Salinas and Munch. 2015. Where should I send it? Optimizing the submission decision process. PLOS ONE 10(1): e0115451
doi:10.1371/journal.pone.0115451

Text S1

Editors who contributed data

Jürg Fuhrer (*Agriculture, Ecosystems and Environment*), Patricia Morse (*American Naturalist*), Dawn Denton (*American Midland Naturalist*), Elina Rantanen (*Animal Conservation*), Krzysztof Raciborski (*Annales Zoologici Fennici*), Jennifer Jongsma (*Annual Review of Ecology, Evolution and Systematics*), Piet Spaak (*Aquatic Ecology*), Klaus Hövemeyer, Teja Tscharntke (*Basic and Applied Ecology*), Leigh Simmons (*Behavioral Ecology*), Brian Charlesworth, Charlotte Wray (*Biology Letters*), Emilio Bruna (*Biotropica*), János Podani (*Community Ecology*), Maria Persson (*Ecography*), Anne Aitken (*Ecological Economics*), Nathalie Espuno, Marcel Holyoak (*Ecology Letters*), Brian Fath (*Ecological Modelling*), Aaron Ellison (*Ecological Monographs*), Atsushi Kume (*Ecological Research*), Adele Mullie (*Ecology and Society*), Anne Marie Whelan (*Ecology*), Suzann McClenahan (*Ecosystems*), Christoph Tebbe (*European Journal of Soil Biology*), John Endler (*Evolutionary Ecology*), Phaedra Cress, Ruth Shaw (*Evolution*), Jennifer Meyer (*Functional Ecology*), Rhea Kressman (*Global Change Biology*), Sarash de Wilde (*ISME Journal*), Leon Blaustein (*Israel Journal of Ecology & Evolution*), Peter Livermore, Kenneth Wilson (*Journal of Animal Ecology*), Andrea Baier (*Journal of Applied Ecology*), Andrea Baier, David Gibson (*Journal of Ecology*), Lianne Baker (*Journal of Evolutionary Biology*), Pamela Silver (*Journal of the North American Benthological Society*), Annie Binder, Jorge Delgado (*Journal of Soil and Water Conservation*), Paul Gobster (*Landscape and Urban Planning*), Franz Uiblein (*Marine Biology Research*), Matthias Seaman (*Marine Ecology Progress Series*), Karen Nelson, Zachary Romano (*Microbial Ecology*), Loren Rieseberg, Tim Vines (*Molecular Ecology, Molecular Ecology Resources*), Ron Hiebert (*Natural Areas Journal*), Keith Goldfarb (*Northeastern*

Naturalist), Nancy Grunewald, Jeremy Littell (*Northwest Science*), Åsa Langefors (*Oikos*), Julia Tejada-Lara (*Paleobiology*), Silke Guddat (*Pedobiologia*), Anna Hillbricht-Ilkowska (*Polish Journal of Ecology*), Dieter Piepenburg (*Polar Biology*), Ian Stone (*Polar Record*), Helle Goldman (*Polar Research*), Kazunori Sato (*Population Ecology*), Etta Kavanagh (*Proceedings of the National Academy of Sciences USA*), Chris Anderson (*Rangeland Journal*), Richard Hobbs, Susan Yates (*Restoration Ecology*), Christian Erard (*Revue d'Ecologie*), Vera Pozolotina (*Russian Journal of Ecology*), Janene Auger (*Western North American Naturalist*), Eric Hellgren (*Wildlife Monographs*).

Model S1

Model derivation

The idea behind the model is that a scientist is trying to maximize his/her citation count, C, over a given period of time

$$C = \alpha_j \lambda_j (T - \tau_j) + (1 - \alpha_j)(1 - s)^{T - \tau_j - t_r} R$$

where α_j is the acceptance rate of journal j, λ_j is its impact factor, τ_j is the time from submission to publication, t_R is the revision time, and s is the probability of getting scooped by other researchers. R indicates the remainder of the expression obtained by re-starting from journal k, l, etc. The goal is to maximize C by deciding the sequence of journals to try.

Let C_{jk} indicate the expected citation count starting from journal j, then going to k, and continuing optimally from there. To evaluate this expression, we expand R to make explicit the dependence on the second journal, and obtain

$$C_{jk} = \alpha_j \lambda_j (T - \tau_j) + (1 - \alpha_j)(1 - s)^{t_R + \tau_j} \{ \alpha_k \lambda_k (T - \tau_j - t_R - \tau_k) + (1 - \alpha_k)(1 - s)^{t_R + \tau_k} \cdot R \}$$

where R now represents the citations obtained by following the optimal submission schedule following j and k. Then the decision to start with j before k is given by $C_{jk} > C_{kj}$. That is,

$$\alpha_j\lambda_j(T-\tau_j)+(1-\alpha_j)(1-s)^{t_R+\tau_j}\{\alpha_k\lambda_k(T-\tau_j-t_R-\tau_k)+(1-\alpha_k)(1-s)^{t_R+\tau_k}\cdot R\}$$
$$\geq \alpha_k\lambda_k(T-\tau_k)+(1-\alpha_k)(1-s)^{t_R+\tau_k}\{\alpha_j\lambda_j(T-\tau_k-t_R-\tau_j)+(1-\alpha_j)(1-s)^{t_R+\tau_j}\cdot R\}$$

Noting that the terms involving R cancel, we can simplify to obtain criterion (2) in the main text. Using (2), we can compare journals pairwise to determine the citation-maximizing submission decision.

To obtain our value index (3) note that if $\frac{T-\tau_j-\tau_k-t_R}{T-\tau_j}=1-\frac{\tau_k+t_R}{T-\tau_j}\approx 1-\epsilon$, then to first order, (2) reduces to

$$\frac{\alpha_j\lambda_j(1-\tau_j/T)}{1-(1-\frac{\tau_j}{T}-\frac{t_R}{T})(1-\alpha_j)(1-s)^{t_R+\tau_j}}\geq\frac{\alpha_k\lambda_k(1-\tau_k/T)}{1-(1-\frac{\tau_k}{T}-\frac{t_R}{T})(1-\alpha_k)(1-s)^{t_R+\tau_k}}$$

Since the terms for each journal are now separable, we can score them independently using (3).

Table S1

Data used in the analysis.

Journal	Acceptance rate	Sub.-to-dec. time (d)	2012 IF
Agriculture, Ecosystems and Environment	0.14	51.1	2.859
American Midland Naturalist	0.41	227.5	0.667
American Naturalist	0.22	46	4.552
Animal Conservation	0.182	31.8	2.692
Annales Zoologici Fennici	0.5	135	1.211
Aquatic Ecology	0.154	30.9	1.378
Basic and Applied Ecology	0.313	45.4	2.696
Behavioral Ecology	0.36	43	3.216
Biology Letters	0.212	22	3.348
Biotropica	0.42	20	2.351
Community Ecology	0.396	90	1.623
Ecography	0.25	90	5.124
Ecological Economics	0.203	52	2.855
Ecology Letters	0.124	32.7	17.949
Ecological Modelling	0.36	222	2.069
Ecological Monographs	0.27	28.1	8.085
Ecological Research	0.25	46.4	1.552
Ecology	0.26	48	5.175
Ecology and Society	0.45	105	2.831
Ecosystems	0.2	42	3.165
European Journal of Soil Biology	0.22	84	1.838
Evolution	0.285	44.5	4.864
Evolutionary Ecology	0.274	20.2	2.407
Functional Ecology	0.14	32.6	4.861
Global Change Biology	0.2	45	6.91
ISME Journal	0.24	45	8.951
Israel Journal of Ecology & Evolution	0.1	42	0.444
Journal of Animal Ecology	0.168	33.4	4.841
Journal of Applied Ecology	0.17	39.6	4.74
Journal of Ecology	0.201	29.5	5.431
Journal of Evolutionary Biology	0.34	27	3.479
Journal of the North American	0.44	67	2.957

Benthological Society			
Journal of Soil and Water Conservation	0.25	70	1.722
Landscape and Urban Planning	0.21	117.6	2.314
Marine Biology Research	0.35	56	0.962
Marine Ecology Progress Series	0.45	60	2.546
Microbial Ecology	0.321	72.8	3.277
Molecular Ecology	0.27	35	6.275
Molecular Ecology Resources	0.35	36	7.432
Natural Areas Journal	0.58	28	0.707
Northeastern Naturalist	0.7	90	0.362
Northwest Science	0.7	70.3	0.512
Oikos	0.17	50	3.322
Paleobiology	0.367	90	2.757
Pedobiologia	0.3	72.1	1.69
PLoS ONE	0.69	33.4	4.092
Polish Journal of Ecology	0.6	365	0.503
Polar Biology	0.53	128	2.006
Polar Record	0.745	30	0.981
Polar Research	0.67	70	1.622
Population Ecology	0.372	41.4	1.923
Proceedings of the National Academy of Sciences USA	0.17	41	9.737
Rangeland Journal	0.407	52.2	1.276
Restoration Ecology	0.25	32	1.934
Revue d'Ecologie	0.3	212.5	0.278
Russian Journal of Ecology	0.33	450	0.236
Science	0.07	84	31.027
Southeastern Naturalist	0.7	90	0.344
Texas Journal of Science	0.778	137.9	0.113
Western North American Naturalist	0.75	129	0.366
Wildlife Monographs	0.346	182	2.833

Figure S1

Impact factor of journals that responded to our request for data did not differ from those that did not respond

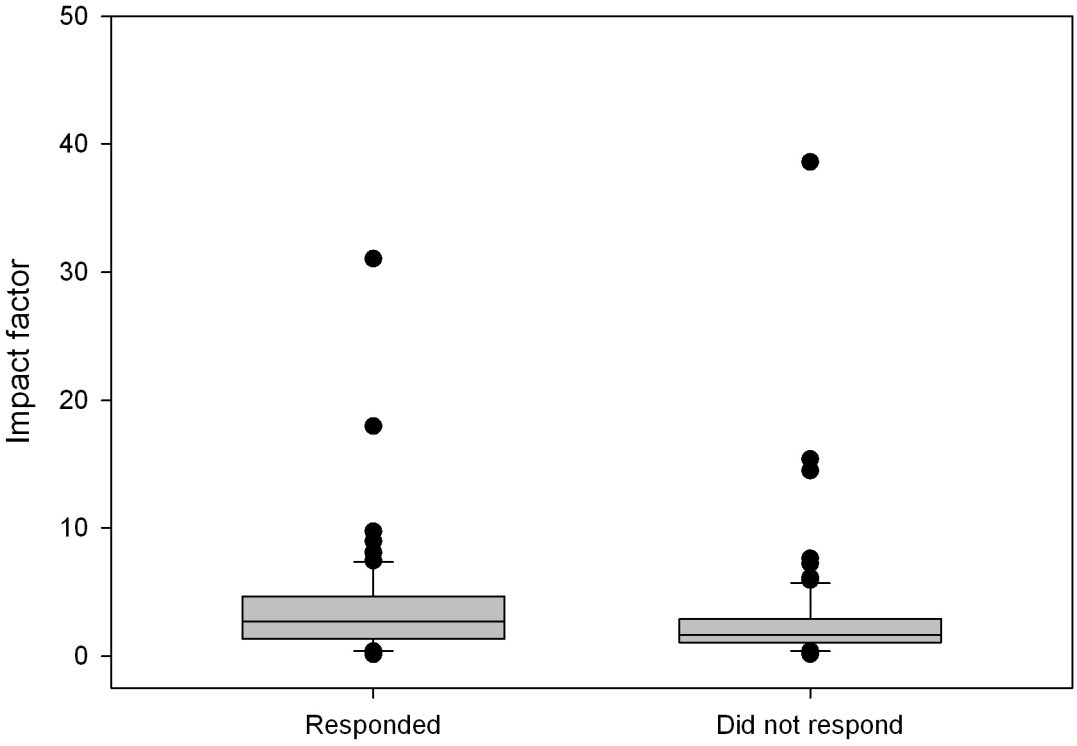


Figure S2

Sensitivity of journal ranking to varying values of *T* assuming a relatively high scooping probability (*s* = 0.01).

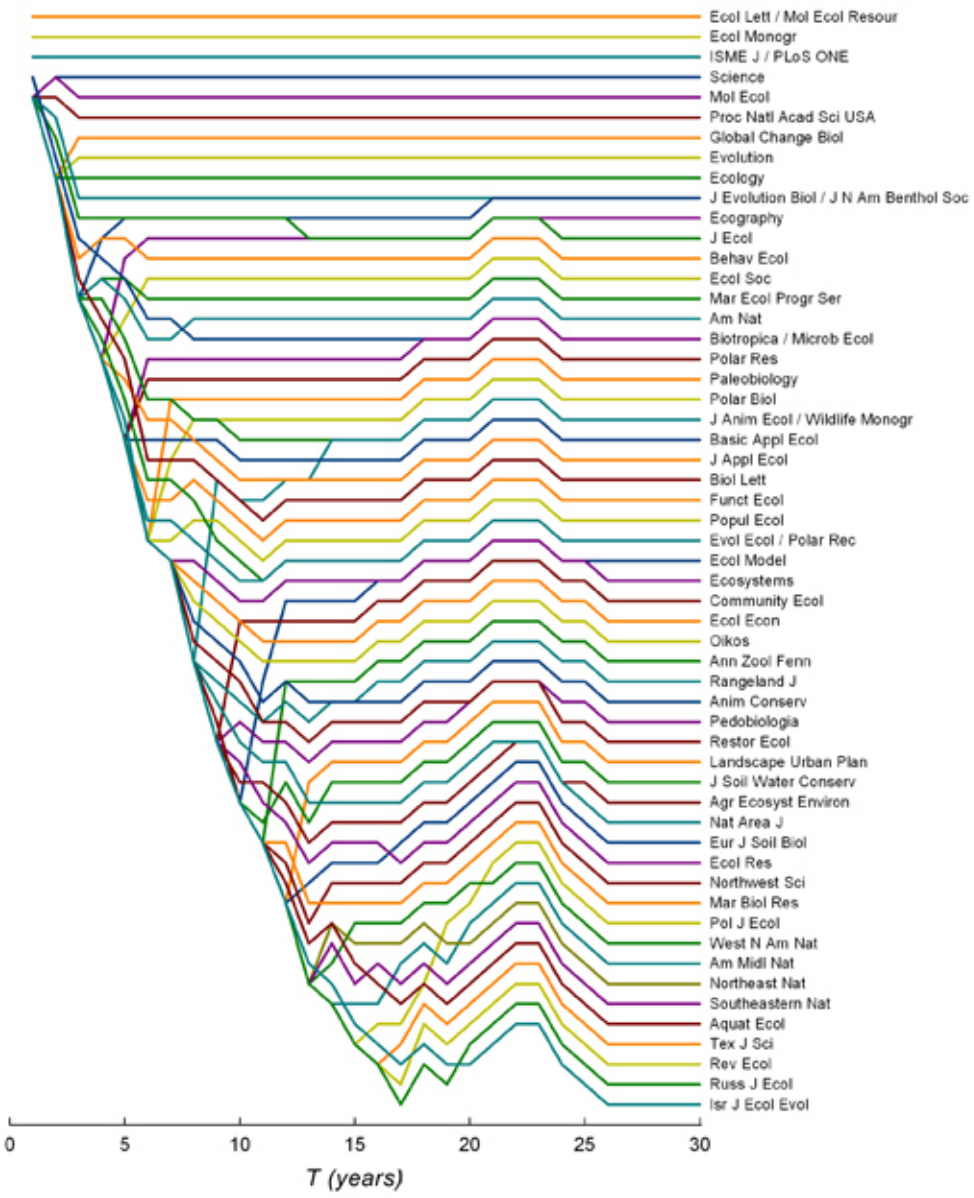


Figure S3

Sensitivity of journal ranking to varying values of *s* assuming a relatively short period of interest for the accumulation of citations (*T* = 2 years).

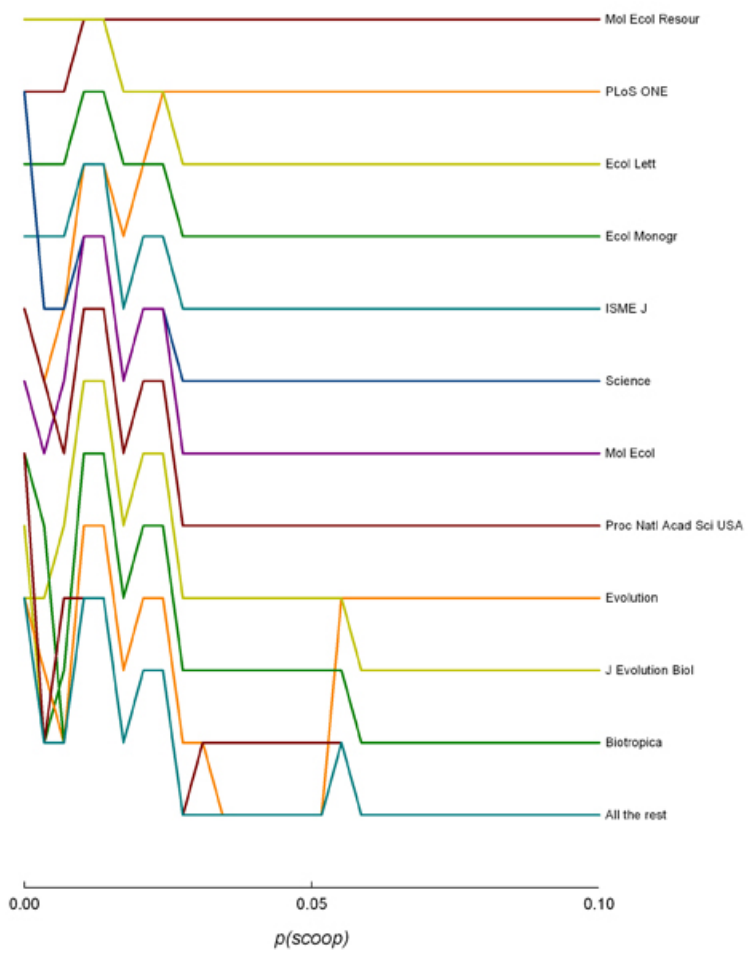


Figure S4

Expected number of citations for a given number of submissions for 3,200,000 different journal ranking combinations. Highlighted are the second-top journals for citation-maximizing strategies that minimize re-submissions (i.e., the journals that follow those in Figure 3).

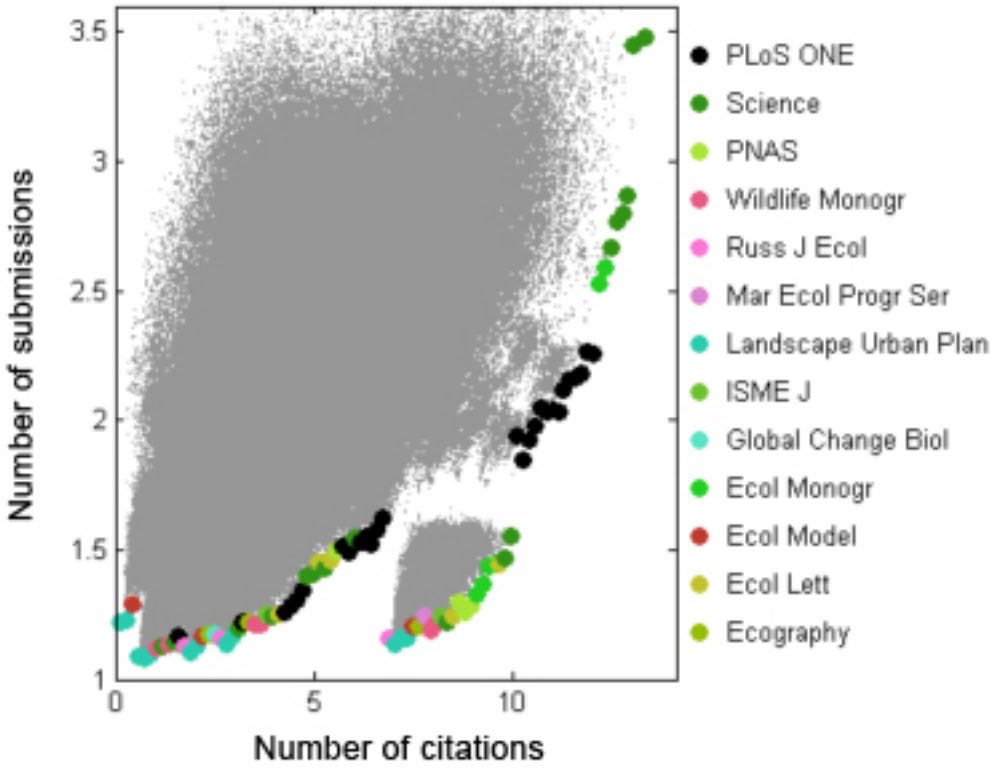


Figure S5

Expected number of citations (over 5 years) and time spent in review for 3,200,000 different journal ranking combinations. Highlighted are the second-top journals for citation-maximizing strategies that minimize time spent in review (i.e., the journals that follow those in Figure 3).

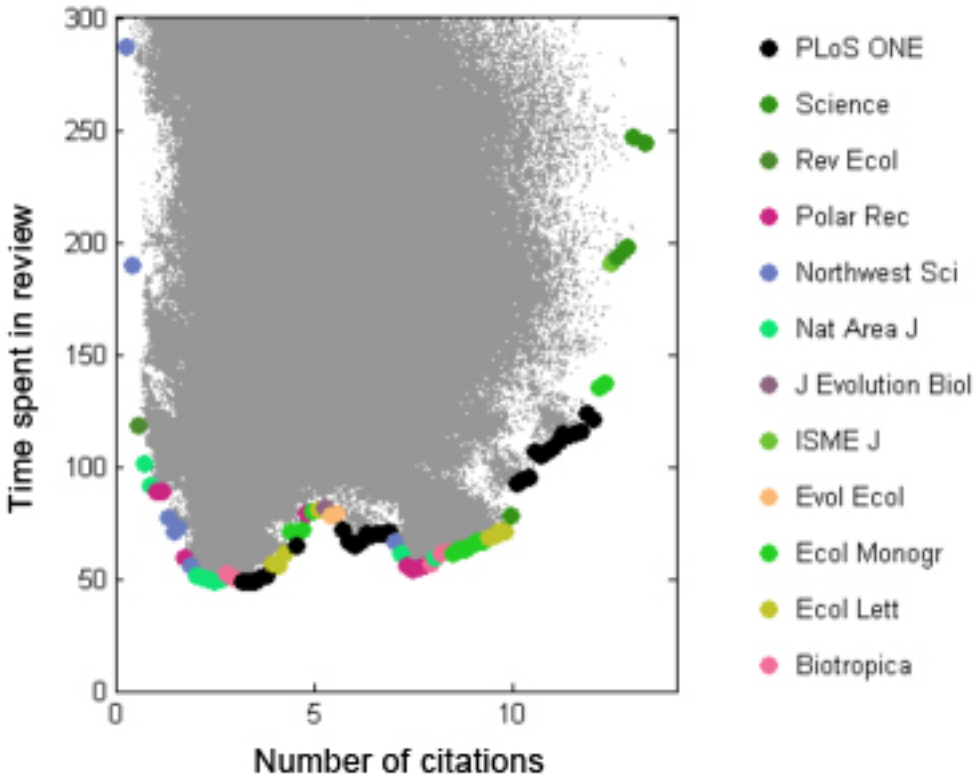


Figure S6

Expected number of citations (over 5 years) and time spent in review for 3,200,000 different journal rankings <u>excluding *PLoS ONE* from the analysis</u>. Highlighted are the top journals for citation-maximizing strategies that minimize re-submissions.

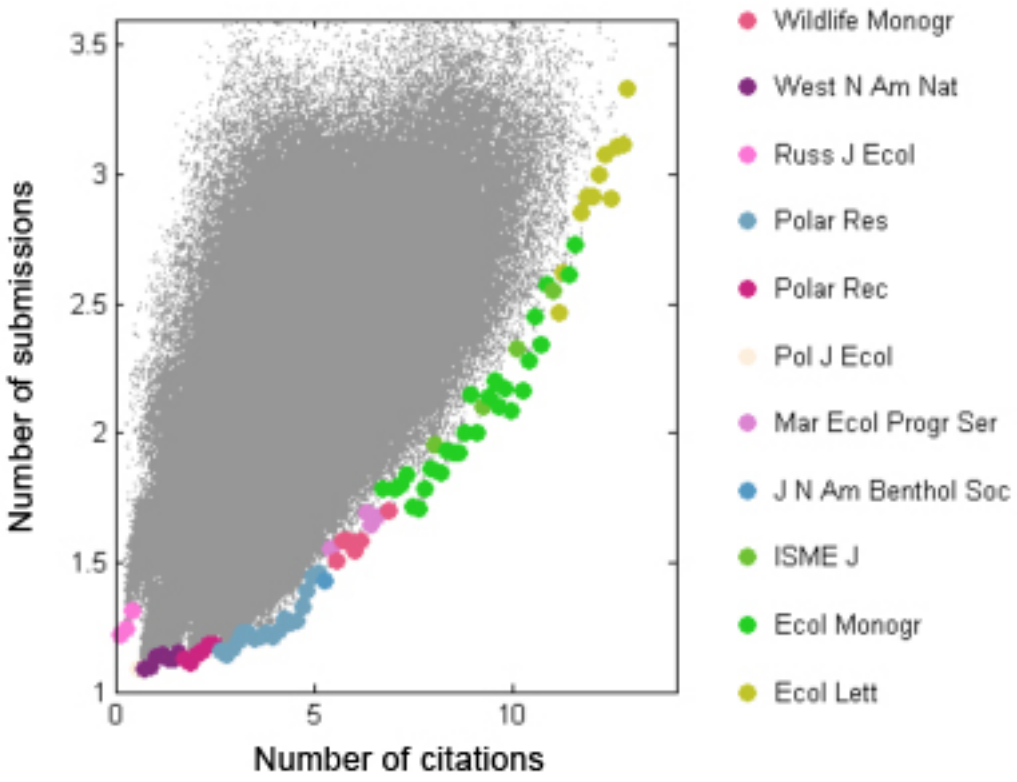
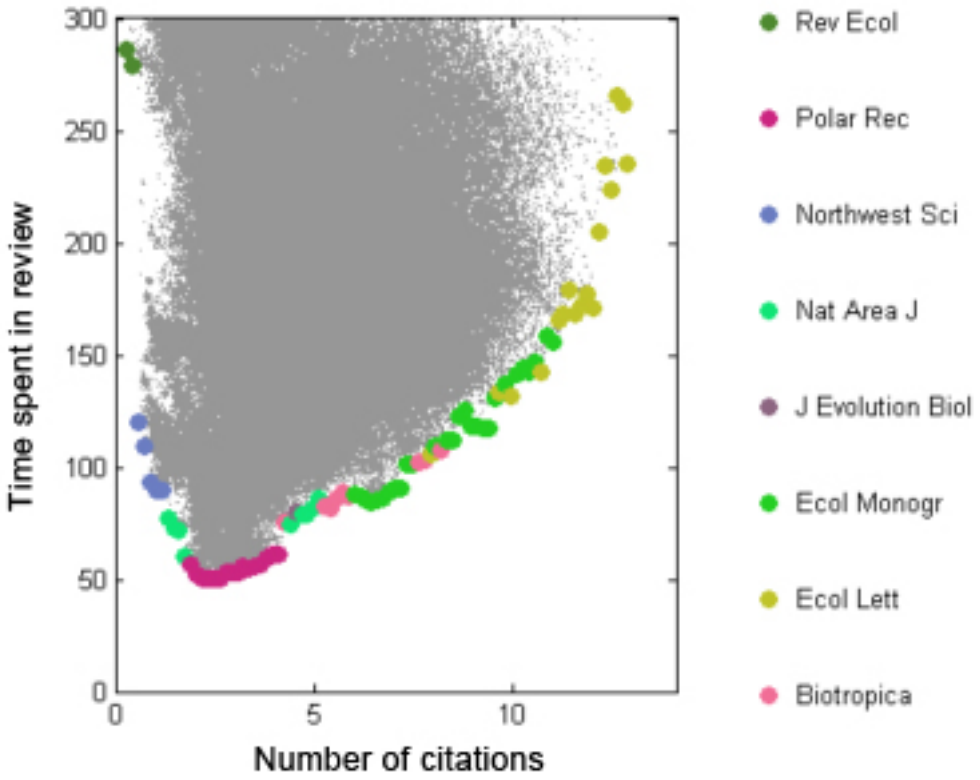


Figure S7

Expected number of citations (over 5 years) for a given number of submissions for 3,200,000 different journal rankings <u>excluding *PLoS ONE* from the analysis</u>. Highlighted are the top journals for citation-maximizing strategies that minimize time spent in review.