**Comparing Journal Influence Based on Citation Metrics and Scholar Perception**

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**B. Description of Project**

1. Introduction

Citations serve as a link to previously published materials and provide credit for original ideas. Citation-based metrics can indicate the influence of ideas from particular papers and in aggregation act as a proxy for influence of specific scholars and journals (e.g. [Garfield 1955](#_ENREF_4); [Garfield 1972](#_ENREF_5); [Davis 2008](#_ENREF_2)). The competitive nature of academia and scientific publishing further increases the interest in metrics of influence, impact, and prestige. The perceived importance of journals, as indicated by citation metrics, can influence the choice of publication venue for scientists. Some researchers may even make submission decisions based on a cost-benefit analysis, where financial cost or journal rejection rate compared with the benefit of publishing in highly prestigious or influential journals ([Aarssen *et al.* 2008](#_ENREF_1)). In addition to the general interest in objective metrics of influence, these metrics are increasingly being used for hiring decisions and promotion and tenure evaluation, much to the chagrin of many researchers ([Hoppeler 2013](#_ENREF_6)). Metrics are also used by librarians to inform journal subscription decisions, which was one of the primary goals of early metric development. Use by librarians may become increasingly important with the rising number of journals and challenges of funding higher education. Publishers use metrics to promote their journals and understand their influence over time and in relation to other publishers. Citation-based metrics have even been extended to compare the productivity and influence of universities and departments ([Fogg 2007](#_ENREF_3)).

2. Specific Aims

I have collected data on 11 popular citation metrics for 110 ecology journals. I have already written about the strengthens and weaknesses of these metrics (manuscript submitted). My objective is to:

1. Determine the opinion of scholars with regards to journal influence and quality
2. Compare how the various citation metrics reflect the perception of scholars.

3. Research Protocol

a. Setting:

* Ecological Society of America Annual Meeting & Conference (03 – 09 August 2013 if approved in time, otherwise 2014 annual meeting): The primary target audience is academic and professional ecologists. At the conference (usually more an 1,500 participates at the conference) I will hand out surveys between sessions opportunistically. I will also hand out surveys at workshop and conference social events. If possible, I will also set up a table in the exhibition room where people can fill out and return the surveys. No compensation will be provided.
* University of New Hampshire Natural Resources Department. I will distribute copies of the survey to Natural Resource faulty and graduate students via department mailboxes.
* I will make the surveys available online as well via my website [www.danieljhocking.wordpress.com](http://www.danieljhocking.wordpress.com). To draw attention of the desired audience to the online survey, I will email a link and description to the Ecolog List Serv, which 1000s of ecologists subscribe to.

b. Protocols

* Subjects will complete short paper or electronic surveys. There will be no specific identifying information recorded. The only personal information will be job and professional status (optional) to determine if opinions regarding journal influence is related to employment sector (e.g. academia, government, NGO) or field of study (e.g. ecology, conservation, evolution).

c. Consent

* Consent will be obtained by checking a box acknowledging consent and that they are over the age of 18. The consent information and check box (in lieu of identifying signature because anonymous survey) will be included on the top of the survey.

d. Investigator Experience

* As a professional ecologist, I have experience with this audience of my peers and have attended this conference on multiple occasions. I have no previous experience with formal research surveys.

4. Data

I will analyze the data quantitatively. I will used mixed effects regression models to determine the correlation of journal influence for each metric with the opinion of scientists. I will be able to include job sector, highest degree, and publishing history as potential covariates describing how scientists rank and rate various ecology journals. Summary statistics will also be reported in aggregate (e.g. proportion of respondents picking *Ecology Letters* as the most influential journal). The results of these analyses will be presented in scientific publications in peer-reviewed journals. The data will be deposited in a public repository associated with the publishing journal. Rows of data from individual respondents will be given a random anonymous ID number.

5. Risks

There are minimal risks associated with this research. The surveys will be anonymous to prevent any retribution associated with opinions. I do not expect this survey to cause stress or psychological harm to the subjects. No sensitive subjects

6. Benefits

This survey will help us understand how various journal influence metrics based on citations reflect scientist perceptions and opinions. This will add to our understanding of publishing practices, citation relationships, and the submission choices of ecologists. Publishing this information will help inform scientists about the use of various citation-based metrics and the prestige of journals among colleagues. There are no anticipated benefits directly to survey participants.

**C. References**

Aarssen L.W., Tregenza T., Budden A.E., Lortie C.J., Koricheva J. & Leimu R. (2008). Bang for your buck: rejection rates and impact factors in ecological journals. *Open Ecology Journal*, 1, 14-19.

Davis P.M. (2008). Eigenfactor: Does the principle of repeated improvement result in better estimates than raw citation counts? *Journal of the American Society for Information Science and Technology*, 59, 2186-2188.

Fogg P. (2007). A new standard for measuring doctoral programs. *The Chronicle of Higher Education*, 53, A8.

Garfield E. (1955). Citation indexes for science: a new dimension in documentation through association of ideas. *Science*, 122, 108-111.

Garfield E. (1972). Citation analysis as a tool in journal evaluation. *Science*, 178, 471-479.

Hoppeler H. (2013). The San Francisco declaration on research assessment. *The Journal of experimental biology*, 216, 2163-2164.

**D. Certificate of completion of ethical use and treatment of human subjects in research**

**Which best describes your current industry of employment:**

Thank you for certifying your completion of the Ethical Use and Treatment of Human Subjects module.

Name: Daniel Hocking Email: [dhocking@cisunix.unh.edu](mailto:dhocking@cisunix.unh.edu)

Institution: UNH

Position: Postdoctoral Research Associate

Reason: Institutional training requirement

Comments:

**E. Copies of all recruitment materials**

Email to Ecolog Listserv

Dear Ecologists,

I am a postdoctoral research associate at the University of New Hampshire. I am conducting a survey of ecologists related to perception of journal influence and prestige. I am recruiting ecologists to participate in a short survey <15 questions). The questions related to the quality and relative rank of ecology journals. The perception of ecologists will be compared with various citation-based metrics of journal influence and impact. The survey is anonymous and will be used for peer-reviewed publications. The survey is voluntary and no compensation will be provided for completion. You can access the survey at [www.danieljhocking.wordpress.com](http://www.danieljhocking.wordpress.com).

If you have any questions you can contact me at [dhocking@unh.edu](mailto:dhocking@unh.edu)

Thank you for your interest,

Daniel J. Hocking

**G. Copies of questionnaires (below)**

**Survey Relating to Ecological Journal Influence Metrics**

|  |
| --- |
|  |

You must check the following box for inclusion in this study. By checking this box you acknowledge that you are 18 years old or older, you have willingly chosen to participate in this study without coercion, and you are not receiving any financial or other incentive for your participation. Your answers will be anonymous and will not be traceable back to you. Data will be stored securely and reported in aggregate form.

**Survey**

**Indicate your highest degree acquired (select 1)**

|  |  |
| --- | --- |
|  | MD or equivalent |
|  | PhD or equivalent |
|  | M.S., M.A. or equivalent |
|  | B.S., B.A. or equivalent |
|  | Associates Degree or equivalent |
|  | High School Degree or equivalent |
|  | Less than high school degree |

**Which best describes your current industry of employment (select 1):**

|  |  |
| --- | --- |
|  | Academia/Higher Education |
|  | Government |
|  | Private industry |
|  | Non-governmental organization (NGO) |
|  | K-12 Education |
|  | Unemployed |
|  | Other |

**Have you published original research in peer review in scientific journals?**

|  |  |
| --- | --- |
|  | Yes |
|  | No |

**Have you published original research in ecology journals?**

|  |  |
| --- | --- |
|  | Yes |
|  | No |

**Have you reviewed manuscripts for ecology journals?**

|  |  |
| --- | --- |
|  | Yes |
|  | No |

**Have you served as an editor or associate editor for an ecology journal (presently or in the past)?**

|  |  |
| --- | --- |
|  | Yes |
|  | No |

**Which best describes your primary field of study or expertise (Select 1):**

|  |  |
| --- | --- |
|  | Ecology |
|  | Evolution |
|  | Behavior |
|  | Conservation |
|  | Statistics |
|  | Library science |
|  | Other |

**Rank (1 – 9) the relative importance of each of the following when deciding to which journal a manuscript is submitted**

|  |  |
| --- | --- |
|  | Overall “fit” including type of articles published, topics published, and intended audience |
|  | Journal Impact Factor |
|  | Reputation of journal among peers |
|  | Likelihood of article being read and cited in a particular journal |
|  | Open Access |
|  | Cost |
|  | Other Importance/Impact/Prestige metrics |
|  | Speed of review and publishing process |
|  | Past experience (positive or negative) with a journal or editor |

**Rank the following on a scale of 0 to 5 based on familiarity with each metric with 5 being highly familiar and 0 indicating that you have never heard of the metric**

0 – never heard of the metric

1 – Heard of the metric but don’t know much about it. Couldn’t supply a definition

2 – General idea of the metric but not the details

3 – Basic familiarity with the metric and basic definition but not how it differs from other metrics

4 – Understand the metric and could explain it to others but couldn’t list the strengths and weaknesses

5 – Know the definition, strengths, and weaknesses of the metric

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Journal Impact Factor | 0 | 1 | 2 | 3 | 4 | 5 |
| 5 year Journal Impact Factor | 0 | 1 | 2 | 3 | 4 | 5 |
| Eigenfactor | 0 | 1 | 2 | 3 | 4 | 5 |
| Article Importance | 0 | 1 | 2 | 3 | 4 | 5 |
| h-index | 0 | 1 | 2 | 3 | 4 | 5 |
| hc-index | 0 | 1 | 2 | 3 | 4 | 5 |
| g-index | 0 | 1 | 2 | 3 | 4 | 5 |
| e-index | 0 | 1 | 2 | 3 | 4 | 5 |
| AR-index (alt: AW-Index) | 0 | 1 | 2 | 3 | 4 | 5 |
| SCImago Journal Rank (SJR) | 0 | 1 | 2 | 3 | 4 | 5 |
| Source Normalized Impact per Paper (SNIP) | 0 | 1 | 2 | 3 | 4 | 5 |

**Rank the following journals (1 – 20) based on the influence on the field of ecology (per article?)**

|  |  |
| --- | --- |
|  | Proceedings of the Royal Society B: Biological Sciences |
|  | Ecography |
|  | Ecological Monographs |
|  | Global Change Biology |
|  | Global Ecology and Biogeography |
|  | Ecology |
|  | Methods in Ecology and Evolution |
|  | Annual Review of Ecology |
|  | Conservation Biology |
|  | Ecological Applications |
|  | Frontiers in Ecology and the Environment |
|  | Trends in Ecology and Evolution |
|  | American Naturalist |
|  | ISME Journal |
|  | Journal of Applied Ecology |
|  | Journal of Ecology |
|  | Perspectives in Plant Ecology |
|  | Bulletin of the American Museum of Natural History |
|  | Ecology Letters |
|  | Evolution |

**Rank the following journals (1 – 20) based on the influence on science as a whole**

|  |  |
| --- | --- |
|  | Proceedings of the Royal Society B: Biological Sciences |
|  | Ecography |
|  | Ecological Monographs |
|  | Global Change Biology |
|  | Global Ecology and Biogeography |
|  | Ecology |
|  | Methods in Ecology and Evolution |
|  | Annual Review of Ecology |
|  | Conservation Biology |
|  | Ecological Applications |
|  | Frontiers in Ecology and the Environment |
|  | Trends in Ecology and Evolution |
|  | American Naturalist |
|  | ISME Journal |
|  | Journal of Applied Ecology |
|  | Journal of Ecology |
|  | Perspectives in Plant Ecology |
|  | Bulletin of the American Museum of Natural History |
|  | Ecology Letters |
|  | Evolution |

**Rank the following journals (1 – 20) based on the quality of these journals**

|  |  |
| --- | --- |
|  | Proceedings of the Royal Society B: Biological Sciences |
|  | Ecography |
|  | Ecological Monographs |
|  | Global Change Biology |
|  | Global Ecology and Biogeography |
|  | Ecology |
|  | Methods in Ecology and Evolution |
|  | Annual Review of Ecology |
|  | Conservation Biology |
|  | Ecological Applications |
|  | Frontiers in Ecology and the Environment |
|  | Trends in Ecology and Evolution |
|  | American Naturalist |
|  | ISME Journal |
|  | Journal of Applied Ecology |
|  | Journal of Ecology |
|  | Perspectives in Plant Ecology |
|  | Bulletin of the American Museum of Natural History |
|  | Ecology Letters |
|  | Evolution |

**Rate each journal on a scale of 1-10 based on the influence (on scholarly thought and activity) of typical (average) articles in each journal**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Proceedings of the Royal Society B: Biological Sciences | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Ecography | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Ecological Monographs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Global Change Biology | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Global Ecology and Biogeography | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Ecology | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Methods in Ecology and Evolution | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Annual Review of Ecology | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Conservation Biology | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Ecological Applications | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Frontiers in Ecology and the Environment | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Trends in Ecology and Evolution | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| American Naturalist | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| ISME Journal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Journal of Applied Ecology | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Journal of Ecology | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Perspectives in Plant Ecology | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Bulletin of the American Museum of Natural History | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Ecology Letters | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Evolution | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

**H. Other pertinent documentation**

None