scribe.
 - In conjunction with the lesson online, the scribe used a Google Sheet to outline or write out a transcript of the group discussion.
 - This Google sheet was available (via link provided in the lesson) to all members of the class and thus to all members of the group. This method allowed me to follow in real time the discussions in break out groups. Thus I could intervene when I saw group stall.
 - Exiting from break-out groups, we would compare the groups' work together.
 - When the course lesson was over, I would transcribe the details of the class's discussion to the lesson. This technique allowed those who were absent to follow the content and trajectory of the in-class discussions, which they missed.

As noted, this model of in-class discussion was suggested to me by our CELT staff during my summer workshopping. It has proved so successful that I now use it whenever I have in-class discussions – whether these discussions be online or in-person.

(left blank intentionally)

Date
12 MAR 21

Zoom
[Portal](#)
(During Class)

[Recording](#)
(After Class)

ENS/PHI300
Lesson

With this lesson, students should be able to:

Homework for next class

Confirm Attendance

1. coherently and precisely explain the individualistic concept of the plant association
2. using both readings, explicate Gleason's argument.

1. Read *NE*, 301-315
2. Read *KG*, 55-70 (Tansley)
3. Recommended [Tansley's article in full](#)

Gleason's Individualistic Concept of Plant Association

Readings & Resources For Today

- The Individualistic Concept of the Plant Association (1926)
 - Read *KG*, 42-55
 - Recommended [Gleason's article in full](#)
- [Google Slides Form](#)

Henry A. Gleason's articles of interest

- "The Structure and Development of the Plant Association." *Bulletin of Torrey Botanical Club* 44 (1917): 463-481.
- "[The Individualistic Concept of the Plant Association](#)," *Bulletin of Torrey Botanical Club* 53 (1926): 7-26.
- "Further Views on the Succession Concept." *Ecology* 8 (1927): 299-326.
- "The Individualistic Concept of the Plant Association." *American Midland Naturalist* 21 (1939): 92-110.
 - *KG* 42-54 - an excerpt of the this later article.

The "Holological" (the organismic conception of community)

- Karl A. Möbius (1825-1908, German)
 - "The Oyster and Oyster-Culture" (1877)
- Carl G. Semper (1832-1893, German)
 - *Animal Life as Affected by the Natural Conditions of Existence* (1881)
- Stephen A. Forbes (1844-1930, American)
 - "Lake as a Microcosm" (1887)
- Frederic E. Clements (1874-1945, American)
 - *Research Methods in Ecology* (1905)
 - *Plant Succession. An Analysis of the Development of Vegetation* (1916)

The "Merological" (a reductionist approach)

- Eugenius Warming (1841-1924, Danish)
 - *Oecology of Plants* (1909)
- Henry C. Cowles (1869-1939, American)
 - "An Ecological Study of the Sand Dune Flora of Northern Indiana" (1898)
- Henry A. Gleason (1882-1975, American)
 - "The Individualistic Concept of the Plant Association" (1926)
- Arthur Tansley (1871-1955, British)
 - "The Use and Abuse of Vegetational Concepts" (1935)
- Raymond Lindeman (1915-1942, American)
 - "The Trophic-Dynamic Aspect of Ecology" (1942)

Frederic Clements

"The developmental study of vegetation rests upon the assumption that the unit or climax formation is an organic entity (Clements 1905: 199). As an organism the formation arises, grows, matures, and dies. Its response to the habitat is shown in processes or functions and in structures which are the record as well as the result of these functions. Furthermore, each climax formation is able to reproduce itself, repeating with essential fidelity the stages of its development. The life history of a formation is a complex but definite process, **comparable in its chief features with the life**

Henry Gleason

"Not until the advent of the twentieth century did botanists turn their minds seriously to the consideration of underlying questions. Since that time we have made great progress. We have developed methods for the exact observational study of the association. We have recognized conditions and processes in their development, their existence, and their disappearance, and these conditions are processes are **quite unlike anything in the life history of an individual plant or animal**" (Gleason, quoted in Keller & Golley, 43).

Agenda Today

We will break into groups to discuss [Gleason's article](#), The Individualistic Concept of the Plant Association (1926). See also: KG 42-54

- If you haven't read it, either the excerpt in KG or the article I recommended, you should exit the class.
 - You may complete the attendance confirmation today.
 - Read the excerpt now .outside of class
- If you are interested in Gleason's argument and may wish to write on it, I recommended you read both the 1926 article and the 1939 excerpt this weekend.

In-class break-out rooms

- Group Assignments
 - **scribe**
 - of all the names in the room, scribe is the one whose *Zoom name begins with the last letter of the alphabet*
 - keep a log of the discussion
 - **governor**
 - of all the names in the room, governor is the one whose *Zoom name begins with the first letter of the alphabet*
 - leads group, makes sure assignment gets done
 - time keeper
 - if necessary, keeps group on track to complete task(s) in allotted time
 - volunteer
 - proactive member of group; doesn't wait to talk and keep the discussion flowing
- Open the [Google Slides Form](#)
- Questions
 - 1st question: What is Gleason's thesis, what is the individualist concept of the plant association. Identify the passage in the readings in which this thesis is stated.
 - Governor
 - identify who has read which selection
 - whole article
 - excerpt in KG
 - direct group to identify thesis in each selection
 - Scribe
 - Write out names (first names and last initial) of breakout group
 - Write out theses
 - Include location information so we can look at these passages as a class.
 - 2nd question: Why? That is, what are the main reasons which Gleason provides to support this claim?
 - Governor
 - keep group focus on explicating argument
 - bear in mind, the arguments might not be identical in the two readings
 - what are the commonalities in the two writings
 - Scribe
 - write out main premises of Gleason's argument (bullet points fine, include location info)

Group Notes

Participants

-
-
-
-

1st Question: Thesis

1. "The plant community is an individualistic phenomenon" (KG p. 54).
2. "an association is not an organism, scarcely even a vegetational unit, but merely a coincidence" (Gleason 1926, 16).
3. "The vegetation -unit is a temporary and fluctuating phenomenon" (KG 43)

2nd question: Reasons

1. "It has been, and still is, the duty of the plant ecologist to furnish clear and accurate descriptions of these plant communities, so that by them the nature of the world's vegetation may be understood....It is only natural that we should tend to depart from the various conclusions which we have reached by direct observation or experiment, and to attempt other more general deductions as well. So we invent special terms and methods for indicating the differences between associations and the variation of the plant life within a single community" (Gleason 1926, 3).
2. Two factors basic to plant association
 - Seed migration
 - Environmental variation (environmental selection or happenstance)
3. no two areas of the earth's surface do bear precisely the same vegetation, except as a matter of chance" (Gleason 1926, 23-24)

Discussion Notes

- Theories are flawed because scientists were trying to make their theories fit into already existing concept rather than develop entirely new theories" - Dan
- 18th century ecology - physico-theology and imperialistic - Not just God's fingerprint, but human's duty to care for it - John Bozell
- 19th century shows beginning of a dynamic ecology

(End of Lesson)

In-Class Discussion 12 MAR 21

PHI300

Plant Associations
(Gleason's Individualistic Concept)

Instructions

1. Governor

- a. lead discussion
- b. be proactive

2. Questions Today

- a. (Each) What's your name and what group are you in?
- b. (Group) Are there any foods in common that each you eats fairly regularly?

3. Scribe

- a. find the slide for your break out room
- b. log results of your group discussion

Breakout Room #1

1st Question: Thesis

1. "The plant community is an individualistic phenomenon" (KG p. 54).
2. "an association is not an organism, scarcely even a vegetational unit, but merely a coincidence" (Gleason 1926, 16).
3. "The vegetation -unit is a temporary and fluctuating phenomenon" (KG 43)

2nd question: Premises

- "It has been, and still is, the duty of the plant ecologist to furnish clear and accurate descriptions of these plant communities, so that by them the nature of the world's vegetation may be understood....It is only natural that we should tend to depart from the various conclusions which we have reached by direct observation or experiment, and to attempt other more general deductions as well. So we invent special terms and methods for indicating the differences between associations and the variation of the plant life within a single community" (Gleason 1926, 3).
- Two factors basic to plant association
 - Seed migration
 - Environmental variation (environmental selection or)
- "no two areas of the earth's surface do bear precisely the same vegetation, except as a matter of chance" (Gleason 1926, 23-24)

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PHI/ENS300: Assessing Online Discussion Forums

Given the isolated nature of learning at the height of the pandemic, I created systems that would (i) bolster robust peer engagement in the classroom and (ii) build redundancies into the assessments that drew upon these engagement resources. Here is an example of such. When students would write a paper, they would be assigned a collaboration discussion forum at the same time. These discussion forums would allow students to identify others in the class writing on the same or similar themes. This would provide students the means by which to discuss their ideas with peers in the class. It also provided students the opportunity to produce part of their papers in a low-stakes environment. This model followed a maxim of mine regarding the teaching of writing, i.e., that good writing is re-writing (a motto which all my students got sick of hearing me repeat again and again).

(left blank intentionally)

06 Discussion Forum: Paper 03 The New Ecology

This is a two part - one week assignment

1. The first part is due Wednesday (04/21 by 11:59pm)
2. The second part is due Friday (04/23 by 11:59pm)

If you need to consult the instructions submission instructions or grading criteria, consult the [Discussion Forum Instructions](#).

- drop the lowest scoring discussion forum score

Part I: Idea for Paper 03 - one paragraph

For Part I, I want you to **post one paragraph with header**. In this paragraph, I would like you to provide an abstract or précis of the paper you plan to write

1. First line, Post a **header** of your paragraph. This header should be something like the **title of our paper or brief explanation of topic**.
 - This header will give everybody a sense of what you will be talking about in the video. This information is important to the second part of this discussion forum assignment
2. Second, post a paragraph in which you **explain briefly what you are writing your third paper on**. Explain what the topic is and why you think it is an important topic to clarify in the history and/or philosophy of ecology.

This is an exercise in which you articulate an abstract of the paper. So, please limit yourself to one paragraph, ca. 300 words.

Part II: Collaborate on Paper 03 - Video

In part II, I want you to **read through six paragraphs** posted by your colleagues. **Select those that are all related in some way to the thematic area of your own paper**. If you don't see six that are directly relevant, choose ones which you think might be the most helpful to your own work.

Respond by video to ONE author.

- Place a header above your video with (i) the name of your colleague to whom you are responding and (2) a short identification of the topic of your video, e.g., title of the paper (just a phrase, not a full sentence). When you refer to your colleagues in your paragraphs, please **bold their names**.
- In your video, provide *at least one helpful concrete suggestion* to your discussants to help them clarify their position.

This paragraph should be brief, ca. 3-5 minutes.

Collaborate together

Don't hesitate to use the People link in Canvas to send an email and strike up a conversation with your colleagues in the class, esp. to those whom you responded in your video. The aim of this discussion forum is to help direct just this sort of community interaction.

Paper 3 - The New Ecology

a 3 to 5 page analysis paper

Goal: This is an exercise in clarification and precision. Select a topic area and analyze evidence that results in clear explication of that topic.

Deadline: Sunday, April 25th by 11:59pm E.S.T.

Explanation of Task:

For this paper (only), you have two options. As a first option, you may write a new original 3 to 5 page analysis paper. That is, this first option is exactly like the previous two paper assignments. As a second option, you may decide to rewrite a previous paper for a better grade. When submitting your paper, please indicate which option you've chosen (see formatting requirements).

Option 2 - Rewrite option

- By choosing this second option you are not guaranteed a better grade than the original paper. See automatic deductions below.
- The rewrite will be graded using the standard paper rubric here.

Option 1 - New paper option

Identify a topic area from the learning objectives below. Explain the significance of the task selected to the development of ecology. Clarify the topic by a selective analysis of evidence from sources studied in class (and elsewhere, if you wish).

- Citing Sources
 - For citations in your paper, use the system here: [Chicago Manual of Style: Notes and Bibliography: Sample Citations](#) unless otherwise directed.
 - In-paper citations:
 - Use the "**Shortened notes**" style indicated in the *Chicago Manual of Style*.
 - When **quoting from primary source matter in Keller and Golley**, use the "Chapter or other part of an edited book" style.
 - "I can only conclude that the term *quasi-organism* is justified in its application to vegetation, but that the terms *organism* or *complex organism* are not" (Tansley, "The Use and Abuse of Vegetational Concepts and Terms," 59).
 - Bibliographic entries for Works Cited Section
 - Examples
 - Tansley, A.G. "The Use and Abuse of Vegetational Concepts and Terms," In *The Philosophy of Ecology: From Science to Synthesis*. Edited by David R. Kelley and Frank B. Golley. Athens: University of Georgia Press, 2000.
 - Warming, Eugenius. *Oecology of Plants: An Introduction to the Study of Plant-Communities*. Translated by P. Groom and I.B. Balfour. Oxford: Clarendon Press, 1909.
- Language
 - At the very least, write a good draft of the paper over the class break.
 - I recommend outlining this draft. This outlining process allows you think through the organization and structure of your argument.
 - I recommend that each of you schedule an appointment with [Robert E. Hemenway Writing Center](#) either during the week of class break or the week we return. During this meeting, you can review and polish the linguistic presentation of your argument.

Grading Rubric for Paper Assignments

Grading Rubric for Paper Assignments					
Outcomes		Evaluation Criteria			
		Exemplary (A)	High Achievement (B)	Satisfactory Achievement (C)	Inadequate (D)
I.	Topic Selection Identification of manageable thematic area of significance.	Identifies a creative, focused, and manageable topic that is profoundly significant to the understanding of the historical development or the philosophy of ecology.	Identifies a focused and manageable/doable topic that is appropriately significant to the understanding of the historical development or the philosophy of ecology.	Identifies a topic that while manageable/doable, is too broadly focused and/or indirectly relevant to the understanding of the historical development or the philosophy of ecology.	Identifies a topic that is too wide-ranging to be doable and/or is not clearly relevant to the understanding of the historical development or the philosophy of ecology.
II.	Evidence	Synthesizes all evidence	Most evidence employed reveals	Application of evidence is generally	May list evidence, but it does not

	Effectiveness of texts and arguments brought to bear in clarifying issue.	presented to reveal insightful and clear analysis of topic area.	insight into problem area but elements of analysis not entirely clear.	not entirely effective to insightful or clear.	clearly apply or is unrelated to analysis of topic area.
IV.	Language & Style Grammatical and presentational character of the writing.	Uses graceful language that skillfully communicates meaning to readers with clarity and fluency and is virtually error free.	Uses clear language that conveys meaning to readers. The language may have errors but none are substantive.	Uses language that generally conveys meaning to readers but some sections tend to obscure rather than clarify. Include at least one substantive grammatical error.	Uses language that impedes meaning because of errors in usage.
	<ul style="list-style-type: none"> • Rubric Scoring <ul style="list-style-type: none"> ◦ <i>Exemplary</i> = 10 - 9 points ◦ <i>High Achievement</i> = 9 - 8 points ◦ <i>Satisfactory Achievement</i> = 8 - 7 points ◦ <i>Inadequate</i> = 7 - 6 points • Cumulative Score: <ul style="list-style-type: none"> ◦ A paper or <i>Exemplary</i> = 30 - 27 points ◦ B paper or <i>High Achievement</i> = 36.99 - 24 points ◦ C paper or <i>Satisfactory Achievement</i> = 23.99 - 21 points ◦ D paper or <i>Inadequate</i> = 20.99 - 18 points ◦ < 18 points: you must schedule a meeting with the professor. • See the course syllabus for the grading scale employed in this class. To determine the score of this paper according to that scale, apply this formula: (total points earned / 30 points) x 100. 				

Learning Objectives

			1st Half of Unit: Foundations of the New Ecology
Mar 01	Mar 03	Mar 05	
<ol style="list-style-type: none"> 1. explain the important difference between floristics and physiology in the development of ecology as E. Warming makes this distinction; 2. describe the teleological nature of succession in Eugenius Warming's view 3. explain the basic methodological difference between two American theories of plant succession; 	<ol style="list-style-type: none"> 1. name three figures important to the establishment of ecology as a science, and their important works; 2. define the concept of formation, i.e., vegetation-form or growth-form; 3. explicate the distinction between floristic and ecological plant-geography. 	<ol style="list-style-type: none"> 1. explicate the influence of evolutionary theory on Warming's theory of ecological plant geography; <ul style="list-style-type: none"> ◦ distinguish Larmarkian from Darwinian evolutionary theory; 2. define Warming's concept "epharmony"; 3. describe the "definite order" articulated in Warming's theory of plant succession; 4. explain in what sense, if any, Warming employs teleological explanatory principles in his ecological plant geography. 	
Mar 08	Mar 10	Mar 12	
<ol style="list-style-type: none"> 1. explain Warming's ecological concept of epharmony; 2. describe the difference between the organismic and reductionist models of plant association; 3. articulate the three ontologies indicative early scientific ecology; 4. understand Clements' organismic theory of plant succession. 	<ol style="list-style-type: none"> 1. explain Clements' hological theory of plant succession; 2. articulate the Kantian influence in this theory; 3. describe seral succession as Clements' articulates this. 	<ol style="list-style-type: none"> 1. coherently and precisely explain the individualistic concept of the plant association 2. using both readings, explicate Gleason's argument. 	
Mar 15	Mar 17		
<ol style="list-style-type: none"> 1. explain Tansley's argument against a solely progressive theory of successional change; 	<ol style="list-style-type: none"> 1. Tansley <ul style="list-style-type: none"> ◦ define ecosystem; 		

2. distinguish autogenic from allogenic succession; 3. define ecosystem; 4. explain the universal tendency of ecosystems toward equilibrium 5. describe the place of the human being in nature by reference to the concept of allogenic succession	<ul style="list-style-type: none"> ◦ explain the universal tendency of ecosystems toward equilibrium; 2. Lindeman <ul style="list-style-type: none"> ◦ differentiate different ecological views of biological communities; ◦ explain how the trophic-dynamic viewpoint <ul style="list-style-type: none"> ▪ takes as its foundation Tansley's ecosystem concept ▪ insinuates a reconceptualization of the ecosystem concept 	
	Mar 31	Apr 02
2nd Half of Unit: The New Ecology	1. reconsider paradigms in the development of scientific ecology; 2. understand the place of ecological thinking in conservation ideas in first half of 20th century; 3. explicate the basis for an ecological ethic in the work of Aldo Leopold.	1. explicate the Aldo Leopold's concept of the biotic pyramid; 2. describe Aldo Leopold's attitude toward predators; 3. assess the land organism concept in light of the history of ecological thought to Leopold's day.
Apr 05	Apr 07	Apr 09
1. Explicate the four principles of the natural community as an economy according to Elton; 2. Explain how according to Elton ecology is necessarily interdisciplinary, at least in scope if not in method; 3. describe the fallacy in the traditional model of evolution and Elton's revision thereof.	1. articulate the tension between understanding ecology as a science and as a worldview; 2. explicate the consolidation of the ecosystem concept in the work of the Odum brothers; 3. explicate the Gaia hypothesis.	1. analyze the presuppositions underlying the organismic and mechanistic presuppositions at play in the development of ecology in the 1960s and 1970s. 2. explain how the ecology transitioned from a study of order and stability to the study of disorder and probability; 3. discuss what role ecology has to play in addressing anthropogenic extinction of species.

Paper Formatting Requirements

(double-check these requirements before uploading)

- Papers must be formatted as either Word documents with the extension .docx or .doc, or PDF documents.
- Length: 3- 5 pages - defined by word count
 - no less than 1,000 words
 - no more than 1,800 words
- Formatting Requirement
 - Margins: 1" top/bottom and left/right.
 - Font: Times New Roman, 12 pt
 - Pagination: each page should be numbered. Number should be placed bottom center.
 - Line Spacing: Paper should be double-spaced
- First Line of Paper:
 - Student's Number AND Word Count in parenthesis:
 - Example: Student number: 111222333 (1,750 words)
- Second Line of Paper:
 - "By submitting this essay, I attest that it is my own work, completed in accordance with University regulations."
- Third Line of Paper:
 - "Option x." (where x equals 1 or 2)
- Works Cited section (not a new page)
 - append to the end of the document

Automatic deductions:

Option 2 Requirement

- 10% option 2 is, by definition a rewrite of an earlier paper. Hence, if the rewrite paper submitted is for all intents and purposes identical or nearly identical to the original, you will receive the score of the original paper minus this deduction.

Class Readings

- 10% automatic 1 grade deduction for failure to use cite from any class reading materials

Paper Formatting Requirements

- 2.5% if upload requirements not followed, each instance

Citation Requirements

- 2.5% improper in-paper citation format (per instance)
- 5% no works cited section
- 10% no quotations from pertinent texts cited in paper used to support your arguments

Late Submission Policy

- 2.5% for every day late or fraction thereof
- 100% no submissions later than 48 hours after original due date/time will be accepted

Plagiarism: Definition & Consequences

First, read the [Plagiarism: What is it?](#) text from the UK Ombud.

Academic Integrity (from the [syllabus](#))

Everyone understands that while cheating may be tempting, in all cases it is wrong. Do not cheat or plagiarize! If the professor determines that a student or group of students has cheated, or that a student has plagiarized any part of any assignment, he/she/they may, at the very least, receive a grade of zero for the assignment without the possibility of redoing the assignment. Be forewarned, though, that *evidence of cheating or plagiarism may also result in course failure*. If the case is especially egregious, the issue will be directed to the appropriate University Dean and the student will receive a grade of XE/XF for the course.

As per the [Ombud's definition](#), academic integrity requires creating and expressing one's own ideas in all course work including draft and final submissions; acknowledging all sources of information properly; completing assignments independently or acknowledging collaboration; accurately reporting one's own research results; and honesty during examinations. Further, academic integrity prohibits actions that discriminate and harass on aspects such as race, color, ethnic origin, national origin, creed, religion, political belief, sex, and sexual orientation. **By participating in this class, you accept the injunction not to cheat in any way. You also agree to comport yourself with integrity and honor throughout the semester.** You further agree to have all or some of your assignments uploaded and checked by anti-plagiarism or other anti-cheating tools.

Further, each student affirms that they will act with honor and integrity to fellow students, the professor, and the course grader.

Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following website: <http://www.uky.edu/Ombud>; see especially "Rights and Responsibilities" and "Academic Integrity." A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information.

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PHI/ENS300: Student Work

The examples of student work included here are correlated to the assessments laid out in the previous section.

Included in these documents is the paper rubric which I used to grade paper submissions. While I did embed some comments in student papers, the primary means by which I commented on papers was via the paper rubric. The rubric was identical for all papers written over the course of the term. My comments to student's writing were progressive. That is, I would focus my comments on the weakest element of the paper as submitted, make recommendations to improve these deficiencies, and ask students to fulfill these recommendations in the next submission. Hence, whenever I received a new paper by a student, I would look back to my comments and recommendation to the previous paper (in the earlier submitted rubrics). I would then focus my evaluative regard in the newer paper on two areas: the redressing of areas of concern identified in earlier work and improvements needed still as exemplified in the newer paper.

(left blank intentionally)

This is a graded discussion: 5 points possible

[Show Due Dates](#)



06 - Paper 03 Collaborations

[Bob Sandmeyer \(He/Him/His\)](#)

Apr 17, 2021 at 5:24pm

28 35

[Technology Problems: 859-218-HELP \(4357\)](#) [_ \(https://learnanywhere.uky.edu/tech-help\)](https://learnanywhere.uky.edu/tech-help)

Email Prof: bob.sandmeyer@uky.edu

[\(mailto:bob.sandmeyer@uky.edu?subject=ENS-](mailto:bob.sandmeyer@uky.edu?subject=ENS-)

[Daily Schedule](#)

[PHI300\)](#)

[\(frontpage\)](#)

06 Discussion Forum:

Paper 03

The New Ecology

This is a two part - one week assignment

1. The first part is due Wednesday (04/21 by 11:59pm)
2. The second part is due Friday (04/23 by 11:59pm)

If you need to consult the instructions submission instructions or grading criteria, consult the [Discussion Forum Instructions](#).

- drop the lowest scoring discussion forum score

Part I: Idea for Paper 03 - one paragraph

For Part I, I want you to **post one paragraph with header**. In this paragraph, I would like you to provide an abstract or précis of the paper you plan to write

1. First line, Post a **header** of your paragraph. This header should be something like the **title of our paper or brief explanation of topic**.
 - This header will give everybody a sense of what you will be talking about in the video. This information is important to the second part of this discussion forum assignment
2. Second, post a paragraph in which you **explain briefly what you are writing your third paper on**. Explain what the topic is and why you think it is an important topic to clarify in the history and/or philosophy of ecology.

This is an exercise in which you articulate an abstract of the paper. So, please limit yourself to one paragraph, ca. 300 words.

Part II: Collaborate on Paper 03 - Video

In part II, I want you to **read through six paragraphs** posted by your colleagues. **Select those that are all related in some way to the thematic area of your own paper**. If you don't see six that are directly relevant, choose ones which you think might be the most helpful to your own work.

Respond by video to ONE author.

- Place a header above your video with (i) the name of your colleague to whom you are responding and (2) a short identification of the topic of your video, e.g., title of the paper (just a phrase, not a full sentence). When you refer to your colleagues in your paragraphs, please **bold their names**.
- In your video, provide *at least one helpful concrete suggestion* to your discussants to help them clarify their position.

This paragraph should be brief, ca. 3-5 minutes.

Collaborate together

Don't hesitate to use the People link in Canvas to send an email and strike up a conversation with your colleagues in the class, esp. to those whom you responded in your video. The aim of this discussion forum is to help direct just this sort of community interaction.

<https://uk.instructure.com/courses/1991241/users/6935090>

Apr 20, 2021

⋮

The True Definition of Ecosystem

For this 3rd paper I decided to revisit what I wrote for the 2nd paper. As you can tell by the title, I am going to define what we know as the ecosystem. Before **Arthur Tansley** released his article in 1935 *The Use and Abuse of Vegetational Concepts and Terms*, **Frederic Clements** and **John Phillips** believed they had the idea of an ecosystem thought out. They believed only the biotic factors affected the ecosystem and nothing more, **Clements** even believed that the plants develop and interact in the way that any other organism does so he called them a complex organism. While many might think this is because they weren't fully educated on this topic of conversation that is wrong. **Henry Gleason** stepped up to **Clements** many years before **Tansley** stating that the abiotic factors are just as important the biotic factors. **Clements** and **Phillips** just fired back at the rest of the ecological community until **Tansley** spoke out and used for the first time the word Ecosystem. **Tansley** defined this word as the Biotic and Abiotic factors which interact in a environment. This definition in itself is the root of ecology, the foundation which built everything else. Ecology is simply defined as, "The scientific study of the processes influencing the distribution and abundance of organisms, the interactions among organisms, and the interactions between organisms and the transformation and flux of energy and matter." This whole point that **Tansley** argued to the world is what we define as ecology today. These two words and not just words, they are monuments in the grand scheme of things. Without the term Ecosystem and people such as **Gleason** and **Tansley** speaking out, we would not have what we know today as Ecology.



<https://uk.instructure.com/courses/1991241/users/6997095>

Apr 23, 2021

⋮

some suggestions on Tansleys ecosystem concept

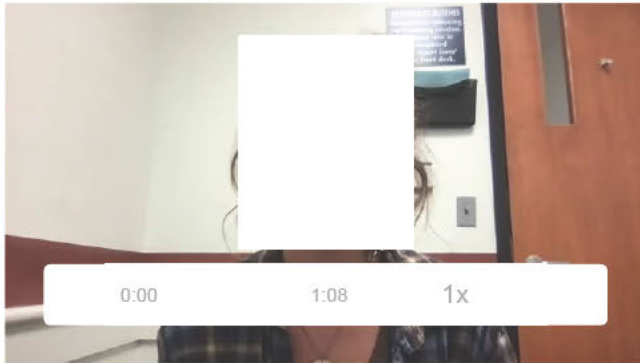
[1619231131.7119942.MOV](https://uk.instructure.com/files/98390878/download?download_frd=1&verifier=BkM9XYy4yeel2nMNyxEK5kN7GzINVnV9eMqnKe42) (https://uk.instructure.com/files/98390878/download?download_frd=1&verifier=BkM9XYy4yeel2nMNyxEK5kN7GzINVnV9eMqnKe42)



<https://uk.instructure.com/courses/1991241/users/6952010>

Apr 25, 2021

To: **- Evidence and Arguments of Tansley's Definition of the Ecosystem**



← Reply



<https://uk.instructure.com/courses/1991241/users/6890726>

Apr 20, 2021

Succession and Tansley's Ecosystem Concept

I intend to revise my previous essay on Tansley's ecosystem concept and his view of succession. I thought writing paper number #2 was interesting, so going back to explore the topic more and make the paper better will be enjoyable. I touch on the Clements model of succession and then discuss the allogenic and autogenic succession that Tansley presents. I think this is an important topic to revisit in ecology, due to the fact that the ecosystem concept is still used heavily today. The ecosystem concept has changed somewhat, such as the argument that it does not actually tend to go towards equilibrium and that most functions are of mere chance. I won't discuss this in the paper just interesting point and shows how the introduction of the ecosystem concept is so important.



← Reply



<https://uk.instructure.com/courses/1991241/users/7001393>

Apr 20, 2021

Explicate the four principles of the natural community as an economy according to Elton.

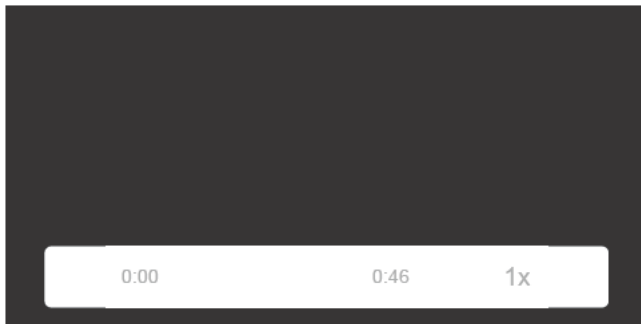
Out of all the learning targets I think that this one definitely interests me the most. I still have to do a lot of research on the topic to better understand it; but overall, it is something that I find interesting enough to write a paper on. I am definitely excited to do further research and dig deeper into the topic. This topic is an important topic when clarifying the

history and/or philosophy of ecology. One reason this topic is so important is because of Charles Elton. He is a very important figure in ecology. I wrote my last paper on three significant figures and it's cool to see all of these people's views on things. In addition, it's interesting to see how ecology has changed overtime as new theories are introduced. One of the main reasons Charles Elton was so important to the history of ecology was because he introduced the concepts of the food chain, food web, ecological niche, and the pyramid of numbers. Elton said that all animal communities are organized in a similar way; and I found that really interesting. Again, like I said, I have to do a lot more research to fully understand what he's talking about. Right now I really only understand the basics. However, I think that with more time spent on learning about Charles Elton and the four principles I'll understand it a lot better. I'm excited to learn about this topic in greater detail!



Apr 23, 2021

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← Reply



Apr 20, 2021

<https://uk.instructure.com/courses/1991241/users/6928315>



The three figures that are important to the establishment of ecology as a science, and their important works. Going to talk about Linnaeus, Kant, and Thoreau as the three figures and what important works they did for ecology as a science.

This paper topic was my topic for the last paper, I am choosing to rewrite/revise it because I actually really enjoyed writing this paper and doing the research on these three figures. I found a lot of cool and interesting things to write about. For this paper I am going to do all of the revisions that are needed, but I am also planning on adding in a lot more detail as to why these three figures are the most important figures to the establishment of ecology as a science. I believe that this topic is a very important topic to write about for this class since it has a lot of the history of ecology behind it, the works that these three figures did within ecology helps you understand ecology and the history of a lot more. Before I took this class I didn't know much about ecology, and when I decided to write about the three figures most important I picked these three because their writing was the most helpful and useful to me to be able to understand this course a little better. When you read about Linnaeus, Kant, and Thoreau's work it truly is inspiring and does give you an inside look into the brains of themselves but also of ecology. I find this topic to be very investing and helpful. The paper that I originally wrote needed some work, but I think that I covered all the basic needs of why their work has helped build the establishment of ecology as a science very well.



← Reply



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Apr 20, 2021



The Balance of a Biotic Pyramid

For my paper, I will be explaining the concept of Aldo Leopold's biotic pyramid. In first going into the structure of the pyramid and how each layer is not only essential to the next but also how it is representative of the role of the layer. The concept of each chain being both cooperative and competitive is what allows the whole to function. I will then go into how the pyramid is able to adapt and overcome human change as well as the cases in which it does not and why they differ. I will end the paper with an evaluation of Leopold's claims that the less violent humans are the better the chance of the pyramid's survival. This topic is important because it not only provides imagery into each living thing's standings in the world and this circuit, it gives a call to action on the outcomes of human activity and the effects those can cause to everything else in the stream.



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Apr 25, 2021



To Olivia, regarding the balance of the biotic pyramid

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← Reply



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Apr 20, 2021



An Expansion of the Arguments Posed by Arthur Tansley

I should start by saying that I will be rewriting my second paper. In my second paper I argued the importance of Arthur Tansley's contribution to establishing ecology as a scientifically rooted field. I focused a lot on Tansley's objection to organicism. I elaborated heavily on his preference of his concept of the quasi organism as opposed to the super organism theory. I also went into his ideas of the way the definition of organism is used. What I failed to do in this paper is include examples from the works of Clements and Phillips that Tansley objects to. In order for Tansley's ideas to be clear I need to have contrast. I also needed to stronger support Tansley's contribution to ecology by discussing his ecosystem concept. The quasi organism concept is one idea that falls under Tansley's ecosystem concept that moved the subject of ecology toward one of science. In conclusion, I will elaborate on Tansley's ecosystem concept while differentiating it from those whose work he denounced.

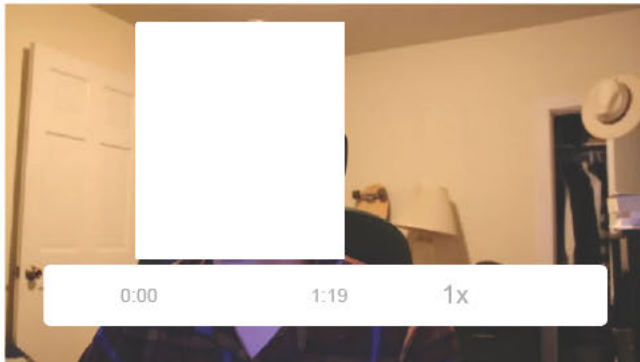


Apr 23, 2021

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Tansleys concept of the ecosystem and does it make ecology more of a science



← Reply



Apr 21, 2021

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Paper 3 - Grosz's interpretation of Darwin

In the third paper, I am doing a rewrite of the first paper that I wrote which discussed how Grosz drew from Darwin's work to argue that the new ontology of life that his theory of evolution which she argues must be applied to both the social and natural spheres and dissolved definite forms. Her interpretation applies ecology to anthropogenic influence, drawing cultural processes into ecological consideration, and also addresses the need for ecological consideration in cultural thought. I will be addressing how her perspective is important to the development of future ecologies, and how it expanded upon Darwin in a critical way, as he did not fully trace the philosophical implications of his own theory.



← Reply



Apr 21, 2021

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GLEASON'S EFFECT ON ECOLOGY

Gleason discussed the individualistic concept of plant association. Gleason's thesis argues that the plant community is an individualistic phenomenon where every plant association is independent from other plant association. This phenomenon is the result of incidental factors; "the primary causes are migration and environmental selection operating independently on each area" (Gleason, 25). Gleason lists various arguments against Clements' approach (plant associations being super organisms) to show each plant association as an individual phenomenon. **Associations**

cannot be counted as an organism when they don't reproduce their own kind, but rather a new association. **Plant associations are determined externally** unlike an organism rather than internally like Clement's super organism idea. **Boundaries of plant associations are indeterminate through physiographic conditions** which undermines the organismic conception of community. Gleason's theory came, in contrast to Clement's holological approach, demonstrating how plant associations are unlike an organism and should not be compared to one. This merological conception Gleason builds upon goes against the teleological approach, causing a fundamental shift in the study of ecology.

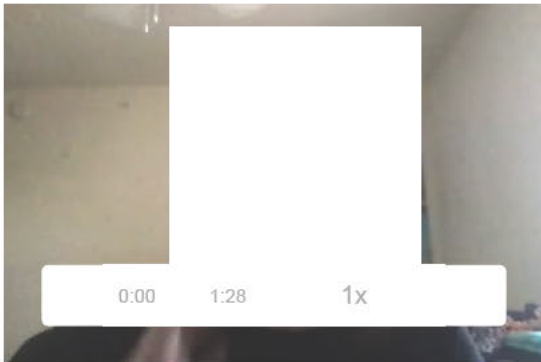
Edited by <https://uk.instructure.com/courses/1991241/users/6928697> on Apr 21, 2021 at 6:33pm



Apr 23, 2021

<https://uk.instructure.com/courses/1991241/users/6943012>

John, Gleason's effect on ecology



← Reply



Apr 21, 2021

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"The Four Principles of the Natural Community as an Economy"

For my third paper I have decided to write about the 4 principles of the natural community. In his first book Charles Elton developed these 4 principles in an attempt to try and understand animal communities. He found that all the different types of animal communities that exists, are organized in a similar way. This is an important topic because topics like food chain, food size, niche, and pyramid of numbers were all developed by Charles Elton. These important topics are still being discussed by ecologists all over the world to this day.

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Apr 23, 2021

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Hey my video isn't working so i am just going to type this out.

Maybe **helpful tips** because me and you have similar topics, is that maybe you could bring up, in your paper, the limitations of the linkages in a food chain and talk about the upper and lower limits that we talked about in class, I

think on April 16th (on the daily schedule to help you have ideas for your paper). Also what you and Olivia told me was a great idea, to talk about the links of different communities, about rabbits and plants and how they explain the importance of ecology. Also since you're talking about the food chain you can talk about how the size of the animal is based on the food size as well, and how that plays an important part in Eltons theory.

Hope this helps, email me if you need anything, i will try to help out :)



← Reply



Apr 21, 2021

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Rewrite on the difference between efficient causality and teleology

For paper 3, I am going to revise and rewrite my first paper. That paper was on the differences between efficient causality and teleology as explanatory frameworks for phenomena and existence. There were some aspects of the contents of that paper that I seemed to misunderstand, so I am going to rewrite any explanations that weren't correct or did not make sense. On top of that I am going to be simplifying my language so that my analysis is more clear and to the point.

Teleological and efficient causality are intertwined in the philosophy of ecology. They seek to achieve a similar goal, to explain existence, but take differing paths to get there. The similarity in the way they explain phenomena stems from the view of things having an end purpose. However, efficient causality focuses on the how whereas teleology focuses on the why. Many different philosophers, ecologists, and other scholars of the sort have contributed their way of understanding how and why ends are pursued through certain philosophically explainable processes. In the realm of ecology, these ways of thinking have provided continuously evolving viewpoints to explain individual organisms, communities, and ecosystems. This evolution of understanding living beings and their interactions has consequently caused evolution in the definition of ecology over time. In short, the reason this topic is important to write on is because viewpoints within the history of the philosophy of ecology have both influenced and been greatly shaped by different causal explanations such as teleological and efficient causality.

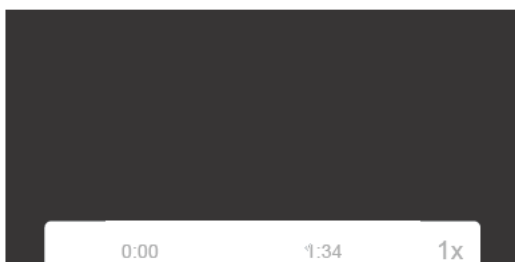


Apr 23, 2021

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Carly on the difference between efficient causality and teleology.





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Apr 21, 2021



New Age Ecology: A Study of the Odum Brothers and Lovelock's Gaia Theory

For the third paper, I am choosing to write about what I feel is an interesting time period not just for the study of ecology, but scientific thought as a whole. The second half of the 20th century was a time of great upheaval for many established schools of thought; the tech boom following WWII led to leaps in scientific innovation that gave birth to new theories and the abandonment of many old ones. The introduction of artificial fertilizers, industrial farming, and explosive growth in manufacturing laid the groundwork for a revolution in "green thinking" that sought a balance between progress and environmental consciousness. Following a brief explanation of the rising tensions between ecology as a scientific discipline and ecology as a general life philosophy, the bulk of the paper will be focused on the work of four scientists: Eugene and Howard Odum, James Lovelock, and Lynn Margulis. The Odum brothers were ecologists who worked to create a holistic, unified theory of ecology; the theory they proposed incorporated elements of ecological thought from both Tansley and Clements. Their work would transform the study of ecology into the standalone discipline that we know today. Lovelock and Margulis are widely regarded as the pioneers of the "Gaia Hypothesis/Theory" in the 1970s. The Gaia Theory, what originally drew me to this topic, is a controversial theorem that essentially states that the biotic and abiotic components of Earth form a giant planetary system that is self-regulating. This system is what creates and maintains the Earth's ability to support life. I felt compelled to write about this topic because it represents a watershed moment in the history of scientific thought; a rebranding of ancient philosophy in a modern age of technology.



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Apr 21, 2021



Individualistic vs. Organismic Concept

For my third paper, I am going to do a rewrite of my second paper. In my second paper, I focused on the individualistic concept from Henry Gleason and the organismic concept from Frederic Clements. I introduced each topic and talked about what each concept meant. For my rewrite, I am going to focus on improving my language and style of writing and organizing my work better. I have some unnecessary information that distracts from the main point of my paper and can cause some confusion. Another main thing that I am going to try to improve in my rewrite is including why the individualistic and organismic concepts are important to the history of ecology. This is something I struggled with when I was first writing the second paper, so I ended up not really including it at all. If anyone has any suggestions on how these two concepts are important to the history/philosophy and how I could include them in my paper it would be much appreciated. From the feedback I got, the evidence and quotes I used were good and went with my argument well. My main goal for this third paper is to organize my thoughts better and take out the unnecessary information, as well as discuss how the concepts are related to and important to the history of ecology.

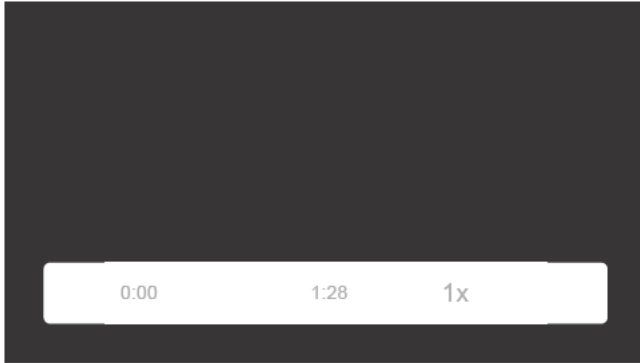




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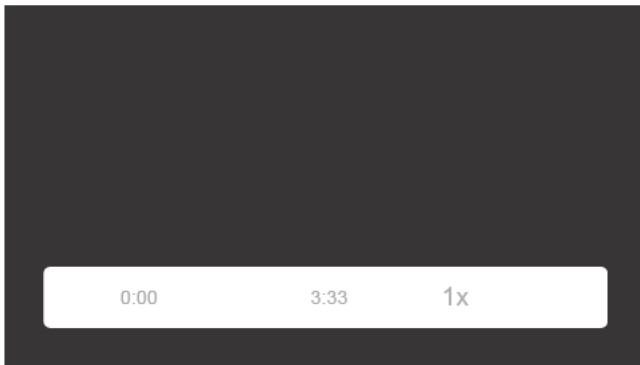
To on Individualistic vs. Organismic Concepts,



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Apr 23, 2021

For on the Individualistic vs. Organismic Concepts and *how they are important*



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Apr 22, 2021

Elton's Convincing case in Nature

This paper I wanted to talk more about Elton's convincing case in nature that we talked about in class. First, Elton talked about the four principles of the natural community as an economy. First, we have food chains and food webs which are a biggest factor in peoples lives because it forms the connecting link between members of the communities. Also Elton explained how ecology is necessarily interdisciplinary, its important and seems probably because the process of evolution takes place in a genotypic variation that arises in one or few individuals. Then to describe the fallacy in the traditional model of evolution and Elton's revision thereof.

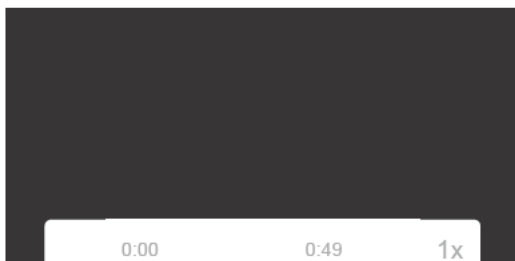




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Apr 23, 2021

Elton's Food Chains:



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Apr 23, 2021

Food Chains

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Apr 22, 2021

Charles Elton and the four principles of the natural community as economy

For my third paper, I decided to focus on Charles Elton and his work to the study of ecology. I am going to focus on his four principles of the natural community as economy. His four principles are food chain, food webs, niche, and pyramid of numbers. Food chains focuses on nutrition and how big a factor it is for animals in nature. Food webs looks at producers and consumers and how it affects where animals are placed on these webs. Niche is the status of an animal in nature and what it is doing. Lastly, pyramid of numbers focuses on the flow of energy through the ecosystem.



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Apr 23, 2021

Elton and the four principles

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Reply



Apr 23, 2021

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Significance of the Arcadian Tradition Articulated in Thoreaus Writing.

For my third paper assignment I will be rewriting by first paper about how Thoreau articulated the Arcadian tradition. I think that it is important to write about this because he was one of the first ecologist to treat nature as an equal. Many men and ecologist during this time period thought that they were superior to nature. My paper will point out various times where Thoreau articulated the Arcadian tradition and pull quotes from the book Natures Economy. My paper will also look at the two major traditions that emerged in the eighteenth century.

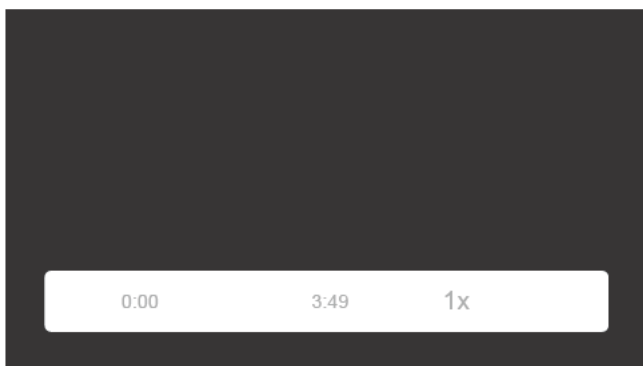


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- Arcadian Tradition



← Reply



Apr 23, 2021

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Frederic Clements's Organismic, Dynamic Ecology

For the third paper, I will be rewriting Paper 2, Foundations of New Ecology. Originally, I had written about Frederic Clements's ideology of plant succession and the organismic character of plant formations. While my paper highlighted how Clements's work studying vegetation populations and communities created the study of dynamic ecology, as previous scientists had just reported status-quo lists and definitions and had not taken into account the developmental stages occurring within the formations as Clements's did. However it did not have a clear thesis connecting the varying observations made. In the rewrite, I will base my analysis around how Kant's organismic approach to nature directly influenced Clement's ideologies and findings of plant succession. Kant's organismic approach holds that organisms are self-organized, self-moderating, self-preserved, and that they have a teleological goal to complete their life cycle.

Clement's theory of plant succession holds the goal of plant communities is to reach climax in which all needs of the components of the community are met within and that it has reached equilibrium within itself by moderating its parts, and very similarly to Kant believes that the goal of communities, what occurs in climax, is the security of ensuring the reproduction and continuance of itself, to be self-preserving. I will connect this theme with Clements's research of the American Grasslands, which was the basis study/ instance of observations of vegetation succession.



← Reply



Apr 23, 2021

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"Struggle for Existence"

I intend to revise the first paper I wrote which talks about the large significance in the struggle for existence in *Darwin's Origin*. This includes him emphasizing that he used the phrase "struggle for existence" in "a large and metaphorical sense, including dependence of one being on another." In this piece of work, he also describes the struggle resulting from population growth. Also, Charles Darwin discusses ecological interdependencies and notes that competition is at the most competitive between closely related forms of life, and animals that share similar traits and characteristics. Darwin's concept was used to revolutionize different forms of struggles that animals and creatures encounter in nature. One being, cooperative mutualism between individuals in the same species as well as between different species, competition between individuals in the same species or between one species with another, and strategies that enhance fitness when confronted by harsh environments. I think this is an important topic to talk about, after revisiting my previous paper and learning from what Professor Sandmeyer left comments I feel like this is a very important foundation and the basis of all ecological foundations.



← Reply



Apr 23, 2021

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Teleological vs Mechanistic

For the third paper, I have decided to rewrite the first paper. I chose the topic of explaining the difference between mechanistic and teleological explanations. I believe this an important topic which to clarify in the history and/ or philosophy of ecology. Knowing the difference between mechanistic and teleological explanations can help with explaining the how and why processes happen in nature. These two explanations/ views can be better understood using Kant's conception of the organism. The teleological explanation would be the why things happen. The mechanistic explanation would be the how things happen. This explanation is how the different parts of an organism can work together (cause) to make different processes happen (effect). By knowing the difference, we can then better understand other principles/ concepts of organisms.

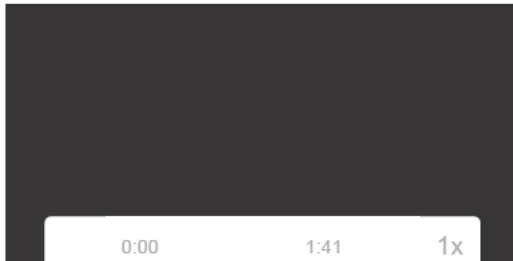




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Apr 23, 2021

Teleological vs Mechanistic



← Reply



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Apr 25, 2021

The Biotic Pyramid - Aldo Leopold

For my third paper, I will be explicating the biotic pyramid demonstrated by Aldo Leopold. I will be discussing what the biotic pyramid is, the layers of the biotic pyramid, the concern Leopold has for agricultural development/ the way humans are altering the natural organism as a whole, and explaining the importance of each organism as they all play their own part in the community of life. This topic is important to clarify in the history and philosophy of ecology because the structure of the biotic pyramid gives a visual representation of the food chain and how every living organism contributes to each other. Whether that is to supply food, be the food, or the bones for decay and enriched soil, every part of the revolving energy circuit is important to the communities. Lindemann contributes to Leopold's biotic pyramid for coming up with the trophic dynamic aspect, and Leopold understanding the land as an organism refers to Clements. Discussing the land as an organism in terms of its energy availing relationships contributes to the paradigm which arises between the hological and merelological viewpoints of ecology.



← Reply



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May 11, 2021

Leopold and the development of his ecological view

For my paper, my focus will be on Leopold and his significance to ecology. I think it will be important to discuss Leopold's history of viewpoints, primarily in terms of the way he saw large predators. In order to discuss the way Leopold

developed and changed his perspective over time, I'm going to go over the history of conservation in America and what effect that had on predatory animals. Because this began with Gifford Pinchot and Theodore Roosevelt, I will describe the way they viewed predatory animals, especially wolves and coyotes, as varmints. Their hatred for these creatures, and others who posed any sort of risk towards humans, was reflected in government policy and resulted in the extermination of wolves in the American west. This is relevant to Leopold because he had his beginnings in conservation at Pinchot's Yale School of Forestry and Pinchot's teachings eventually led Leopold to publish his book *Game Management*. In this writing, Leopold argued in favor of hunting down predatory animals in order to preserve deer populations and protect farmland. Leopold's shift from this utilitarian conception of nature is recorded in "Thinking Like a Mountain," when he shot a wolf and watched her die. This was a pivotal moment because Leopold recognized the intrinsic value of the wolf and the mountain as a whole. Following this experience, Leopold went on to publish his Land Ethic, which removes human beings from the position as masters over nature and embeds them within the food chain, as "plain citizens." Leopold's land ethic was revolutionary, not only for him, but for the rest of the country who had so long been considering conservation to mean conservation of human utilities rather than the ecosystem itself. Leopold began to come out of the system which he learned from, developing his own ideas and presenting them to the rest of the country. Although there were many other key players in this shift towards conserving ecosystems, he did play an important role.



← Reply

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By submitting this essay, I attest that it is my own work, completed in accordance with University regulations.

Option 2

The living beings and interactions between them studied in ~~the~~ realm of ecology have been understood through an evolving set of philosophical lenses throughout time. Different explanations have varying foundations, ranging from largely holistic to simply reductionist perspectives. In ~~contemporary~~ ^{early} ecology, the declaration of purposiveness in organismic relationships is central because ecosystems are understood as built on interaction between its inhabitants. ~~This purposiveness has come to be understood with the contributions of many people with multiple explanatory frameworks. Significant amongst them is the idea of causality. More narrowly within the concept of causality,~~ teleological causal explanations and efficient causal explanations offer similar, yet fundamentally different approaches. Although they are similar, the distinction between the causal explanations has proven essential to the development of ecology to what it has become today.

There is a fundamental difference in the way the causal explanations of efficient causality and teleological causality explain existence. The difference is found in the paths they take. Immanuel Kant has found that inherent to causality, efficient causes are the basis of phenomena in terms of what internal and external forces configure its final purpose (Kant, *Critique*, 244). For example, "the house is certainly the cause of the sums that are taken in as rent, while conversely the representation of this possible income was the cause of the construction of the

nice quote

house” (Kant, *Critique*, 244). Kant goes on to explain that “final causes” also drive phenomena, but in a more ideal way than the concrete way that efficient causes do (Kant, *Critique*, 244).

These causes serve to categorize the processes and purposes for which phenomena play out, because causality as a whole offers explanations in terms of the processes by which the being physically arises to create an intended product. Teleology as a causal explanation on the other, yet corresponding, hand is held on the basis of the purpose something will fulfill by reaching its final form: a focus more on the why of its existence instead of the how. A teleological explanation of the same house would argue that its purpose of being lived in is what catalyzes its material creation or collection of rent. Certain aspects of the two explanations overlap, such as in the concepts of final cause and teleology’s telos; they are both the intended end purpose or role of a being or phenomenon. Although the methods of thought reason in different ways and intend to explain slightly different aspects of existence, they are related and have proven essential to each other’s development.

more simply: the end or purpose explains the operations of the parts

Teleological causality and efficient causality can be seen as integral parts of each other’s definitions. According to Ernst Mayr, teleology is included in the three aspects of casualty itself (Mayr, “Cause and Effect,” 1501). Alongside explanation and prediction, teleology provides

understanding of the ends of a phenomenon. Knowing what the purpose is of an organism

provides the motive behind a series of actions or a series of developmental stages. Just as “final cause” proposed by Aristotle seeks to explain the purpose or goal of behavior, so do telos.

Despite differing core goals of teleological causality and efficient causality, the use of common language reflects their similarity and reliance on one another as explanatory frameworks. It is not uncommon for concepts and aspects of the methodologies overlap, as seen in the concepts of

causes; after all, they are branches of the same ideological understanding. In terms of providing a whole, rounded explanation of a system or phenomenon, they pick up on each other's slack. This allows them to be used interchangeably, often without even realizing it. The frameworks are so integrated into one another within the realm of philosophy of ecology that distinguishing when one or the other is being used can be blurred.

In order to understand a being in its entirety, it is required to recognize the how and why of its existence. Aristotle did so with the view of every natural thing having “within itself a principle of motion and stability in place, in growth and decay, or in alteration” (Aristotle, *Phys*, 43). Aristotle's belief of this inherent motion and growth is supported by Kant's belief of organisms “as natural ends” and “organized beings” (Kant, *Critique*, 242). By this he means that the telos of beings are created through processes driven by intrinsic, purposeful forces. An example of this process is illustrated with the life cycle of an oak tree. It starts off as an acorn that grows its own roots, then sprouting its own sapling, and eventually becoming a fully grown tree. This tree is capable of reproducing by means of its acorns going through the same self-formative process. Through the lens of teleological causality and efficient causality, the tree is understood as growing itself through progressive, circulatory cycles. Dynamism is not confined to individuals however, it also applies to wider, multi-organismic ecosystems. Species can work together in the same way as the dynamic and circulatory systems within an individual, relying on one another in order to achieve collective purposes within their environment. The argument of dynamism and interrelatedness between species differs based on who is being asked. Individualistic counterarguments have been offered, such as Eugenius Warming's claim of “egoism [reigning] supreme” within plant communities (Warming, *Oecology of Plants*, 95). Both

what is this

perspectives stem from the concept of relationships and interactions driving nature's systems, but they challenge each other in a way that has caused definitions of ecology to continue to shift over time.

Efficient causality and teleology as methods of thought seek to philosophically explain interactions between both separate individuals and bodily systems within individuals. Within a wider scope of understanding nature, they have directly fed the development of modern ecological knowledge. Ecology today is of course concerned with the what and where of ecosystems and interactions within them, but the why is also important. Teleology and efficient causality provide explanations for both, therefore making them essential, individually and collectively, to the study of ecology. Despite differing perspectives, they are intertwined, and without distinguishing the role of the two in terms of each other, it would be difficult to recognize their larger contributions. Especially without the clarifications the methods of thought offer for purposes of nature's creations, the claim that there is reason in the distribution, abundance, and interactions of organisms with their surroundings would fall short.

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ENS-PHI300 2021S

Grading Rubric for Paper 03

Name: (omitted)

Evaluation Criteria

Exemplary (A)

High Achievement
(B)

Satisfactory
Achievement (C)

Inadequate (D)

Score

10

Topic Selection

Identification of manageable thematic area of significance.

Identifies a creative, focused, and manageable topic that is profoundly significant to the understanding of the historical development or the philosophy of ecology.

Identifies a focused and manageable/doable topic that is appropriately significant to the understanding of the historical development or the philosophy of ecology.

Identifies a topic that while manageable/doable, is too broadly focused and/or indirectly relevant to the understanding of the historical development or the philosophy of ecology.

Identifies a topic that is too wide-ranging to be doable and/or is not clearly relevant to the understanding of the historical development or the philosophy of ecology.

9

Evidence

Effectiveness of texts and arguments brought to bear in clarifying issue.

Synthesizes all evidence presented to reveal insightful and clear analysis of topic area.

Most evidence employed reveals insight into problem area but elements of analysis not entirely clear.

Application of evidence is generally not entirely effective to insightful or clear.

May list evidence, but it does not clearly apply or is unrelated to analysis of topic area.

8.5

Language & Style

Grammatical and presentational character of the writing.

Uses graceful language that skillfully communicates meaning to readers with clarity and fluency and is virtually error free.

Uses clear language that conveys meaning to readers. The language may have errors but none are substantive.

Uses language that generally conveys meaning to readers but some sections tend to obscure rather than clarify. Include at least one substantive grammatical error.

Uses language that impedes meaning because of errors in usage.

Deductions:

28

Cumulative Score

Rubric Scoring

- Exemplary = 10 - 9 points
- High Achievement = 9 - 8 points
- Satisfactory Achievement = 8 - 7 points
- Inadequate = 7 - 6 points

Cumulative Score:

- A paper or Exemplary = 30 - 27 points
- B paper or High Achievement = 26.99 - 24 points
- C paper or Satisfactory Achievement = 23.99 - 21 points
- D paper or Inadequate = 20.99 - 18 points
- < 18 points: you must schedule a meeting with the professor.

- See the course syllabus for the grading scale employed in this class. To determine the score of this paper according to that scale, apply this formula: (total points earned / 30 points) x 100.

A simpler structure would have strengthened this paper:

Thesis: teleological and efficient causal explanations offer different but intertwined explanations of biological entities (such as organisms or ecosystems)

1. The nature of explanation by reference to ends, i.e., teleological explanation
2. The nature of explanation by reference to function of parts, i.e., efficient explanation

3. In the realm of biological objects, both manners of explanation are intertwined

Your papers show consistent improvement. This paper still falls into your one trap though, using high language to explain concepts simply. In your final paper, write a draft. Put it down for a day (if you can). When you pick it up, ask yourself – for each sentence – whether you can express the idea more simply. This doesn't mean necessarily using simple language, though that might do the trick. Rather, is the *idea* you are trying to convey expressed as simply as you can make it.