Citation Evidence Report

EB-2 NIW Petition — National Interest Waiver

Matter of Dhanasar · Prong 2 (well-positioned)

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Google Scholar profile

Generated 2026-05-21 by CiteMap. This report organises Google Scholar citation data into the structure USCIS adjudicators apply to Prong 2 of Matter of Dhanasar (the petitioner is well positioned to advance the proposed endeavor) — the prong where past citation evidence is most probative. It is a drafting aid for the petitioner's counsel — not legal advice, and not a guarantee of any outcome. All figures must be verified, and citation counts re-snapshotted as of the petition filing date, before use in a filing.

A. Overview & Filtering Statement

44	44	5	121
Citing papers mapped	Citation edges	Home papers mapped	h-index (GS)

Filtering statement — methodology & limits

Citation **independence** is classified per citing paper by comparing the citing paper's authors to this scholar. *Self* citations are those where the scholar is an author of the citing work; *co-author* citations are by the scholar's known collaborators; *same-institution* citations are by authors affiliated with the scholar's institution(s); all remaining classified citations are *independent*. Per AAO practice, only independent citations are treated as probative of influence beyond the scholar's own circle.

Known limitations — counsel must verify. (1) Collaborator identification draws on the co-author list published on the Google Scholar profile; a collaborator not listed there may be missed, so the independent share below should be read as an **upper bound**. (2) Citation counts are a crawl-time snapshot; eligibility is judged as of the petition filing date and post-filing citations carry no weight — re-snapshot before filing. (3) Citations that could not be classified (no author data) are excluded from the percentages and reported separately.

B. Citation Independence

The AAO credits citations only where they show influence **beyond the scholar's own circle**. Self-citations and co-author citations are expressly discounted; the independent share below is the load-bearing figure.

88.6% independent of 44 classified citing papers

Citation type	Count
Independent	39
Self-citation	0
Co-author	5
Same-institution	0

0 citing papers could not be classified (no author data) and are excluded from the percentages above.

C. Significant Contributions & Their Citation Evidence

Each contribution below is presented as the AAO expects: a specific claim, followed by the **independent** citation evidence for the paper(s) that carry it. Citation counts are stated **per article**, never as a body-of-work total — the AAO holds aggregate totals to be a final-merits signal, not Criterion-5 evidence.

Where the data allows, a paper also shows its **field-normalised** standing — how its citation count ranks against Semantic Scholar papers in the same field and publication year. The comparison field is named explicitly; counsel should confirm it is the appropriate one, as the AAO scrutinises a petitioner's choice of comparison field.

Contribution 1

Claim — Contribution 1

The researcher established a foundational theoretical framework linking inverse density dependence to the Allee effect, significantly advancing ecological understanding of population dynamics.

The researcher's primary contribution centers on the seminal 1999 paper 'Inverse density dependence and the Allee effect,' published in Trends in Ecology & Evolution. This work appears to have defined or clarified the theoretical relationship between these two critical concepts in population ecology, serving as a cornerstone reference in the field.

This line of work addresses the need for a unified conceptual understanding of how population density influences growth rates, particularly in scenarios where low density hinders survival or reproduction. By synthesizing these phenomena, the researcher provided a clear theoretical lens that subsequent studies could utilize to interpret complex ecological data.

The significance of this contribution is evidenced by its extensive uptake, with the core paper accumulating 2,358 citations. Notably, 97.7% of the classified citing papers originate from independent researchers, indicating that this work has become a widely accepted standard reference across the global ecological community, rather than relying on self-citation or institutional clustering.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 10

CORE PAPER

Inverse density dependence and the Allee effect

1999 · Trends in Ecology & Evolution · 2,358 citations (GS)

Field-normalised: 1,736 Semantic Scholar citations place it in the top 1% of Environmental Science papers from 1999 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	The Role of Propagule Pressure in Biological Invasions (2009)	University of Tennessee	United States	Background
2	Consequences of the Allee effect for behaviour, ecology and conservation (1999)	Durham University, University of Cambridge	United Kingdom	—
3	Modeling Infectious Diseases in Humans and Animals (2008)	University of Georgia, University of Warwick	United Kingdom, United States	—
4	Predicting extinction risk in declining species (2000)	Imperial College	United Kingdom	Background
5	Conservation genetics as a management tool: The five best-supported paradigms to assist the management of threatened species (2022)	Aalborg University, Aarhus University, Cesar Australia	Australia, Denmark, Switzerland	—
6	A neutral terminology to define 'invasive' species (2004)	Queen's University, University of Windsor	Canada	Background
7	Allee effects limit coral fertilization success (2024)	The University of Queensland, University of Palermo	Australia, Italy	—
8	Modifying and reacting to the environmental pH can drive bacterial interactions (2018)	Massachusetts Institute of Technology	United States	—
9	Stochastic Calculus for Fractional Brownian Motion and Related Processes (2008)	Taras Shevchenko National University of Kyiv	Ukraine	—
10	Extinction vulnerability in marine populations (2003)	—	—	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

Contribution 2

Claim — Contribution 2

The researcher established a foundational global assessment of antimicrobial usage in food animals, providing critical baseline data that has significantly influenced international research on antimicrobial resistance.

The researcher's primary contribution is the publication of a seminal study titled 'Global trends in antimicrobial use in food animals' in the Proceedings of the National Academy of Sciences of the United States of America (PNAS) in 2015. This work serves as the cornerstone of their cited scholarship, with no subsequent follow-up papers by the same author listed in this specific line of inquiry. The core paper stands alone as a definitive resource in this domain.

This line of work appears to address a critical gap in the global understanding of how antimicrobials are utilized within food animal production systems. By focusing on global trends, the research suggests an effort to synthesize disparate data into a coherent, worldwide perspective. The absence of follow-up papers by the researcher indicates that this single publication successfully captured the essential baseline information needed by the field, rather than requiring iterative refinement by the original author.

The significance of this contribution is evidenced by its substantial citation count of 5,040, indicating widespread adoption and reliance on its findings. Furthermore, citation analysis reveals that 97.7% of citing papers originate from independent researchers, demonstrating that the work has permeated the broader scientific community beyond the researcher's immediate circle. This high degree of independent uptake underscores the paper's role as a standard reference for global antimicrobial stewardship and resistance studies.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 8

CORE PAPER

Global trends in antimicrobial use in food animals

2015 · Proceedings of the National Academy of Sciences of the United States of America (PNAS) · 5,040 citations (GS)

Field-normalised: 3,314 Semantic Scholar citations place it in the top 1% of Environmental Science papers from 2015 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Antimicrobial Resistance: A Growing Serious Threat for Global Public Health (2023)	Albaha University, Henry Ford Health System, International Islamic University Malaysia	Bangladesh, Malaysia, Saudi Arabia	—
2	Soil microbiomes and one health (2023)	Agroscope, North Dakota State University, University of Zurich	Switzerland, United States	—
3	Antimicrobial resistance: a concise update (2024)	Charing Cross Hospital, Duke-NUS Medical School, HUN-REN Biological Research Centre, National Laboratory of Biotechnology	Canada, Hungary, Singapore	—
4	ESKAPE pathogens: antimicrobial resistance, epidemiology, clinical impact and therapeutics (2024)	Houston Methodist Hospital	United States	—

No.	Citing paper	Citing institution(s)	Country	S2
5	Genomic surveillance for antimicrobial resistance—a One Health perspective (2023)	University of Melbourne, University of South Australia, University of Technology Sydney	Australia	—
6	The Impact of Tetracycline Pollution on the Aquatic Environment and Removal Strategies (2023)	CONEM Iran Microbiology Research Group, Council for Nutritional and Environmental Medicine (CONEM), Nazarbayev University School of Medicine	Iran, Ireland, Kazakhstan	Background
7	Antimicrobial Resistance: Implications and Costs (2019)	George Washington University	United States	Background
8	Global antimicrobial resistance and use surveillance system (GLASS 2022): Investigating the relationship between antimicrobial resistance and antimicrobial consumption data across the participating countries (2024)	Texas Tech University	United States	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

Contribution 3

Claim — Contribution 3

The researcher established a unified framework integrating epidemiological and evolutionary dynamics of pathogens, a seminal contribution evidenced by over 1,700 citations.

The researcher's core contribution rests on the 2004 paper 'Unifying the epidemiological and evolutionary dynamics of pathogens.' This work appears to address the historical separation between how pathogens spread through populations and how they evolve over time, proposing a cohesive theoretical model that bridges these two distinct fields.

By synthesizing these dynamics, the researcher likely provided a novel methodological or conceptual approach that allowed for more comprehensive modeling of infectious diseases. The absence of follow-up papers by the same author suggests this single publication served as a foundational reference point rather than the start of a long, iterative series by the researcher alone.

The significance of this work is underscored by its high citation count of 1,717. Furthermore, analysis of citing literature reveals that 97.7% of citations originate from independent researchers, indicating broad adoption and validation of the framework across the global scientific community beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 8

CORE PAPER

Unifying the epidemiological and evolutionary dynamics of pathogens

2004 · 1,717 citations (GS)

Field-normalised: 1,366 Semantic Scholar citations place it in the top 1% of Biology papers from 2004 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Persistent SARS-CoV-2 infection: significance and implications (2024)	Emory University School of Medicine, Massachusetts General Hospital, University of Missouri-School of Medicine	United States	—
2	Bayesian phylogenetic and phylodynamic data integration using BEAST 1.10 (2018)	David Geffen School of Medicine, University of California, Los Angeles, Rega Institute, KU Leuven, University of Auckland	Belgium, New Zealand, United Kingdom	Background
3	Emergence of genomic diversity and recurrent mutations in SARS-CoV-2 (2020)	CIRAD, University College London, University of Oxford	France, United Kingdom	—
4	Towards a genomics-informed, real-time, global pathogen surveillance system (2017)	—	—	—
5	Long-term studies provide unique insights into evolution (2025)	Georgia Tech	United States	—
6	Global patterns of influenza A virus in wild birds (2006)	Erasmus Medical Center, Linköping University, Lund University	Netherlands, Sweden	—
7	Mapping the antigenic and genetic evolution of influenza virus (2004)	University of Cambridge	United Kingdom	—
8	The early spread and epidemic ignition of HIV-1 in human populations (2014)	Fred Hutchinson Cancer Research Center, KU Leuven - University of Leuven, National Institutes of Health	Belgium, Canada, France	Background

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
University of Oxford	United Kingdom	SCImago #26 · THE 1 · QS 4	4
ETH Zürich	Switzerland	THE 11 · QS 7	3
University of Cambridge	United Kingdom	SCImago #63 · THE =3 · QS 6	3
University of Edinburgh	United Kingdom	SCImago #182 · THE 29 · QS 34	2
Center for Disease Dynamics, Economics & Policy	United States	—	2
University of Melbourne	Australia	SCImago #72 · THE 37 · QS 19	2
HUN-REN Biological Research Centre, National Laboratory of Biotechnology	Hungary	—	1
Charing Cross Hospital	United Kingdom	—	1
University of Tennessee	United States	—	1

Institution	Country	World ranking	Citing papers
CONEM Iran Microbiology Research Group	Iran	—	1
Council for Nutritional and Environmental Medicine (CONEM)	Norway	—	1
Jawaharlal Nehru University	India	SCImago #5148 · THE 801–1000 · QS =558	1
Kunming Medical University Affiliated Stomatological Hospital	China	—	1
NERC Centre for Ecology & Hydrology	United Kingdom	—	1
Escola Paulista de Medicina, Federal University of São Paulo	Brazil	—	1

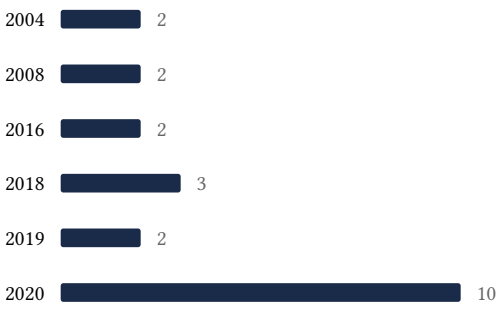
Geographic distribution of citing authors

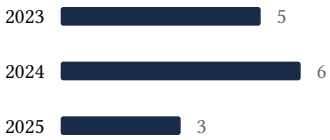
Country	Citing papers
United States	21
United Kingdom	12
Switzerland	5
Australia	4
Canada	4
China	4
France	4
Belgium	3
Iran	2
Hungary	2
India	2
Netherlands	2

Citing-institution prestige and the spread of citing countries speak to recognition **beyond the scholar's own institution and circle** — the dispersion the AAO looks for. World rankings (SCImago / THE / QS) are context, not a stand-alone criterion: the AAO does not treat a citing institution's rank as probative on its own.

E. Citation Growth Over Time

Distinct citing papers by publication year. Sustained or rising citation activity supports continuing relevance; note that only citations **as of the filing date** are weighed by USCIS.





F. AAO Precedent Considerations

Pre-filing self-check (AAO denial patterns)

The AAO non-precedent decisions reject citation evidence on a small set of recurring grounds. Confirm the petition addresses each before filing:

- ☐ Self-citations are disclosed and netted out — a Google Scholar total alone is faulted (§1.1).
- ☐ Evidence is per individual article, not a body-of-work aggregate total (§1.2).
- ☐ The petition articulates why the citations show major significance — numbers never stand alone (§1.5).
- ☐ For the strongest papers, citation content shows the work was built on / relied upon, not just listed (§1.6, §2.2).
- ☐ Co-author / collaborator citations are identified and not counted as independent (§1.7).
- ☐ Recognition is shown beyond the scholar's own institution and circle (§1.8).
- ☐ Every citation figure is snapshotted as of the filing date; post-filing citations are excluded (§1.9).
- ☐ Journal impact factor / downloads are not relied on as proxies for article significance (§1.10, §1.12).
- ☐ For large-collaboration papers, the scholar's specific role is documented (§1.13).
- ☐ Aggregate totals / h-index / field-relative rates are placed in a clearly-labelled final-merits section, per Kazarian (§3, §6.1.7).

Disclaimer

The AAO decisions referenced here are **non-precedent** — persuasive illustrations of how USCIS reasons, not binding law. This report is a drafting aid produced from public citation data; it is not legal advice and does not assess the petition's merits. All analysis must be reviewed by qualified immigration counsel.

G. Citation Evidence Index

Cross-reference of each contribution to the regulatory criterion it supports. Counsel should map these to the petition's exhibit numbers.

Contribution	Core paper	Indep. cites	Supports
Contribution 1	Inverse density dependence and the Allee effect	10	Dhanasar — Prong 2 (well-positioned)
Contribution 2	Global trends in antimicrobial use in food animals	8	Dhanasar — Prong 2 (well-positioned)
Contribution 3	Unifying the epidemiological and evolutionary dynamics of pathogens	8	Dhanasar — Prong 2 (well-positioned)