



PennState

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June 23, 2023

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

Subject: Change of Listed Senior Official

Reference: License Number SNM-95; Docket Number 070-0113

To whom it may concern,

This letter is to inform you of changes to the University's leadership that will affect the listed Senior Official on the SNM-95 Special Nuclear Materials license.

Effective July 1, 2023, I will become the Senior University official responsible for the safe use of special nuclear material at Penn State University excluding the Hershey medical Center, College of Medicine, and the Pennsylvania College of Technology. I will be filling the role previously held by Dr. Lora Weiss, following her appointment by the Department of Commerce.

My contact information is included in the letterhead of this correspondence. Enclosure 1 provides a summary of my skills, education, and experience.

Feel free to contact Aaron Wilmot (Manager, Radiation Protection Office & University Radiation Safety Officer) at adw154@psu.edu or 814-863-3976 if you have any questions or require additional information.

Sincerely,

Andrew F. Read, Ph.D.
Interim Senior Vice President for Research,
Evan Pugh Professor of Biology and Entomology,
Eberly Professor of Biotechnology
The Pennsylvania State University

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NMSS 01
NMSS

CC: Robert Paulson, Chair, University Isotopes Committee

James Crandall, Senior Director, Environmental Health and Safety

Aaron Wilmot, Manager, Radiation Protection Office & University Radiation Safety Officer

Jennifer C. Tobin, US NRC, Office of Nuclear Material Safety and Safeguards (jennifer.tobin@nrc.gov)

References: 1. Penn State broadscope license (PA-0100) license amendment No. 34.

Enclosure: 1. Dr. Andrew Read, CV

Andrew Fraser READ: CV

a.read@psu.edu

www.thereadgroup.net

Phone: 814-867-2396

Cell: 814-321-5004

Current Position: Interim Senior Vice President for Research (July 1, 2023); Evan Pugh University Professor of Biology and Entomology (since 2014); Eberly Professor of Biotechnology (since 2015).

Previous Positions

Director, Huck Institutes of the Life Sciences (since 2019-July 2023)

Director, Center for Infectious Disease Dynamics (2010-2018)

Alumni Professor in the Biological Sciences (2012-2014), Penn State University

Professor of Biology (2007-2011) and Entomology (2007-2014), Penn State University

Professor of Natural History, University of Edinburgh [Chair established 1767; 13th occupant] (1998-2007)

BBSRC Second Advanced Research Fellowship (1998)

BBSRC Advanced Research Fellowship (1993-1997)

Adjunct Professor in Evolutionary Ecology, University of Tromsø, Norway (1992-1997)

Lloyd's of London Tercentenary Fellowship (1991-1992)

Lecturer in Zoology, St Catherine's College, Oxford University (1989-90)

Junior Research Fellowship, Christ Church, Oxford (1988-1992)

Commonwealth Scholarship to Merton College, Oxford University (1985-1988)

Nationality: New Zealand (by birth); UK (by naturalisation, 2003); US (by naturalization, 2016).

Degrees:

D.Phil., University of Oxford (1985-89). [Evolutionary biology/zoology; Advisor: Prof. P. Harvey FRS]

BSc(Hons) 1st Class in Zoology, University of Otago, New Zealand (1981-84)

Awards:

Member, American Academy of Arts and Sciences (elected 2018)

Penn State President's Award for Excellence in Academic Integration (2018)

Fellow, The Royal Society (elected 2015)

Fellow, American Academy of Microbiology (elected 2014)

Fellow, American Association for the Advancement of Science (elected 2012)

Eberly College of Science Distinguished Senior Scholar, Pennsylvania State University (2007)

Fellow, Institute for Advanced Studies, Berlin (Wissenschaftskolleg zu Berlin) (sabbatical 2006-7)

Fellow, Royal Society of Edinburgh (elected 2003)

Scientific Medal, Zoological Society of London (1999)

Young Investigator Award, American Society of Naturalists (1991)

Thomas Henry Huxley Award (for D.Phil. thesis), Zoological Society of London (1991)

Summary of academic interests. My group works on the ecology and evolutionary genetics of infectious disease, particularly the pathogen evolution that harms human health and well-being. Our work involves evolutionary biology, ecology, parasitology, microbiology and genomics. Currently, much of the work is aimed at finding drug regimens that retard resistance evolution, understanding the rare cases where vaccine resistance has evolved, and identifying drivers of drug resistance in hospitals. Currently we mostly work with Marek's disease in poultry (vaccine resistance), malaria in mice (drug resistance) and vancomycin-resistant *Enterococcus* (bacterial evolution in hospitals), with a little cancer on the side. We are also researching drivers for inappropriate antibiotic use in our student health clinic. I have taught zoology, evolutionary biology, microbiology, parasitology, ecology and statistics, and non-scientists to be better consumers of science.

GRANTS

Currently in play

NIH NIAID (2019-2024). *Dynamical modelling of hospital transmission and antibiotic resistance evolution in a multidrug resistant nosocomial pathogen*. PI: Woods (Department of Internal Medicine, University of Michigan); Co-I's: King (Department of Ecology and Evolutionary Biology, University of Michigan), **Read**. R01 AI143852. Total award: \$1.25M, PSU Subcontract c.\$300k.

NOAA (2018-2023). *Wastewater as an Indicator of the Physical and Mental Health of a Community during the COVID-19 Pandemic*. PI: Preisendanz (Department of Agricultural Engineering, PSU). Role: Co-I. Total Award \$4.96M

Completed Research Support

Merck Investigator Studies Program (2021-2022). TBD. PIs: MacGregor (Department of Communication Arts and Sciences, PSU), **Read**, Sutherland (University Health Services, Pharmacy, PSU). Total Award: ~\$67 over 18 months, awarded, final negotiations on-going.

Merck Investigator Studies Program (2020-2021). *Intervening with Providers to Improve Antibiotic Stewardship with Emerging Adult Patients* PIs: **Read**, MacGregor (Department of Communication Arts and Sciences, PSU), Oliver (University Health Services, Medical, PSU), Sutherland (University Health Services, Pharmacy, PSU). Total Award: ~\$210,000 over 18 months.

Merck Investigator Studies Program (2018-2019). *Testing interventions to reduce inappropriate antibiotic use for respiratory tract infections for an emerging adult population*. PIs: **Read**, MacGregor (Department of Communication Arts and Sciences, PSU), Zook (University Health Services, Medical, PSU), Sutherland (University Health Services, Pharmacy, PSU). Total Award: ~\$230,000 over 18 months.

NIH/NIAID (2015-2020). *Variation in Resistance and Fitness to Artemisinins in African Malaria*. PI Jon Juliano, University of North Carolina; PSU subcontract PI: **Read**. PSU Subcontract c. \$150,000. R01AI121558

Merck Investigator Studies Program (2017-2018). *Observational study of doctor-patient communication to identify interventions to reduce inappropriate antibiotic use for respiratory tract infections in an emerging adult population*. PIs: **Read**, MacGregor (Department of Communication Arts and Sciences, PSU), Zook (University Health Services, PSU). Total Award: c.\$160,000.

NIH, NIGMS and UK Biotechnology and Biological Research Council (2012-2017). *Vaccines as drivers of disease emergence: transmission ecology and virulence evolution*. PI: **Read**, Co-I: Nair (Pirbright Institute, UK), Dunn (PSU), Day (Queens, Canada). Funded as part of joint NSF-NIH-USDA Ecology and Evolution of Infectious Disease program as a US-UK collaboration. Total Award c.\$3mil. R01GM105244.

CURE Epilepsy (2012-2014). *A murine model for preventing post-malarial epilepsy*. PI: Schiff (PSU UP), Co-I: **Read**, Gluckman, Drew (PSU UP), Stoute (PSU Hershey). Total award: \$350,000.

Bill and Melinda Gates Foundation (2012-2014). *Diagnostic for malaria infection in humans*. PI: Mescher; Co-I: de Moraes, **Read**. Total Award c. \$800,000.

European Commission (2012-2015). *A low-cost mosquito contamination device for sustainable malaria mosquito control*. PSU subcontract, PI: Thomas (PSU), Co-I: **Read**. Total award: c.\$1mill.

NIH, NIAID (2012-2017). *Genomic analysis of the canonical case of virulence evolution: Myxomatosis in Australia*. PI: **Read**, Co-I: Holmes (Sydney), Cattadori, Hudson (PSU), Kerr (CSIRO Canberra), Ghedin (U Pitt). Total award c.\$2.9 million. R01AI093804

NIH, NIAID (2011-2013). *Effects of temperature on mosquito immunity and vector competence: do some like it hot?* PI: Thomas (PSU); Co-I: **Read**, Cox-Foster (PSU). Total Direct costs \$275,000. R21AI096036.

NIH, NIAID. *Centre for the Study of Complex Malaria in India*. Total cost c.\$US10 mill. PI: Jane Carlton, NYU. U19A1089676-01. I am involved in two component projects:

- (i) *Using next-generation genomics to study antimalarial drug resistance in India*. (2010-2016). PSU subcontract PI: **Read**. Annual direct costs c.\$75,000. India budget ten-fold higher.
- (ii) *Ecological and evolutionary determinants of malaria transmission and the advance towards sustainable insecticidal mosquito control*. (2010-2017) PSU subcontract, PI: Thomas, Co-I: **Read**. Annual direct costs c.\$90,000. India budget ten-fold higher.

NIH, NIAID (2010-2015). *Within host selection of P. falciparum variants by artemisinin combination therapies*. PI: Jon Juliano, University of North Carolina; PSU subcontract PI: **Read**. PSU Subcontract Direct total \$345,208. R01AI089819.

NIH, NIGMS R01 (2010-2014). *The evolutionary biology of chemotherapy against infectious agents: towards rational design of patient treatment regimens for resistance management*. PI: **Read** Total c.\$1,150,000. R01 GM089932.

NIH, NIAID R21 (2010-2013) *Existing malaria control insecticides – without the evolution of insecticide-resistance mosquitoes?* PIs: **Read**, Co-I: Thomas (PSU). Total \$250,697. R21 AI088094

Innovative Vector Control Consortium, Bill and Melinda Gates Foundation. (2010-2011). *Residual persistence and stability of candidate fungal biopesticides for IRS*. PIs: Thomas (PSU), **Read**. \$101,284.

Bill and Melinda Gates Foundation (2010-2011). *Diagnostic for malaria infection*. PIs: M Mescher (PSU), C. de Morales (PSU), **Read**. \$US100,000.

The Wellcome Trust. (2010-2013). *Elucidating within-host competition between malaria parasites using mathematical models and Bayesian statistics*. (£152,942; all funding in Edinburgh). PIs: N. Savill (U. Edinburgh), **Read**. Ref. 091078/Z/09/Z.

NIH, Fogarty International Center, DHSS (2009-2013). *Intergovernmental Personnel Agreement for participation in Research and Policy for Infectious Disease Dynamics Program*. PI: **Read**. Total \$250,000.

National Science Foundation/Ecology of Infectious Diseases Program. (2009-2013). *Quantifying the influence of environmental temperature on transmission of vector-borne diseases*. PI: M Thomas; Co-I: Crane, Mann, **Read** (PSU), Scott (UC Davis). Total c\$US 2.3mill. EF-0914384.

Pennsylvania Department of Health Tobacco Settlement Funds (2008-2011). *Research infrastructure for new pesticide technologies for control of insect-borne diseases like malaria*. PI: **Read**. \$1,033,333

Bill and Melinda Gates Foundation (2009-2010). *Giving mosquitoes a 'head cold' to stop odor-driven feeding on humans*. PIs: Baker, Thomas, **Read** (all PSU). \$US100,000.

Grants prior to move to US

- The Wellcome Trust. (2007-2009). *Host-parasite interactions elucidated by McMC-based Bayesian inference*. PIs: N. Savill, **Read**. £108,867. Ref. 082601.
- Royal Society of New Zealand, Strategic Relocation Fund. *Infectious disease evolution: strategies to overcome resistance, virulence and vaccine escape*. \$NZ9.7mill + matching funds from Otago University. PI: **Read**. Declined.
- Wissenschaftskolleg zu Berlin (2006-7). Teaching replacement grant (to enable sabbatical leave). PI: **Read** €60,000.
- BBSRC (2006-2010). *Studies leading to sustainable strategies for the control of Marek's disease: Is vaccination responsible for virulence evolution in Marek's disease?* PIs: **Read**, Nair (Institute of Animal Health, Compton, England). £713,930. Ref. BB/E003540/1.
- The Wellcome Trust. (2006-2009). *Maximising the short-term efficacy of fungal biopesticide control of malaria*. PIs **Read**, Thomas (CSIRO Canberra). Terminated by Wellcome Trust 03/08 following move to US. £343,951. Ref. GR079077MA
- The European Commission (2006-9). *The evolution of parasite virulence: ecological processes shaping virulence of Ophryocystis parasites in monarch butterflies and malaria parasites in mosquitoes*. PI: **Read**; Marie Curie International Fellowship to J de Roode. £169,426. Ref. FP6-2004-Mobility-6, Proposal No. 021353-Virulence Evolution.
- The Wellcome Trust (2005-2008). *Parasite evolution in response to blood-stage malaria vaccines*. PI: **Read**; studentship to V. Barclay. £47,087. Ref. 075468/Z/04/A.
- The Wellcome Trust (2004-2009). *Flow cytometry for immunology and parasitology*. PIs: Gray, Anderton, Maizels, Matthews and **Read**. £439,023. Ref. 075855/Z/04/Z.
- BBSRC (2004-2007). *Evolution of sex allocation in protozoan parasites*. PIs: **Read** & S. West; Recognised Researcher, S. Reece. £183,094. Ref. BB/C509915/1
- BBSRC (2004-2007). *Empirical immunology meets evolutionary ecology: the virulence of coinfection* [PIs: J. Allen, **Read** & S. Nee; Recognised Researcher, A. Graham]. £313,872. Ref. BB/C5087341.
- The European Commission (2004-2005). *Genetically diverse infection, competition, and the evolution of parasite virulence*. PI: **Read**; Marie Curie Intr-European Fellowship to L. Råberg. €85,534. Ref. MEIF-CT-2003-501567.
- The Wellcome Trust (2003-2006). *The role of inflammatory host cytokines and genetic diversity in the determination of malaria virulence*. PI: **Read**; studentship to G. Long. £50,175. Ref. 069299/Z/02/A
- The Wellcome Trust (2003-2006). How does in-host competition affect transmission strategies in malaria parasites? PI: **Read**; studentship to A. Wargo. £107,453. Ref. 073094/Z/03/Z.
- The Wellcome Trust (2002-2008). Programme Grant: *Parasite life history evolution in response to medical and veterinary intervention*. PI **Read**. £1,187,420. Ref 068292/Z/01/Z.
- The Wellcome Trust (2002-2004). *Novel use of fungal entomopathogens for malaria control*. PI: **Read**. £130,038. Ref 068195/B/02/Z. (Supplement £1,750, ref 068195/B/02/A).
- The Wellcome Trust (2002). *Centre for Infection Biology and Immunology* (for new Building – now Ashworth 3). PI's: Maizels, Robinson, Allen, Barton, Blaxter, Charlesworth, Gray, Keightley, Leigh Brown, Pemberton, **Read**. £4,734,289. Ref. 064641.
- The Wellcome Trust (2001-03). *Developing optimal immunology*. PI's: **Read**, Allen, Nee. £84,335. Ref. 064121/Z/01/Z.
- NERC (2000-3): *Does parasite-mediated selection generate dynamical gene frequency fluctuations in wild populations?* PI: **Read**; Recognized Researcher: T. Little. £264,017.
- The Wellcome Trust (2001-02). *Do host-parasite arms races occur ex silico?* PI: **Read**. £82,276. Ref. 060770/Z/00/Z.

- BBSRC (1997-8). *Evolutionary ecology of host responses to parasitic infection*. PI's: **Read**, Bryant (Stirling). £51,171.
- BBSRC (1997-00). *Evolutionary causes and consequences of host responses to parasitic infection* [Fellowship support grant]; PI: **Read**. £138,018 + Read's salary.
- The Leverhulme Trust (1997-00). *Evolutionary genetics of parasite virulence*. PI: **Read**. £105,270.
- BBSRC (1996-00). *Testing mutational explanations of sexual reproduction*. PI's: **Read**, Barton, Viney; £198,116
- The Leverhulme Trust (1996-97). *Is sexual reproduction by parasites an immune evasion strategy?* PI's: **Read**, Viney. £37,320
- NERC (1995-98). *Immunocompetence versus ornamentation: an experimental study of sexually-selected breeding coloration and disease resistance in male sticklebacks*. PI's: Braithwaite, Huntingford (Glasgow) & **Read**. £134,270. GR3/10349.
- BBSRC (previously AFRC) (1993-97). *Evolutionary ecology of parasite reproductive strategies* [Fellowship support grant]. PI: **Read**. £99,890 + Read's salary.
- Leverhulme Trust (1990-4). *Sex allocation and virulence in malaria parasites*. PI's: **Read**, Keymer (Oxford); £97,750.
- NERC (1989-92). *Heritability of male quality in great tits*. C. Perrins & **Read** (Oxford). £65,000.
- Minor:**
- NESCent (2010 for 2011) *Catalysis Meeting: Evolution of Infectious Diseases: Integrating Empirical and Modeling Approaches*. PIs Reece, Mideo, **Read**, Savill. \$40,000.
- BBSRC (2004, for 2006). International Fellowship Scheme, five month sabbatical visit for Prof. Troy Day, Queens University, Ontario. *The effects of medical intervention on pathogen evolution: integrating theory and data*. PI: **Read**. £6,000.
- The Wellcome Trust (2001). Meeting grant: *Parasite Variation: Immunological and Ecological Significance*. 2001. PI's: **Read** and Viney. £2,000. Ref. 065132/Z/01/Z.
- The Royal Society (1998). Equipment grant. PI: **Read**. £8,822.
- Underwood Fund/BBSRC (1997). To host Prof. Curt Lively, University Indiana, for three month sabbatical. £4,350.
- Nuffield Foundation (1995). Summer undergraduate bursary. PI: **Read**. £1,300.
- Royal Society (1995). Equipment grant. PI: **Read**. £9,037.
- NERC (1994) Small project grant: *Transmission and prevalence of blood parasites in red grouse in relation to grouse survival, parasite sex ratio and abundance of vectors*. PI's: Hudson (Game Conservancy) & **Read** (Oxford). £21,914.
- University of Otago, New Zealand (1994). Grant for visit. NZ\$4,000.
- Royal Society Research Grant (1991). Equipment grant. PI: **Read**. £10,000.
- Oxford University Special Research Grant (1990). *Malaria sex ratios*. PI's: **Read**, Keymer (Oxford). £3,958.
- Nuffield Foundation & Royal Society (1990). Study Visit/Travel Grant to Australia and PNG. £2,500.
- Norwegian Research Council Visiting Grant (1990). PI's: Skorping (Tromsø), **Read**. £6,000.
- Leverhulme Trust (1989-90): *Sex allocation and virulence in malaria parasites*. PI's: Keymer & **Read** (Oxford). £22,750.

PHD SUPERVISION

Penn State

Current:

Afton Widdershins (2021-current). Hershey MD/PhD. Cancer therapeutic resistance. Advisors: Hansen, Hohl, **Read**.

Completed:

- Monica Acosta (2012-2019). PSU Biology. Within-host ecology, drug pressure and the evolution of drug resistance. Advisor: **Read**. [Now post-doc, University of Michigan]
- Johanna Ohm (2013-2018). PSU Biology. *Mosquito Feeding and Fitness: An Exploration of Mosquito Diets and Behaviors that Impact Mosquito Fitness, with Applications for Mosquito Mass Rearing and Control*. Advisor: **Read**, Thomas [Now Research Scientist, Verily, Google].
- Nina Wale (2011-2015). PSU Biology. *Evolution-proofing Antimicrobial Drugs Using Resource-depleting Chemotherapy*. Advisor: **Read**. [Currently post-doc, University of Michigan]
- Megan Greischar (2009-2014, NSF, NIH). PSU Entomology. *Predicting the Consequences of Diverse Life History in Malaria Parasites: Synchrony and Transmission Investment*. Advisors: Bjørnstad, **Read**. [Currently post-doc, University of Toronto, 2020: Assist Professor, Cornell University].
- Katey Glunt (2008-2013, NIH). PSU Biology. *Understanding the Consequences of Sub-Lethal Insecticide Concentrations for Insecticide Resistance Management and Malaria Control*. Advisors: **Read**, Thomas. [Currently working at KCF Consulting].
- Penny Lynch (2004-2013, self-funding) (Open University PhD). *Mathematical Modelling of the Effects of Health Interventions on the Evolution of Life History in Disease-Causing Organisms*. Supervisors: Dr U. Grimm (Mathematics, Open University) and **Read**. [Currently City of London analyst and part time post-doc with Mike Boots, UC Berkeley].

University of Edinburgh

- Silvie Huijben (2006-2009, Darwin Trust studentship). *Experimental Studies on the Ecology and Evolution of Drug-Resistant Malaria Parasites*. Supervisor: **Read**. [Stayed on as post-doc after our move to the US, then Branco Weiss Fellowship at the Barcelona Center for International Health, Spain, now Assistant Professor, Arizona State University].
- Vicki Barclay (2005-2008, WT studentship). *Studies Evaluating the Possible Evolution of Malaria Parasites in Response to Blood-stage Vaccination*. Supervisor: **Read**. [Stayed on as post-doc after our move to the US, then post-doc, Salathe group, Penn Stat, now Associate Director, Gene Therapy Program, University of Pennsylvania].
- Gráinne Long (2003-2006, WT studentship). *The Role of Inflammatory Host Cytokines and Genetic Diversity in the Determination of Malaria Virulence*. Supervisors: **Read**, Allen, Graham. [After post-docs at Penn State and University of Sheffield and Early Development Career Fellow, MRC Epidemiology Unit, Cambridge and Epidemiologist, Roche Pharmaceuticals, now at AstraZeneca, UK].
- Katrina Grech (2003-2006, WT PGRA) (Open University PhD). *The Ecology and Evolution of Malaria: Laboratory Studies of Plasmodium chabaudi and its Rodent and Insect Hosts*. Supervisor: **Read**. [Currently Research Officer, Drug Modelling Program, University of New South Wales, Sydney after Research Scientist, Moredun Research Institute, Edinburgh].
- Andrew Wargo. (2003-2006, WT Prize Studentship & ORS). *How Does In-host Competition Affect Transmission Strategies in Malaria Parasites?* Supervisor: **Read**. [Currently Assistant Professor, Virginia Institute of Marine Science after post-doc, Dept Pathobiology, University of Washington, Seattle and at USGS Western Fisheries Research Center, Seattle].
- Jaap de Roode (2001-2004, Darwin Trust), PhD: *Within-host Competition and the Evolution of Malaria Parasites*. Supervisor: **Read**. [Currently, Associate Professor, Biology Department, Emory University, GA, USA after Marie Curie International Travelling Fellowship, Athens, GA, USA;].
- Meghan Gannon (2001-2004, NSF & ORS), PhD: *Plasticity in Reproductive Traits*. Supervisors: **Read**, Little, West. [Currently post-doc, Buffalo State College & Buffalo Museum of Science, NY, USA].

- Lucy Crooks (1996-2004 [2 years absence on health grounds]; MRC studentship), PhD: *Gametocyte Investment in Malaria*. Supervisor: **Read**. [Currently Senior Lecturer (Associate Prof), Genomics and Bioinformatics, Sheffield Hallam University, UK, after post-docs at Sanger Center, Cambridge, UK, Dept Animal Breeding and Genetics, Swedish University of Agricultural Sciences, Uppsala, and at the ETH Zurich].
- Sarah Reece (2000-2003; NERC), PhD: *Evolution and Ecology of Sex Allocation*. Supervisors: West, **Read**. [Professor of Evolutionary Parasitology and Royal Society Fellow, University of Edinburgh, after NERC and Wellcome Fellowships, University of Edinburgh, following lectureship, University of Stirling].
- Heather Ferguson (1999-2002; Science Faculty Scholarship & ORS), PhD: *The Ecology and Evolutionary Implications of Malaria Parasite Virulence in Mosquito Vectors*. Supervisor: **Read**. [Currently, Reader (Associate Prof) University of Glasgow, after BBSRC David Phillips Fellowship, University of Glasgow and Ifakara Health Research and Development Centre, Ifakara, Tanzania].
- Rebecca Timms (1997-2001; BBSRC studentship), PhD: *The Ecology and Evolution of Virulence in Mixed Infections of Malaria Parasites*. Supervisor: **Read**. [Currently Associate Director, Corporate Finance, Bank of Scotland].
- Katrina Lythgoe (1996-1999; BBSRC studentship), PhD: *Genetic Variation in Structured Populations: Space, Time and the Red Queen*. Supervisors: Barton, **Read**. [Currently Sir Henry Dale Research Fellow, University of Oxford, formerly held at Imperial College, London, after being editor *Trends in Ecology and Evolution*, following a Wellcome Travelling Fellowship at Dept. Biology, UC San Diego and with me in Edinburgh, and an MSc in Science Communication, Imperial College, London].
- Alan Gemmill (1995-1999; NERC studentship), PhD: *Experimental and Comparative Analyses of the Evolutionary Ecology of Parasitic Nematodes*. Supervisors: **Read**, Viney. [Currently Senior Research Officer, Austin & Repatriation Medical Centre, University of Melbourne].
- Angus Buckling (1995-1998; MRC studentship), PhD: *Ecological and Evolutionary Effects of Intervention Strategies on the Transmission of Malaria Parasites*. Supervisor: **Read**. [Currently Professor, University of Exeter, after Royal Society University Research Fellow and lecturer, Oxford University, following a lectureship, University of Bath].
- Louise Taylor (1993-1997; MRC studentship), PhD: *Epidemiological and Evolutionary Consequences of Mixed-Genotype Infections of Malaria Parasites*. Supervisor: **Read**. [Currently a part time editor and full time mother, following a Wellcome Research Fellow at Centre for Tropical Veterinary Medicine, University of Edinburgh].

Tromsø University, Norway

- Per Arneberg (1993-1996; research assistantship, University of Tromsø, Norway), PhD: *Commonness and Rarity among Mammalian Nematodes. A Comparative Study of Parasite Abundance*. Supervisors: Skorping, **Read**. [Currently Research Scientist, Institute of Marine Research following Norwegian Research Council Fellowship, Tromsø University].

University of Oxford, England

- Stephanie Schrag (1989-1993; Marshall Scholarship, Oxford), D.Phil. *Factors Influencing Selfing and Outcrossing Rates in the Freshwater Snail, Bulinus truncatus*. [Currently a Senior Research Epidemiologist, CDC Atlanta, after Post-doc, Department of Biology, Emory University, Atlanta, USA]. Supervisors: **Read**, Keymer.

- Failed to complete:* Rosie Allister (2005-2007; BBSRC studentship + vet supplement). *Evolution of drug resistance and virulence in trypanosomes*. Supervisors: **Read**, Matthews. Withdrew on grounds of ill health.

Supervisory committees

PSU: Alejandro Ortigas-Vasquez (Bioinformatics and Genomics, 2023-current); Beth Tuschhoff (Biology, 2022-current), Shang-Lin Yeh (Biomedical Engineering, 2021-current), Nina Dennington (Entomology, 2021-current), James Fraser (Molecular, Cellular and Integrative Biosciences, 2016-2021), Lauren Quevillon (Biology, 2016-2019), Duverney Chaverra-Rodríguez (Entomology, 2016-2019), Juan Raygoza (Biochemistry and Molecular Biology, 2015-2016), Suprita Singh (Biochemistry and Molecular Biology, 2015-2020), Utsav Pandey (Biochemistry and Molecular Biology, 2015-2019), Elyse Munoz (Genetics, 2013-2017), Kezia Manlove (Biology, 2013-2016), Todd Bodmar (Biology, 2013-2015), Els Campbell (Biology, 2013-current), Raquel Loreto (Entomology, 2013-2016), Becky Hennig (Entomology, 2013-2015), John Parkinson (Biology, 2011-2014), Lindsay Beck-Johnson (Biology, 2009-2013), Maia Rabaa (Biology, 2010-2012), Rob Anderson (Entomology, 2009-2011), Ronnie Childs (Entomology, 2008-2011), Olivier Rolin (IID 2008-2012), Jennie Lavine (Entomology 2008-2011), Daniel Tyler (Tay) Pettay (Biology 2008-2011), Heather Simmons (Biology, 2007-2011), Cadhla Ramsden (Biology, 2007-2009), Sara Hester (BMB 2008-2012).

Edinburgh: A. Duncan, B. Craig, T. Lamb, R. Floyd, K. MacKenzie, L. Kruuk, C. Wade.

Oxford: R. Trevelyan, M. Sullivan.

RESEARCH ASSOCIATES, POST-DOCS AND SPONSORED POST-DOC FELLOWS

Current

Elsa Hansen (2013-current). Assistant Research Professor.

Alumni

Landon vom Steeg (2019-2022). [PSU] Now Post-doc, U Massachusetts.

Val Morley (2017-2021). [NIH]. Now post-doc University of New Mexico.

David Kennedy (2012-2018). [NIH]. Now Assistant Professor, Department of Biology, Penn State.

Clare Kinnear (201x-201xx). [PSU]. Now Public Health epidemiologist, Western Health, Australia

Andy Bell (2003-2011; 2013-2018). [NIH]. Senior Research Associate, now travelling the world.

Eleanore Sternberg (2012-2014) [EU]. Now Research Associate, Thomas Group, Penn State

Jessica Waite (2012-2015) [EU]. Now Research Manager, Thomas Group, Penn State

Jacqui Montgomery (2013-2014). [NIH]. Now Project Development Director, Eliminate Dengue, Monash University, Australia.

Courtney Murdock (2009-2014) [NSF]. Now Assistant Professor, University of Georgia, Athens, GA.

Lauren Cator (2011-2014) [PSU]. Now Assistant Professor, Imperial College, London.

Simon Blanford (2002-2014). [NIH]. Now house dad.

Laura Pollitt (2012-2013) [NIH]. Now statistician, Scottish Government, after Research Fellowship, University of Edinburgh.

Rahel Salathe (2011-current) [PSU]. Now full time mom.

Nicole Mideo (2012-2013). [NIH]. Now Assistant Professor, Toronto University.

Silvie Huijben (2009-2012). [NIH]. After Branco Weiss Fellowship at the Barcelona Center for International Health, Spain, now Assistant Professor, Arizona State University.

Krijn Paaijmanns (2008-2012). [NSF]. After Assistant Professor, Barcelona Center for International Health, now Assistant Professor, Arizona State University.

Sue Baigent (2008-2011). [BBSRC]. Pirbright Institute, UK. Now retired.

Vicki Barclay (2008-2011). [PSU]. After Post-doc, Salathe lab, PSU, now Associate Director, Gene Therapy Program, University of Pennsylvania.

Kathryn Crouch (2006-8). [BBSRC]. Now in business.

Petra Schneider (2006-2007). [Wellcome Trust]. Now Post-doctoral Fellow, University of Edinburgh.

Simmi Mahajan (2005-2007). [BBSRC]. Lost contact.

Damien Drew (2005- 2007). [BBSRC]. Now Senior Research Officer, Burnet Institute, Melbourne.

Lars Råberg (2004-2005). [Marie Curie Fellow]. Now Assistant Professor, University of Lund.

Katrina Lythgoe (2001-2002). [Wellcome Trust Travelling Fellowship]. Currently Sir Henry Dale Research Fellow, University of Oxford, formerly held at Imperial College, London, after being editor *Trends in Ecology and Evolution*, following a Wellcome Travelling Fellowship at Dept. Biology, UC San Diego, and an MSc in Science Communication, Imperial College, London.

Andrea Graham (2001-2004). [Wellcome Trust]. Now Associate Professor, Princeton University, after Leverhulme and BBSRC Fellowships at the University of Edinburgh.

Sylvain Gandon (2001- 2002). [Wellcome Trust Biomathematics Fellowship]. Now CNRS Research Director, Montpellier.

Sue Mitchell (2000-2004). [NERC]. Now Director, Spot-On Data Solutions, and Aeona, Executive Life Coaching and Leadership Development.

Tom Little (2000- 2002). [NSERC (Canada) then Wellcome Trust]. Now Full Professor, University of Edinburgh after SBS Research Fellowship and then Wellcome Trust Senior Research Fellow, University of Edinburgh.

Claus Wedekind (2000-2003) [Swiss Marie Curie Fellowship]. Now Associate Professor, University of Lausanne.

Marg Mackinnon (1998-2000). [Leverhulme]. Now Research Fellow, Wellcome Trust Unit, Kilifi, Kenya, after Dorothy Hodgkin Fellowship, Universities of Edinburgh and Cambridge.

Ana Rivero (1999-2000). [BBSRC]. Now a CNRS Research Director, Montpellier, after post-doc in Montpellier, then on a five-year Research Fellowship, Spain.

Stu West (1997-1999) [BBSRC]. Now Full Professor (Established Chair), University of Oxford, having been a Royal Society and BBSRC Fellow and Personal Chair, University of Edinburgh.

COMMUNITY SERVICE:

- Member, Scientific Advisory Board, DFG Research Training Group for Translational Evolutionary Research, Germany (2020—current) <https://transevo.de/>
- Member, Future Leaders – African Independent Research (FLAIR) Panel B (Biological Sciences). Royal Society (2021-2024). Scheme currently suspended due to UK budget cuts.
- Member, Newton Advanced Fellowships Panel: Biological Sciences, Royal Society and Academy of Medical Sciences (2021-2024)
- The Wellcome Trust: Impact of Vaccines on Antimicrobial Resistance Grant Panel (London, November 2019)
- Member, Vaccines Advisory Panel, The Wellcome Trust, London (2017—current)
- Invited Organizer, Plenary Session, ASM Microbe 2017, Evolutionary Battles Between Microbes and Hosts.
- Chair, Williams Prize Committee, International Society for Evolution, Medicine & Public Health (2016-2017)
- Chair, Omenn Prize Committee, International Society for Evolution, Medicine & Public Health (2016)

- Co-organised NIH/NIGMS workshop (2015): Ecology's Role in Population Genetics and Evolution (15 people from across the US). Bethesda, MD. Co-organizers: Sarah Schaack [Reed College] and Daniel Janes [NIH/NIGMS]
- External Scientific Advisory Committee, Center for Evolution and Medicine, Arizona State University (2015–current).
- Chair, Publications Committee, International Society for Evolution, Medicine & Public Health. (2015–current).
- Organised RAPIDD Workshop, Aquacultural Disease and the Evolution of Virulence (25 people from Europe & US). Co-organisers D. Kennedy [PSU] and G Kurath [USGS]. Seattle (2012).
- Organised RAPIDD Workshop, Evolution of Virulence from Wildlife to Farms (25 people from Europe, US and Asia). Co-organiser C. Webb, [Colorado State]. Fort Collins (2011).
- Steering Committee, American Academy of Microbiology Colloquium, *Designing Drugs That Last*. Philadelphia (2012).
- Co-organised NScent Catalysis Meeting (30 people from Europe and North America). Co-organized with S. Reece, N. Mideo, N. Savill, University of Edinburgh. Duke University (2011)
- Reviewer/interviewer, Strategic Awards Committee, The Wellcome Trust, London (2010).
- Scientific Advisory Board, DFG Priority Program Host-Parasite Coevolution, Germany (2009–current).
- Scientific Advisory Board, Finnish Centre of Excellence in Evolutionary Research (2006–2011).
- Scientific Advisory Board, School of Biological Sciences, University of Cambridge (2006–2008).
- John Maynard Smith Prize Panel, European Society of Evolutionary Biology (2007)
- Philip Leverhulme Prize Panel for Zoology, The Leverhulme Trust, London (2006, 2008).
- NCEAS working group on Establishing Ecology & Health, Santa Barbara, 2006.
- Heads of International Research Organizations (HIRO), Brainstorming Meeting on Ecology of Infectious Diseases, Bethesda, USA, (2005).
- Chair, External Review, Institute of Zoology (2003).
- Scientific Awards Committee, Zoological Society of London (2003-2007; Chair 2005–2007).
- External Examiner, BSc (Biology), University of Stirling (2001-2004).
- Vice Chair, Biodiversity Grant Panel, The Wellcome Trust (2000-2002).
- Member, Infection and Immunity Grant Panel, The Wellcome Trust (1997-2001).
- Member, SHoWCaSE Grant Panel, Wellcome Trust (1999).
- Member British Society for Parasitology, Society for the Study of Evolution, Society of American Naturalists, American Association for Advancement of Science, American Society for Tropical Medicine and Hygiene.

EDITORIAL BOARDS:

- Editorial Board *PLoS Biology* (2012–current).
- Advisory Board, *Evolutionary Applications* (2008–2012, 2018–current).
- Associate Editor, *Evolutionary Applications* (2012–2017).
- Senior Associate Editor, *Evolution, Medicine and Public Health* (2012–current).
- Associate Editor, *Evolution* (2009–2011)

- Editorial Board, *Proceedings of the Royal Society of London Series B* (2002–2008).
- Editorial Advisory Board, *Trends in Ecology and Evolution* (2000–2020).
- Editorial Board, *Journal of Evolutionary Biology* (1996–2000).

EXTERNAL PHD EXAMINER:

- University of Melbourne, Australia: 2014 [C. Kinnear, *Evolutionary Implications of Imperfect Vaccines in a Mouse Typhoid Model*]
- University of New England, Australia: 2013 [Tanzila Islam, *Replication Kinetics, Shedding, Transmission and Protective Efficacy of Rispens/CVI988 Vaccine Virus in Single and Combined Infections with Very Virulent Marek's Disease Virus.*]
- Bergen University, Norway: 2011 [Jon Magerøy, *Environmental Impact on Host-Parasite Interaction. A Study on the Adaptive Value of Host Castration and Gigantism When Hosts Can Regain Reproduction*]
- Bergen University, Norway: 2004 [Per Holmstad, *Do Parasites Affect Ptarmigan Population Dynamics?*]
- Lund University, Sweden: 2002 [L Råberg, *Costs in the Ecology and Evolution of the Vertebrate Immune System*]
- Imperial College at Silwood Park: 2001 [J Ferrari, *Evolution of Resistance to Natural Enemies*]
- University of Cambridge: 2000 [S P Brown, *Social Evolution in Parasites*]
- University of Pierre & Marie Curie, Paris: 2000 [S Gandon, *Evolution and Coevolution in Metapopulations*]
- University of Oxford: 2000 [C M Davies, *Snail-Schistosome Interactions and the Evolution of Virulence*]
- ETH, Switzerland: 1999 [S. Negovetic, *On the Maintenance of a Cline in Mixed Clonal and Sexual Populations of the Freshwater Snail Potamopyrgus antipodarum (Gastropoda: Hydrobiidae)*]
- University of Cambridge: 1999 [T L Braisher, *Genetic Variation in Trichostrongylid Parasites of the Soay Sheep on St Kilda*]
- University of Tromsø, Norway: 1999 [D A Lysne, *The Epidemiology of Macroparasites on Caged Atlantic Cod (Gadus morhua L.)*]
- Uppsala University, Sweden: 1998 [D Nordling, *Trade-offs Between Life History Traits and Immune Defence in the Collared Flycatcher Ficedula albicollis*]
- Imperial College at Silwood Park: 1998 [M Fellows, *Costs of Resistance in Drosophila melanogaster*]
- Oxford University: 1996 [B Walther, *Comparative Analyses of Ectoparasite Communities*]
- Uppsala University, Sweden: 1995 [R Dufva, *Parasites, Reproductive Success and Health Status in Birds*]

TEACHING:

Penn State

- SC200 – Science in Our World: Certainty and Controversy (2010–2017). Course director. Conceived and developed course; teaching the vast majority of it. 70 non-science majors in 2010, 100 in 2011, 170 in 2012 and 2013, 205 in 2014, 330 in 2015, 357 in 2016. <http://sites.psu.edu/siowreflections/>
- Presentations on SC200 to PSU's e-Education Council, PSU's Symposium for Teaching and Learning with Technology, ECoS Dean's Alumni Advisory Board, Department of Biochemistry and Molecular Biology, and Department of Biobehavioral Health (all 2011).
- Guest Lecture, Evolution 400 (2016, 2018, 2019, 2020, 2021)
- Guest Lecture, Penn State Altoona (2013).
- SC 297 Frontiers of Research, Lecture to 300 Freshman science students (2013, 2014).
- Guest lecture WSF460 Wildlife Behavior (2012).
- Two sessions with BMMB 598C Microbiology (2012, 2014, 2015).
- Two sessions with ENT 597A Frontiers in Insect Science (2009, 2012, 2013).

- Semester long grad course, BIOL 592 Evaluation of Biological Literature (2009).
- Co-taught semester long grad course ECOL 597 Evolutionary Ecology (2009).
- Undergrad researcher experience in the lab: Eric Choi (2017-current), Lindsey Jackson (2017-current), Yumna Ahmed (2017-current), Samantah Olson (2017-current), Clarisse Solis (2017-current), Taylor Ziegler (2016-current), Joash Lake (2015-current), Bridget Garrity (2016-current), Briana McLeod (2014-2017), Michelle Lai (2013-2016), Josh Bram (2012-2016), Rebecca Seliga (2010-2012), Courtney Babb (2011-2012), Melissa Moody (2010-2011), Lucas Nell* (2009-2010), Danielle Tomasello* (2008-2009). *=author on refereed lab papers.

University of Edinburgh

- Pathogen Evolution Module, 4th year Medical Microbiology (2003–2005). Course organiser, 4 lectures, plus associated computer practicals and tutorials.
- Malaria Module, 4th year Zoology course (2003–2006). Three lectures plus associated discussion sessions.
- Quantitative Zoology, 4th year Zoology course (1999–2006). Designed and developed course; course organiser, 12 lectures, plus associated computer practicals and tutorials.
- Evolution Core Module, 4th year Zoology course (1998–2003). Six lectures.
- Community and Population Biology, 1st year course (2000–2006). Five lectures and associated library project on Animal Extinction.
- Population and Community Ecology, 3rd year course (2000–2002). Four lectures and two associated practicals.
- Miscellaneous lectures in Evolutionary and Ecological genetics (3rd year) and Biometrics 2h (2nd year), and 0th week Gee-Whizz Evolution lecture for 1st year students.

Other

- Guest Lectures, Evolutionary Medicine courses at Queens and Toronto Universities (2016-2018)
- Faculty, Lausanne Graduate Workshop in Evolutionary Biology, Riederalp, Switzerland (2015).
- Guest Lecturer, Evolutionary Medicine course, Yale University (2012, 2013).
- Faculty, Guarda Workshop in Evolutionary Biology, Switzerland (2006, 2012).
- Tromsø University, Norway, graduate course in epidemiology (1993-1996).
- Supervision of 2-6 undergraduate projects per year at Edinburgh (1995–2006); five at Oxford (1987-1990).
- Undergraduate laboratory classes (Otago University 1983-1985).
- Undergraduate tutorials in evolution, behaviour and ecology (Oxford University 1986-1992).

UNIVERSITY SERVICE:

Penn State

- Director, Huck Institutes of the Life Sciences (2019-current). www.huck.psu.edu
- Search Committee, Dean, College of Medicine (2021-current).
- Executive Steering Committee, Compensation Modernization Initiative (2020-current).
- Steering Group, University Health Science Council (2019-current).
- Enhancing Health Executive Committee (2019-current).
- Medical Cannabis Research Advisory Committee (2019-current).
- Search Committee, Eukaryotic Gene Regulation, Dept. Biochemistry and Molecular Biology (2019-2020).
- College of Medicine's Institute of Personalized Medicine internal advisory board (2019-current).
- Search Committee, Vice-President for Research (2018-2019).
- Director, Center for Infectious Disease Dynamics (2010-2018) www.ciddd.psu.edu
- Awards Committee, President's Award for Excellence in Academic Integration (2018).
- Search Committee, Director Huck Institutes of Life Sciences (2017-2018)
- Steering Committee, Penn State's Keystone Institute (2016-2017).
- Enhancing Health Steering Committee, PSU Strategic Plan Implementation (2016-2018)
- Huck Scientific Advisory Board on Global Health Biosecurity (2016-current)

- Chair, Seminar Committee, Department of Biology (2016-2017)
- Nominations Committee, Department of Entomology (2016-current)
- Chair, Search Committee, Professor of Entomology: Mosquito Transmission of Biosafety Level 3 Arboviruses (2016-7).
- Chair, Alex and Jessie C Black Award for Excellence in Research Committee, College of Ag Sci (2016).
- Search Committee, BSL3 Faculty, Department of Veterinary and Biomedical Science, College of Ag Sci (2015-2017)
- Search Committee, Academic Administrator Replacement, Department of Biology (2015)
- Search Committee, Chair of Biology (2015)
- Search Committee, Dean, Eberly College of Science (2014-5)
- Tombrose Fellow responsible for general education development, Center for Excellence in Science Education, Eberly College of Science, Penn State (2012-2014)
- Directors Advisory committee, Huck Institute for Life Science (2013–current)
- Huck Institute Transformative Science award committee, Huck Institute for Life Science (2012-3)
- Awards Committee, Department of Entomology (2011-2014)
- Department Head Advisory Committee, Department of Entomology (2012-2014)
- Mentoring Committee, Department of Biology (2007–2016)
- Faculty Mentor: Maciej Boni (Associate Professor, tenure track, Dept of Biology, 2016-2018), Jesse Lasky (Assistant Professor, Department of Biology, 2016-current), Heather Hines (Assistant Professor, Dept Biology, 2013-current), Ping Du (BIRCWH Scholar, Assistant Professor, Division of Epidemiology, Dept Public Health Sciences, 2010–2013); David Hughes (Assistant Professor, Dept. Entomology, 2011–current); Matt Ferrari (Assistant Professor, Dept Biology, 2011–tenure, 2016); Marcel Salathe (Assistant Professor, Dept Biology, 2011–2015, left PSU pre-tenure), Isabella Cattadori (Assistant Professor, Dept Biology, 2009–tenure, 2014).
- Seminar Organizer, Entomology Department (2010-2011)
- Promotion and Tenure Review Committee, Department of Biology (2010–2012)
- Huck Infectious Disease Cluster Hire Umbrella Committee (Chair) (2009–2011) [c. 15 faculty hired]
- Advisory/Long Term Planning Committee, Department Biology (2009–2017)
- Promotion and Tenure Review Committee, Department of Entomology (2009–2011)
- Faculty and Staff Awards Committee, Department of Biology (2008–current)
- Candidacy Committee, Department of Biology (2009–2016)
- Graduate Committee, Department of Biology (2007–2008)

Edinburgh

- Convener of Exam Board, Evolutionary Biology Honours (2005–2006)
- Convener of Exam Board, Zoology Honours (1999–2006)
- Convener of Exam Board, Animal Biology 2h, Parasite Biology 3M, and Behavioural Ecology 3M (1999–2006)
- Convener of Exam Board, Population and Community Ecology 3 (2004–2006)
- Chairman, Davis Trust Committee (2000–2006)
- Management Committee, Centre for Infectious Diseases (2003–2006)
- Management Advisory Group, ICAPB (1998–2004)
- SBS Animal Units Management Group (1999–2006)
- Steering Committee, School of Biology (1999–2003)
- Chairman of Examiners, Parasitology Honours (1999–2003)
- Faculty Research Staff Review Board (1999–2001)
- Member, University Disciplinary Tribunals and Grievance Committee (1999–2003)
- Internal PhD examiner: 1995 [Blackman], 1998 [Healer], 1999 [Wedgewood-Oppenheim], 2001 [Rokas], 2002 [Aboobaker].

FURTHER EDUCATION:

- Insights Programme: leadership and management development for senior academics, University of Edinburgh (2006)
- UK Home Office, Modules 1-3, Animal Licensing (2000)
- UK Home Office, Module 5 course, Animal Licensing (1999)
- Contract Researcher Initiative SHEFC Project (CRISP) Research Managers Workshop (1997)
- BBSRC Media Training Course (1997)
- Open University: Introduction to Calculus (1995), Mathematical Methods and Models (1996)
- Wellcome Trust Summer School 'Molecular Parasitology' (1990)

PUBLIC OUTREACH:

- Martin Lecture in Ecology and Evolutionary Biology, University of Toronto. Public Lecture. *The future of SARS-CoV-2*. 2022
- Penn State Village. Invited talk. *Antibiotic Resistant Superbugs*. 2017.
- Research Unplugged, Schlow Library. State College. Invited talk: *Antibiotic Resistant Microbes: Threat to American Lives and Global Economy*. 2017.
- 23rd Annual American Society for Microbiology Conference on Undergraduate Education (ASMCUE). Invited talk : *Overwhelming Evolution. Patients, Microbes and the Darwinian Process*. 2016.
- University Health Services, University Park. Invited seminar (Continuing Medical Education): *Antimicrobial resistance, patients and the Darwinian process*. 2016.
- 21st Annual Advances in Physiology & Pharmacology in Anesthesia and Critical Care, Wake Forest Baptist Medical Center NC held at the Hilton Head Island, SC. 2014. Special Lecture (Continuing Medical Education): *Our bugs are getting smarter, are we?*
- Eberly Family Distinguished Lecture, *Medicine and the (mis)Management of Evolution*. Penn State, 2015.
- Wissenschaftskolleg zu Berlin, Public Lecture *When Evolution Matters*. 2014.
- Coursera MOOC *Epidemic – the Dynamics of Infectious Diseases*. I am one of 8 PSU faculty involved in producing this course; I produced 8 videos and contributed to overall course design. Ran from October 2013. <https://www.coursera.org/course/epidemics>
- Palo Alto Institute <http://paloaltoinstitute.org/> Invited speaker, Evolutionary Medicine symposium. <https://www.paloaltoinstitute.org/events/evolutionary-medicine>. 2012.
- Invited speaker TedMed 2012 <http://www.youtube.com/watch?v=cvXc9aMF6CA>
- Member, NESCent Working Group “*Infusing Premedical and Medical Education with Evolutionary Thinking*”. This is aimed at developing model curricula and curricular Materials in Evolutionary Medicine. Participant, 2012-2013.
- Co-organizer and teaching faculty on CME course *Evolutionary Foundations for Medicine and Public Health* with special emphasis on Cancer and Infections. This week long course at the Mt Desert Island Biological Laboratories was designed primarily to introduce physicians, public health specialists and non-evolutionary biomedical scientists. 2012.
- ECoS Frontiers of Science public lecture in the series *Epidemic! Infectious Disease on a Changing Planet*. Viewable at <http://science.psu.edu/news-and-events/lectures-and-events/frontiers/watch-videos/epidemic/future-of-disease-in-pharmaceutical-age>. 2011.
- Penn State Physician CME Weekend, Annual Physician Alumni Gathering. (Invited lectures). 2010, 2013.
- Princeton University, Public lecture, *The Future of Infectious Disease in a Pharmaceutical Age* sponsored by Princeton University Press. 2010.
- Major contributor to BBC Horizon Documentary ‘Are humans still evolving?’. 2010.
- Pennsylvania Veterinary Medical Association, 9th Annual Spring Clinic. (Invited speaker). 2007.
- Festival of Science, British Association for the Advancement of Science (Invited public lecture). 2007
- International Congress of Parasitology, Glasgow (Invited public lecture). 2006.

- British Association for the Advancement of Science Media Fellow 2003. Six-week placement with *The Irish Times*, Dublin, culminating in a week covering the BA Festival of Science. For full list of published stories, plus thoughts and a sample of published articles see <http://www.thereadgroup.net/author/andrew/>
- Acadia University, Canada. 17th Annual Huggins High School Science Seminar (Invited Keynote). 2002.
- Faculty of Science and Engineering, University of Edinburgh (Invited public lecture). 1997.

SABBATICALS AND SIGNIFICANT LEAVE

- ETH Zurich (Sabbatical, September 2017-August 2018).
- Department of Internal Medicine, Division of Infectious Diseases, University of Michigan Medical School (March-August 2014) (Research Leave).
- Wissenschaftskolleg zu Berlin (2006-7) (Sabbatical from University of Edinburgh)

INVITED CONFERENCE PRESENTATIONS AND RESEARCH SEMINARS (EXTERNAL):

2022

Department of Ecology and Evolutionary Biology, University of Toronto (Invited seminar)

Harvard Center for Communicable Diseases (Invited speaker)

2021

South African Immunology Society 8th Annual Conference (Invited speaker)

Newton Institute Cambridge, UK, Workshop: Evolutionary Implications of the COVID-19 Vaccination (Invited speaker)

2020

York Univ, UK (Invited seminar)

World Anti-Microbial Resistance Congress 2020 (Invited panelist)

Evolution and Ecology on-line seminar series (Invited speaker)

<https://www.youtube.com/channel/UCMsYvoHLNVm4rbcTLj162zQ/videos>.

2019

New Horizons in Science, ScienceWriters2019 (Invited plenary)

Ecology and Evolution of Infectious Diseases, Princeton (Invited keynote speaker)

2018

Louis A. Bloomfield Memorial Medical Lecture, School of Medicine, Case Western Reserve University, Ohio.

International Society of Evolution, Medicine & Public Health Annual Meeting, Salt Lake City, UT (Invited plenary)

Wenner Gren Conference, Antibiotic Resistance, Stockholm, Sweden (Invited speaker).

European Society for Paediatric Infectious Diseases, Malmö, Sweden (Invited speaker).

University of Zürich, Department of Plant and Microbiol Biology, Switzerland (Invited seminar)

University Hospital of Zürich, Department of Infection and Microbiology, Zürich, Switzerland (Invited seminar).

Swiss Federal Institute of Aquatic Science and Technology, Zürich, Switzerland (Invited seminar)

ETH Zürich, Department of Integrative Biology, Switzerland (Invited seminar).

Darwin Birthday Lecture, Institute of Cancer Research, London, UK.

2017

Max Planck Institute for Evolutionary Biology, Plön, Germany (December) (Invited seminar).

Kiel University, Germany (December) (Invited seminar).

Glaxo Smith Kline, Belgium. Workshop: *Prioritizing vaccines to fight antimicrobial resistance* (July) (Invited speaker).

American Society for Microbiology, Microbe 2017, New Orleans (Invited plenary).

New York University School of Medicine, Department of Microbiology (Invited seminar).

2016

Penn State Hershey Medical School (Invited speaker, Grand Rounds).

Penn State MD/PhD Retreat (Invited speaker).

NIH Rockview, MD (Invited seminar).

ISGlobal, Barcelona (Invited seminar).

2015

Georgetown University, Department of Biology (Invited seminar)

NIH/NIGMS, Workshop: *Ecology's Role in Population Genetics and Evolution*, Bethesda, MD (invited speaker)

Royal Society-National Academy of Sciences Sackler USA-UK Scientific Forum *Trends in Synthetic Biology and Gain of Function and Regulatory Implications* London (Invited speaker)

Latsis Symposium, *Drug Resistance*, ETH Zurich, Switzerland (Invited speaker).

Department of Ecology and Evolution, University of Lausanne, Switzerland (Invited seminar).

Inaugural Meeting, Foundation for Evolution, Medicine and Public Health, Phoenix, AZ (Invited speaker).

International Poultry Scientific Forum, Atlanta (Dendy Keynote Address).

2014

MEEGID XII – 12th International Conference on Molecular Epidemiology and Evolutionary Genetics of Infectious Disease, Bangkok, Thailand (Keynote speaker).

NSCent Celebration, Durham NC (Invited speaker).

Department of Ecology and Evolutionary Biology, University of Michigan (Invited seminar).

10th International Symposium on Marek's Disease and Avian Herpesviruses, East Lansing, Michigan (Accepted talk).

School of Public Health, Yale University (Invited seminar).

Department of Ecology and Evolutionary Biology, UCLA (Invited seminar).

Department of Life Sciences, EPFL, Switzerland (Invited seminar).

British Society for Parasitology, Annual Conference, Cambridge, UK (Invited speaker).

Department of Ecology and Evolutionary Biology, University of Michigan (Invited keynote, Young Investigator Symposium).

School of Life Sciences, Arizona State University (Invited seminar).

Department of Genetics, North Carolina State (Graduate student invited seminar).

2013

Department of Ecology and Evolutionary Biology, Yale University (Invited seminar).

Foundation Mérieux, Annecy France, Meeting, Vaccination: an evolutionary engine for species? (Invited speaker).

Drexel University College of Medicine, PA (Invited seminar).

Intecol Congress, London, UK (Invited Speaker).

Gordon Conference, Microbial Population Biology (Plenary speaker).

2nd International Biannual Evolution and Cancer Conference, UCSF (Plenary speaker).

American Society of Naturalists, Vice Presidential Symposium, Snowbird, Utah (Invited speaker).

British Society for Parasitology Annual Conference, Bristol, UK (Plenary conference speaker + Keynote speaker in the associated British Ecological Society Special Interest Symposium).

University of Chicago Medical School (Invited seminar).

Department of Ecology and Evolution, University of Chicago (Invited seminar).

Evolutionary Medicine Month, UCLA Medical School (Invited, Grand Rounds).

2012

Avian Disease and Oncology Laboratory, ARS, USDA, East Lansing, Michigan (invited seminar).

RAPIDD Drug Resistance and Coinfection Workshop, Princeton University (invited speaker).

Ecology and Evolution of Infectious Disease Annual Meeting, Berkeley (invited speaker).

Department of Ecology and Evolutionary Biology, Yale University (Invited seminar).

Division of Biology, Kansas State University (Invited seminar).
Department of Biology, University of Vermont (Invited seminar).
Institute for Science and Technology, Austria (Invited seminar).
Department of Pharmacology, University of Hawaii, Hilo (Invited seminar).

2011

Department of Biology, University of Bergen, Norway (Invited seminar).
Department of Biology, University of Rochester, NY (Invited seminar).
International Meeting on Malaria and Related Haemosporidian Parasites of Wildlife, NSF-sponsored Research
Coordination Network for Haemosporida of Terrestrial Vertebrates (Plenary speaker).
American Association of Veterinary Parasitologists/Livestock Insect Workers Conference/International Symposium of
Ectoparasites of Pets, St Louis, Missouri (Plenary speaker).
Laboratory of Parasitic Diseases, National Institutes of Health, Bethesda (Invited seminar).
Stanford University School of Medicine CA, Department of Microbiology and Immunology (Invited seminar).
Louis Thaler Lecture, IFR "Biodiversité", Montpellier, France.
Department of Biological Sciences, Vanderbilt University, Nashville TN. (Invited seminar).
National Academy of Sciences Colloquium *In the Light of Evolution V: Cooperation*, Irvine CA (Invited speaker).

2010

Keystone Symposium, *Molecular Targets for Control of Vector-Borne Diseases: Bridging Lab and Field Research*,
Copper Mountain, Colorado (Invited speaker)
Princeton University, Frontiers in Biology Public Seminar Series (Invited speaker).
Department of Ecology and Evolutionary Biology, Princeton University, NJ (Invited seminar).
Walter Reed Army Institute of Research, MD. (Invited, Distinguished Speakers Seminar Program)

2009

*Epidemics*² Conference, Athens, Greece, December (Invited keynote speaker).
University of Lausanne, Switzerland, Implications of Evolution for Human Health (Invited speaker).
Finnish Centre of Excellence in Evolutionary Research, University of Jyväskylä (Invited seminar).
Institute for Animal Health, Compton, UK (Invited seminar).
MITACS Summer School, Mathematics of Evolution and Invasions in Ecology and Epidemiology, Banff International
Research Station for Mathematical Innovation and Discovery (Invited speaker).
Department of Biology, University of Virginia (Invited seminar).

2008

American Museum of Natural History (Invited seminar).
Department of Molecular Microbiology and Immunology and the Division of Infectious Diseases of Johns Hopkins
University Medical Institutions (Invited seminar).
ESF Exploratory Workshop: Re-evaluating the extended phenotype paradigm in evolutionary biology. Copenhagen.
(Invited participant).
NIH National Institute of Allergy and Infectious Diseases Twinbrook Campus (Invited seminar).
Department of Entomology, University of Maryland (Invited seminar).
The American College of Epidemiology, Annual Meeting, Symposium: The Dawn of Evolutionary Epidemiology:
Applying Evolutionary Theory in an Epidemiologic Context. Tucson, AZ (Invited speaker)
Department of Biology, University of Notre Dame, IL (Invited seminar).
Ecology and Evolution of Infectious Disease Conference, Fort Collins, Colorado (Invited speaker)
Finnish Centre of Excellence in Evolutionary Research, University of Jyväskylä (Invited seminar).
Institute for Advanced Study, Berlin, Workshop: New Opportunities at the Evolution Medicine Interface (Invited
speaker).
Yale University, Symposium on Evolutionary Medicine (Invited speaker).

2007

XIth Congress of European Society for Evolutionary Biology. Uppsala, Sweden (Invited speaker).
ESF conference: The impact of the environment on innate immunity. Obergurgl, Austria (Invited speaker).
ETH Zurich, Switzerland (Invited seminar).
University of Emory, Atlanta, GA, USA, Dept of Biology (Invited seminar).
Penn State University, PA, USA, Dept of Biology (Invited seminar).
Wissenschaftskolleg zu Berlin, Germany (Invited seminar).

2006

Finnish Centre of Excellence in Evolutionary Research, University of Jyväskylä (Invited seminar).
European Molecular Biology Laboratory, 8th International EMBL PhD Student Symposium: Biology of Disease, A
Molecular Battlefield (Invited speaker).
University of Basel, Department of Biology (Invited seminar).

2005

Wellcome Trust Centre for Molecular Parasitology, University of Glasgow (Invited seminar).
Gordon Conference, Malaria, Oxford (Invited speaker).
Xth Congress of European Society for Evolutionary Biology, Krakow, Poland (Invited speaker).
Department of Biology, Queens University, Canada (Invited seminar).
Department of Zoology, University of Toronto, Canada (Invited seminar).
Centre for Discrete Mathematics and Theoretical Computer Science (DIMACS) Workshop on Evolutionary
Considerations in Vaccine Use. Rutgers University, New Jersey, USA.

2004

Journées Scientifiques, Laboratoires «Functioning and Evolution of Ecological Systems» and «Evolutionary
Parasitology» Paris (invited speaker).
Jacques Monod Conference on Evolutionary Ecology of Host-Parasite Relationship. Roscoff, France (invited speaker).
7th International Symposium on Marek's disease. Oxford (Invited speaker).
Max Planck Institute for Limnology, Ploen, Germany (Invited seminar).
Ecology and Evolution of Infectious Diseases Meeting, Emory University, Atlanta, USA (Invited speaker).
2nd International Malaria Research Conference, Johns Hopkins Malaria Research Institute, Baltimore, USA (Invited
speaker).
Society of Infectious Diseases and Foundation of Infectious Diseases of the Netherlands, Symposium, Vaccine safety
and arthropod-borne viral encephalitis: cross-roads between public individual patient care and public health care.
Utrecht, The Netherlands (Invited speaker).

2003

XXI Symposium Scandinavian Society for Parasitology. Bergen, Norway (Invited plenary speaker).
Latsis Symposium, Evolution, Immunity and Infectious Disease, ETH Zürich, Switzerland (Invited speaker).

2002

Dept of Biology, University of Lund, Sweden (Invited seminar).
Association for Tropical Biology, Panama (Invited speaker).
Centre for Infectious Diseases, University of Edinburgh, Annual Symposium (Invited speaker).
Department of Biology, Keele University, UK (Invited seminar).
Symposium of the NGW Vaccine Working group, The Netherlands. Vaccines and the Evolution of Virulence. UMC
Utrecht, Holland (Invited speaker).
Centre for Ecology and Evolution, UCL, Institute of Zoology and Imperial College, Symposium: Evolutionary and
ecological aspects of disease and parasitism (Invited speaker).
Burt Memorial Lecture, St Andrew's University, UK.
Department of Biology, University of Utah, USA (Invited seminar).

Keystone Symposium. Malaria's challenge: from infants to genomics to vaccines. Keystone, Colorado, USA (Invited speaker).

2001

VIIIth Congress of European Society for Evolutionary Biology. Aarhus, Denmark (Invited plenary).

Institute of Biological Sciences, University of Stirling, UK (Invited seminar).

Ecology Center, Department of Biology, University of Sunderland, UK (Invited seminar).

NERC Advances in Ecology Course, Imperial College at Silwood Park, UK (Invited seminar).

NERC Centre for Ecology and Hydrology, Banchory, Aberdeenshire, UK (Invited seminar).

Institute for Animal Health, Compton, UK (Invited seminar).

Association for Study of Animal Behaviour, Summer Conference, Interfacing Behaviour with Other Disciplines. Glasgow, UK (Invited speaker).

British Society for Parasitology, Autumn Symposium, Parasite Variation: Ecological and Immunological Consequences, London (Invited speaker).

Infectious Disease: Host-Pathogen Evolution. Hinxton Retreat, Wellcome Trust Genome Campus, Cambridge, UK (Invited Speaker).

Department of Biology and Centre for Integrative Study of Animal Behaviour, Indiana University, Bloomington, USA. W.D. Hamilton International Symposium (Invited speaker).

Wellcome Trust Centre for the Epidemiology of Infectious Disease, Zoology Department, University of Oxford, UK (Invited seminar).

2000

Oxford 2000: Joint Meeting of the British Society for Parasitology, The Royal Society of Tropical Medicine and Hygiene & The American Society for Tropical Medicine and Hygiene (Invited plenary).

Centre for Population Biology, Imperial College at Silwood Park, UK (Invited seminar).

Department of Biology, University of Sussex, UK (Invited seminar).

Last century (recorded from 1993)

Department of Experimental Ecology, ETH Zürich, Switzerland (Invited seminar). 1999.

Laboratory of Ecology, University of Montpellier, France ESF Workshop: The Evolutionary Biology of Host-Parasites Relationships: Models Meet Reality (Invited speaker). 1999.

University of Maryland and the Smithsonian Institution (NSF-Research Training Group), Washington D.C. USA, Symposium: Effects of Small Population Size on the Evolutionary and Ecological Dynamics of Parasitism (Invited speaker). 1998.

Department of Biomolecular Sciences, Wageningen University, The Netherlands. Symposium: Molecular Ecology (Invited speaker). 1998.

Baltic and Scandanvian Societies of Parasitology, Vilnius, Lithuania. Symposium: Ecology of Bird-Parasite Interactions (Invited speaker). 1998.

Department of Zoology, University of Uppsala, Sweden. ESF Workshop: Ecological Immunology (Invited speaker). 1998.

Department of Animal and Plant Sciences, University of Sheffield, UK (Invited seminar). 1998.

Zoological Laboratory, University of Groningen, The Netherlands Workshop: Ecological Immunology (Invited speaker). 1998.

International Institute for Advanced Systems Analysis, Laxemburg, Austria. Workshop: Virulence Management: Between Theory and Experiment (Invited speaker). 1997.

Department of Integrative Biology, University of Basel, Switzerland (Invited seminar). 1997.

Experimental Ecology, ETH Zürich and Department of Biology, University of Zürich (Invited seminar). 1997.

Max-Planck-Institute für Verhaltenphysiologie, Seewiesen, Germany. International Summer School, The Evolution of Sex (Invited speaker). 1997.

Department of Biology, University College London (Invited seminar). 1997.

Glasgow University Zoology Society (Invited seminar). 1997.

European Multicolloquium of Parasitology VII, Parma, Italy (Invited talk). 1996.

St Andrew's University Biology Society, UK (Invited seminar). 1995.
Uppsala University, Dept Zoology, Sweden (Two invited seminars). 1995.
Cambridge University, Zoology Department, Behaviour and Ecology Series (Invited seminar). 1995.
Department of Zoology, University of Otago, New Zealand, 6th Annual Student Colloquium (Invited keynote speaker). 1994.
Zoology Department, University of Otago, New Zealand (Invited seminar). 1994.
International Congress of Genetics, Birmingham, UK (Invited talk). 1993.

Andrew Fraser READ: PUBLICATIONS

pdfs: www.thereadgroup.net

KEY PUBLICATIONS, LAST 15 YEARS

- Morley *et al.* (2020). An adjunctive therapy approach prevents antibiotic resistance emergence in opportunistic pathogens colonizing the gut. *eLife* 9: e58147.
- Hansen *et al.* (2020). Antibiotics can be used to contain drug-resistant bacteria by maintaining sufficiently large sensitive populations. *PLoS Biology* 18: e3000713.
- Wale *et al.* (2017). Resource limitation prevents the emergence of drug resistance by intensifying within host competition. *PNAS* 114: 13774.
- Kerr *et al.* (2017) The next step in the on-going arms race between myxoma virus and wild rabbits in Australia is a novel disease phenotype. *PNAS* 114: 9397
- Kennedy & Read (2017). Why does drug resistance readily evolve but vaccine resistance does not? *PRSB* 284: 20162562
- Hansen *et al.* (2017). How to use a chemotherapeutic agent when resistance to it threatens the patient. *PLoS Biology* 15: e2001110.
- Day & Read (2016). Does high-dose antimicrobial chemotherapy prevent the evolution of resistance? *PLoS Computational Biology* 12: e1004689.
- Read *et al.* (2015). Imperfect vaccination can enhance transmission of highly virulent pathogens. *PLoS Biology* 13: e1002198.
- Huijben *et al.* (2013). Aggressive chemotherapy and the selection of drug resistant pathogens. *PLoS Pathogens* 9:e1003578..
- Barclay *et al.* (2012). The evolutionary consequences of blood-stage vaccination on the rodent malaria *Plasmodium chabaudi*. *PLoS Biology* 10: e1001368.
- Read *et al.* (2011). The evolution of drug resistance and the curious orthodoxy of aggressive chemotherapy. *PNAS* 108: 10871-10877.
- Read *et al.* (2009). How to build an evolution-proof insecticide for malaria control. *PLoS Biology* 7: e1000058.
- Wargo *et al.* (2007). Competitive release and facilitation of drug resistant parasites following therapeutic chemotherapy in a rodent malaria model. *PNAS* 104: 19914.
- Råberg *et al.* (2007). Disentangling genetic variation for resistance and tolerance to infectious diseases in animals. *Science* 318: 812-814.

PEER-REVIEWED PUBLICATIONS

Submitted

In press

2022

241. Natterson-Horowitz, B., Aktipis, A., Bergstrom, C.T., Fox, M., Gluckman, P.D., Low, F.M., Mace, R., **Read, A.F.**, Turner, P.E., & Blumstein, D.T. (2023). The future of evolutionary medicine: accelerating understanding, innovation, and application of evolutionary principles in biomedicine. *Frontiers in Science*.

240. Woods, R.J., Barbosa, C., Koepping, L., Raygoza Garay, J.A., Mwangi, M., & **Read, A.F.** (2023). Genetic determinants of antibiotic resistance and the evolution of trade-offs during adaptation in a single patient. *Evolution, Medicine and Public Health*.
239. Day, T., Kennedy, D.A., **Read, A.F.**, & Gandon, S. (2022) Pathogen evolution during vaccination campaigns. *PLoS Biology* 20: e3001804.
238. Kerr, P.J., Cattadori, I.M., Sim, D.G., Liu, J., Holmes, E.C., & **Read, A.F.** (2022). Divergent evolutionary pathways of myxoma virus in Australia: Virulence phenotypes in susceptible and partially resistant rabbits indicate possible selection for transmissibility. *Journal of Virology* 96 <https://doi.org/10.1128/jvi.00886-22>
237. Morley, V.J., Sim, D.G., Penkevitch, A., Woods, R.J., & **Read, A.F.** (2022). An orally administered drug prevents selection for antibiotic-resistant bacteria in the gut during daptomycin therapy. *Evolution, Medicine and Public Health* 10: 439-446.
236. Yeh, S.L., Narasimhalu, N., vom Steeg, L.G., Muthami, J., LeConey, S., He, Z., Pitcher, M., Cassidy, H., Morley, V.J., Cho, S.H., Bator, C., Koshai, R., Woods, R.J., Hickner, M., **Read, A.F.**, & Sheikhi, A. (2022). Ion exchange biomaterials to capture daptomycin and prevent resistance evolution in off-target bacterial populations. *ACS Applied Materials and Interfaces* 14: 42864-42875.
235. Hayden, K.R., Jones, M., Elkin, K.R., Shreve, M., Clees, W.I., Clark, S., Mashtare, M.L., Veith, T.L., Elliott, H.A., Watson, J.E., Silverman, J., Richard, T., **Read, A.F.**, & Preisendanz, H.E. (2022). Impacts of the COVID-19 pandemic on pharmaceuticals in wastewater treated for beneficial reuse: Two case studies in central Pennsylvania. *Journal of Environmental Quality* 51: 1066-1082.
234. Topazian, H.M., Moser, K.A., Ngasala, B., Oluoch, P.O., Forconi, C.S., Mhamilawa, L.E., Aydemir, O., Kharabora, O., Deutsch-Feldman, M., **Read, A.F.**, Denton, M., Lorenzo, A., Mideo, N., Ogutu, B., Morrman, A.M., Mårtensson, A., Odwar, B., Bailey, J.A., Akala, H., Ong'echa, J.M., & Juliano, J.J. (2022). Low complexity of infection is associated with molecular persistence of *Plasmodium falciparum* in Kenya and Tanzania. *Frontiers in Epidemiology* 2: 852237.
233. Arnold, C.R.K., Srinivasan, S., Rodriguez, S., Rydzak, N., Herzog, C.M., Gontu, A., Bharti, N., Small, M., Rogers, C.J., Schade, M.M., Kuchipudi, S.V., Kapur, V., **Read, A.F.**, & Ferrari, M.J. (2022) A longitudinal study of the impact of university student return to campus on the SARS-CoV-2 seroprevalence among the community members. *Scientific Reports* 12: 1-10. PMID: 35597780.
- 2021**
232. Dujon, A.M., Aktipis, A., Alix-Panabières, C., Amend, S.R., Boddy, A.M., Brown, J.S., Capp, J-P., DeGregori, J., Ewald, P., Gatenby, R., Gerlinger, M., Giraudeau, M., Hamede, R.K., Hansen, E., Kareva, I., Maley, C.C., Marusyk, A., McGranahan, N., Metzger, M.J., Nedelcu, A.M., Noble, R., Nunney, L., Pienta, K.J., Polyak, K., Pujol, P., **Read, A.F.**, Roche, B., Sebens, S., Solary, E., Staňková, K., Swain Ewald, H., Thomas, F., & Ujvari, B. Identifying key questions in the ecology and evolution of cancer. *Evolutionary Applications* 14: 877-892.
231. Day, T., Kennedy, D.A., **Read, A.F.**, & McAdams, D. (2021). The economics of managing evolution. *PLoS Biology* 19: e3001409. PMID: 34784349.
- 2020**
230. Hansen, E., & **Read, A.F.** (2020). Modifying adaptive therapy to enhance competitive suppression. *Cancers* 12: 3556.
229. Kinnear, C.L., Hansen, E., Morley, V.J., Tracy, K.C., Forstchen, M., **Read, A.F.**, & Woods, R.J. (2020). Daptomycin treatment impacts resistance in off-target populations of vancomycin-resistant *Enterococcus faecium*. *PLoS Biology* 18: e3000987. PMID: 33332354.
228. Morley, V.J., Kinnear, C.L., Sim, D.G., Olson, S.N., Jackson, L.M., Hansen, E., Usher, G.A., Showalter, S.A., Pai, M.P., Woods, R.J., & **Read, A.F.** (2020). An adjunctive therapy approach prevents antibiotic resistance emergence in opportunistic pathogens colonizing the gut. *eLife* 9: e58147. PMID: 33258450
227. Acosta, M., Bram, J., Sim, D., & **Read, A.F.** (2020). Effect of drug dose and timing of treatment on the emergence of drug resistance *in vivo* in a malaria model. *Evolution, Medicine and Public Health* 2020: 196-210. PMID 33209305.
226. Hansen, E., & **Read, A.F.** (2020). Cancer treatment: attempt cure or manage drug resistance? *Evolutionary Applications* 13: 1660-1672.

225. Hansen, E., Karslake, J., Woods, R.J., **Read, A.F.**, & Wood, K. B. (2020). Antibiotics can be used to contain drug-resistant bacteria by maintaining sufficiently large sensitive populations. *PLoS Biology* 18: e3000713.
224. Morley, V.J., Firgens, E.P.C., Vanderbilt, R.R., Zhou, Y., Zook, M., **Read, A.F.**, & MacGeorge, E.L. (2020). Factors associated with antibiotic prescribing for acute bronchitis at a university health center. *BMC Infectious Diseases* 20:177.
223. Sutcliffe, J., McLaughlin, R., Webster, G., **Read, A.F.**, Drlica, K., Elliott, R., & Stuart, I. (2020). Susceptibility of *Cutibacterium acnes* to topical minocycline foam. *Anaerobe* 62: 102169

2019

222. Wale, N., Jones, M.J., Sim, D.G., **Read, A.F.**, & King, A.A. (2019). The contribution of host cell-directed vs. parasite-directed immunity to the disease and dynamics of malaria infections. *Proceedings of the National Academy of Science USA* 116: 22386–22392.
221. Morley, V.J., Woods, R.J., & **Read, A.F.** (2019). Bystander selection for antimicrobial resistance: implications for public health. *Trends in Microbiology* 27: 864-877.
220. Chanderraj, R., Millar, J.A., Patel, T.S., **Read, A.F.**, Washer, L., Kaye, K.S, Woods, R.J. (2019). VRE acquisition in a tertiary care hospital: testing the roles of antibiotic use, proton pump inhibitor use, and colonization pressure. *Open Forum Infectious Diseases* 6: ofz139. PMID: 31024976
219. Kerr, P.J., Eden, J-S., Di Giallonardo, F., Peacock, D., Liu, J., Strive, T., **Read, A.F.**, & Holmes, E.C. (2019). Punctuated evolution of myxoma virus: rapid and disjunct evolution of a recent viral lineage in Australia. *Journal of Virology* 93: e01994-18. PMID: 30728252.
218. Kinnear, C.L., Patel, T.S., Young, C., Marshall, V., Newton, D.W., **Read, A.F.**, Woods, R.J. (2019). Impact of an antimicrobial stewardship intervention on within- and between-patient daptomycin resistance evolution in vancomycin-resistant *Enterococcus faecium*. *Antimicrobial Agents and Chemotherapy* 63: e01800-18 PMID: 30718245
217. Bell, A.S., Kennedy, D.A., Jones, M.J., Cairns, C.L., Pandey, U., Dunn, P.A., Szpara, M.L., & **Read, A.F.** (2019). Molecular epidemiology of Marek's disease virus in Central Pennsylvania, USA. *Virus Evolution* 5: vey042.

2018

216. Kennedy, D.A. & **Read, A.F.** (2018) Why the evolution of vaccine resistance is less of a concern than the evolution of drug resistance. *Proceedings of the National Academy of Science USA* 115: 12878-12886. PMC5378080
215. Huijben, S., Chan, B.H.K., Nelson, W.A., & **Read, A.F.** (2018). The impact of within-host ecology on the fitness of a drug resistant parasite. *Evolution, Medicine and Public Health* 2018: 127-137. PMC6061792
214. Kennedy, D.A., Dunn, P.A., & **Read, A.F.** (2018). Modeling Marek's disease virus transmission: a framework for evaluating the impact of farming practices and evolution on disease. *Epidemics* 23: 85-95. PMC5989573
213. De Moraes, V.M., Wanjiku, C., Stanczyk, N., Pulido, H., Sims, J., Betz, H.S., **Read, A.F.**, Torto, B. & Mescher, M.C. (2018) Volatile biomarkers of symptomatic and asymptomatic malaria infection in humans. *Proceedings of the National Academy of Science USA* 115: 5780-5785. PMC5984526
212. Woods, R.J., Patel, T.S., Nagel, J.L., Newton, D.W., & **Read, A.F.** (2018). Institution-wide and within-patient evolution of daptomycin susceptibility in vancomycin-resistant *Enterococcus faecium* bloodstream infections. *Infection Control and Hospital Epidemiology* 39: 226-228. PMC5854150

2017

211. Wale, N., Sim, D.G., Jones, M.J., Salathe, R., Day, T., & **Read, A.F.** (2017). Resource limitation prevents the emergence of drug resistance by intensifying within host competition. *Proceedings of the National Academy of Science USA* 114: 13774-13779. Winner, Omenn Prize 2017, ISEMPH Paper of the Year in evolution related to medicine and public health. PMC29233945.
210. Kerr, P.J., Cattadori, I., Liu, J., Sims, D., Dodds, J., Brooks, J., Kennett, M., Holmes, E.C., & **Read, A.F.** (2017). The next step in the on-going arms race between myxoma virus and wild rabbits in Australia is a novel disease phenotype. *Proceedings of the National Academy of Science USA* 114: 9397-9402.
209. Liu, J., Cattadori, I.M., Sim, D.G., Eden, J-S., Holmes, E.C., **Read, A.F.**, & Kerr, P.J. (2017). Reverse engineering field isolates of myxoma virus demonstrates that some gene disruptions or loss of function do not explain virulence changes observed in the field. *Journal of Virology* 91:e01289-17.

208. Wale, N., Sim, D.G., & **Read, A.F.** (2017). A nutrient mediates intraspecific competition between rodent malaria parasites in vivo. *Proceedings of the Royal Society of London Series B* 284: 20171067.
207. Kennedy, D.A., Cairns, C., Jones, M.J., Bell, A.S., Salathe, R., Baigent, S.J., Nair, V.K., Dunn, P.A., & **Read A.F.** (2017). Industry-wide surveillance of Marek's disease virus on commercial poultry farms: viral population dynamics underlying potential for virulence evolution and vaccine escape. *Avian Diseases* 61: 153-164.
206. Kennedy, D.A., & **Read A.F.** (2017). Why does drug resistance readily evolve but vaccine resistance does not? *Proceedings of the Royal Society of London Series B* 284: 20162562. PMC5378080
205. Kerr, P.J., Cattadori, I., Rogers, M.B., Fitch, A., Geber, A., Liu, J., Sim, D.G., Boag, B., Eden, J-B., Ghedin, E., **Read, A.F.**, & Holmes, E.C. (2017). Genomic and phenotypic characterization of myxoma virus from Great Britain reveals multiple evolutionary pathways distinct from those in Australia. *PLoS Pathogens* 13: e1006252. PMC5349684
204. Ssentongo, P., Robuccio, A.E., Thuku, G., Sim, D.G., Nabi, A., Bahari, F., Shanmugasundaram, B., Billard, M., Geronimo, A., Short, K.W., Drew, P.J., Baccon, J., Weinstein, S.L., Gilliam, F.G., Soute, J.A., Chincilli, V., **Read, A.F.**, Gluckman, B.J., & Schiff, S.J. (2017). A murine model to study epilepsy and SUDEP induced by malaria infection. *Scientific Reports* 7:43652. PMC5341121
203. Beck-Johnson, L.M., Nelson, W.A., Paaajmans, K.P., **Read, A.F.**, Thomas, M.B., & Bjornstad, O.N. (2017). The importance of temperature fluctuations in understanding mosquito population dynamics and malaria risk. *Royal Society Open Science* 4: 160969. PMC5383843
202. Hansen, E.A., Woods, R.J., & **Read, A.F.** (2017). How to use a chemotherapeutic agent when resistance to it threatens the patient. *PLoS Biology* 15: e2001110. PMC5300106
- 2016**
201. Pandey, U., Bell, A.S., Renner, D.W., Kennedy, D.A., Shreve, J.T., Cairns, C.L., Jones, M.J., Dunn, P.A., **Read, A.F.**, & Szpara, M.L. (2016). DNA from dust: comparative genomics of large DNA viruses in field surveillance samples. *mSphere* 1: e00132-16. PMC5064450
200. Greischar, M.A., Mideo, N., **Read, A.F.**, & Bjørnstad, O.N. (2016). Predicting optimal transmission investment in malaria parasites. *Evolution* 70:1542-1558. PMC4991358
199. Ohm, J.R., Teeple, J., Nelson, W.A., Thomas, M.B., **Read, A.F.**, & Cator, L.J. (2016). Fitness consequences of altered feeding behavior in immune-challenged mosquitoes. *Parasites and Vectors* 9:113. PMC4772315
198. Greischar, M.A., Mideo, N., **Read, A.F.**, & Bjørnstad, O.N. (2016). Quantifying transmission investment in malaria parasites. *PLoS Computational Biology* 12: e1004718. PMC4759450
197. Mideo, N., Bailey, J.A., Hathaway, N.J., Ngasala, B., Saunders, D.L., Lon, C., Kharabora, O., Jamnik, A., Balasubramanian, S., Björkman, A., Mårtensson, A., Meshnick, S.R., **Read, A.F.**, & Juliano, J.J. (2016). A deep sequencing tool for assessing clearance by antimalarials in polyclonal infections. *Evolution, Medicine and Public Health* 2016:21-36. PMC4753362
196. Kennedy, D.A., Kurath, G., Brito, I.L., Purcell, M.K., **Read, A.F.**, Winton, J.R., & Wargo, A.R. (2016). Potential drivers of virulence evolution in aquaculture. *Evolutionary Applications* 9(2): 344-354. doi: 10.1111/eva. PMC4721074
195. Day, T., & **Read, A.F.** (2016). Does high-dose antimicrobial chemotherapy prevent the evolution of resistance? *PLoS Computational Biology* 12: e1004689. PMC4731197
- 2015**
194. Woods, R.J., & **Read, A.F.** (2015). Clinical management of resistance evolution in a bacterial infection: a case study. *Evolution, Medicine and Public Health* 1: 281-288. PMC4629395

193. Carlton, J.M., Volkman, S.K., Uplekar, S., Hupalo, D.N., Alves, J.M.P., Cui, L., Donnelly, M., Roos, D.S., Harb, O.S., Acosta, M., **Read, A.F.**, Ribolla, P.E., Singh, O.P., Valencha, N., Wassmer, S.C., Ferreira, M., & Escalante, A.A. (in press). Population genetics, evolutionary genetics, and the genome-wide studies of malaria: A view across the international Centers of Excellence in Malaria Research. *American Journal of Hygiene and Tropical Medicine* 93 (Suppl 3): 87-98. PMC4574278
192. **Read, A.F.**, Baigent, S.J., Powers, C., Kgosana, L.B., Blackwell, L., Smith, L.P., Kennedy, D.A., Walkden-Brown, S.W., & Nair, V.K. (2015). Imperfect vaccination can enhance transmission of highly virulent pathogens. *PLoS Biology* 13: e1002198. PMC4516275
191. Pollitt, L.C., Bram, J.T., Blanford, S., Jones, M.J., & **Read, A.F.** (2015). Existing infection facilitates establishment and density of malaria parasites in their mosquito vector. *PLoS Pathogens* 11: e1005003. PMC4504473
190. Cator, L.J., Pietri, J.E., Murdock, C.C., Ohm, J.R., Lewis, E., **Read, A.F.**, Luckhart, S., & Thomas, M.B. (2015). Immune response and insulin signaling alter mosquito to enhance malaria transmission potential. *Scientific Reports* 5: 11947. PMC4495552
189. Kennedy, D.A., Dunn, J., Dunn, P.A., & **Read, A.F.** (2015). An observational study of the temporal and spatial patterns of Marek's-disease-associated leucosis condemnation of young chickens in the United States of America. *Veterinary Preventative Medicine* 120: 328-335. PMC4465502
188. Huijben, S., Chan, B.H.K., & **Read, A.F.** (2015). Relevance of undetectably rare resistant malaria parasites in treatment failure: experimental evidence from *Plasmodium chabaudi*. *American Journal of Hygiene and Tropical Medicine* 92: 1214-1221. PMC4458828
187. Kerr, P.J., Liu, J., Cattadori, I., Ghedin, E., **Read, A.F.**, & Holmes, E.C. (2015). Myxoma virus and the leporipoxviruses: an evolutionary paradigm. *Viruses* 7: 1020-1061. PMID 25757062. PMC4379559
186. Day, T., Huijben, S., & **Read, A.F.** (2015). Is selection relevant in the evolutionary emergence of drug resistance? *Trends in Microbiology* 23: 126-133. PMC4494118
185. Smith, R.A., M'ikanatha, N., & **Read, A.F.** (2015). Antibiotic resistance: A primer and a call to action. *Health Communication* 30: 309-314. PMC4275377.
- 2014**
184. Kouyos, R.D., Metcalf, C.J.E., Birger, R., Klein, E.Y., zur Wiesch, P.A., Ankomah, P., Arinaminpathy, N., Bogich, T.L., Bonhoeffer, S., Brower, C., Chi-Johnston, G., Cohen, T., Day, T., Greenhouse, B., Huijben, S., Metlay, J., Mideo, N., Pollitt, L.C., **Read, A.F.**, Smith, D.L., Standley, C., Wale, N., & Grenfell, B. (2014). The path of least resistance: aggressive or moderate treatment. *Proceedings of the Royal Society of London Series B* 281: 20140566. DOI: 10.1098/rspb.2014.0566. PMC4211439.
183. Glunt, K.D., Paaijmans, K.P., **Read, A.F.**, & Thomas, M.B. (2014). Environmental temperatures significantly change the impact of insecticides measured using WHOPES protocols. *Malaria Journal* 13: 350. PMC4162960.
182. Barclay, V.C., Kennedy, D., Weaver, V.C., Sim, D., Lloyd-Smith, J.O. & **Read, A.F.** (2014). The effect of immunodeficiency on the evolution of virulence: an experimental test with the rodent malaria *Plasmodium chabaudi*. *American Naturalist* 184: S47-S57.
181. Pollitt, L.C., Sim, D.G., Salathe, R.M., & **Read, A.F.** (2014). Understanding genetic variation in *in vivo* tolerance to artesunate: implications for treatment efficacy and resistance monitoring. *Evolutionary Applications* 8: 296-304. PMC4380923
180. de Moraes, C.M., Stanczyk, N.M., Betz, H.S., Pulido, H., Sims, D.G., **Read, A.F.** & Mescher, M.C. (2014). Malaria-induced changes in host odors enhance mosquito attraction. *Proceedings of the National Academy of Science USA* 111: 11079-84. doi: 10.1073/pnas.1405617111. PMC4121820.

179. Cator, L.C., Lynch, P.A., Thomas, M.B. & **Read, A.F.** (2014). Alterations in mosquito behaviour by malaria parasites: potential impact on force of infection. *Malaria Journal* 13:164. doi: 10.1186/1475-2875-13-164. PMC4113138.
178. Pollitt, L.C., Huijben, S., Sim, D.G., Salathe, R.M., Jones, M. & **Read, A.F.** (2014). Rapid response to selection, competitive release and increased transmission potential of artesunate-selected *Plasmodium chabaudi* malaria parasites. *PLoS Pathogens* 10: e1004019. PMC3999151.
177. Santhanam, J., Råberg, L., **Read, A.F.** & Savill, N.J. (2014). Immune-mediated competition in rodent malaria is most likely caused by induced changes in innate immune clearance of merozoites. *PLoS Computational Biology* 10: e1003416. PMC3900382.
176. Greischar, M.A., **Read, A.F.** & Bjørnstad, O.N. (2014). Synchrony in malaria infections: how intensifying within-host competition can be adaptive. *American Naturalist* 183: E36-E49. PMC4334120.
- 2013**
175. Fairlie-Clark, K.J., Allen, J.R., **Read, A.F.** & Graham, A.L. (2013). Quantifying variation in the potential for antibody-mediated apparent competition among nine genotypes of the rodent malaria parasite *Plasmodium chabaudi*. *Infection, Genetics and Evolution* 20: 270-275. PMC3898986.
174. Pollitt, L.C., Mackinnon, M.J., Mideo, N., & **Read, A.F.** (2013). Mosquito transmission, growth phenotypes and the virulence of malaria parasites. *Malaria Journal* 12: 440. doi:10.1186/1475-2875-12-440. PMC3924181.
173. Atkins, K.E., **Read, A.F.**, Walkden-Brown, S.W., Savill, N.J. & Woolhouse, M.E.J. (2013). The effectiveness of mass vaccination on Marek's disease virus (MDV) outbreaks and detection within a broiler barn: a modeling study. *Epidemics* 5: 208-217. PMC3863959.
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