

# William Ryan Easterday



**Email:** [w.ryan.easterday@gmail.com](mailto:w.ryan.easterday@gmail.com)

**Citizenship:** Norwegian & USA **Languages:** English (native), Norwegian (fluent)

## EDUCATION

---

**Nov. 2011 Doctor Philos, Biology**

Department of Biosciences, Faculty of Mathematics & Natural Sciences,  
University of Oslo, Norway

**May 2003 Bachelor of Science, Zoology, pre-health professional**

Dept. of Biological Sciences, Northern Arizona University,  
Flagstaff, Arizona, USA

## SKILLS

---

+Project management +Grant writing +Experimental design of small and large projects  
+General bioinformatics +General IT skills +Micro and molecular biology laboratory skills  
+Pathogen sampling, handling and isolation (viruses and bacteria) +BSL-3 use +Public speaking/presentations

## CURRENT AND PREVIOUS POSITIONS

---

**2020-2022** *Researcher: Primary Investigator*

Center for Ecological and Evolutionary Synthesis, University of Oslo

Led in grant writing, project design, recruiting collaborators, negotiating budget for SARS CoV-2 research. Hiring, and managing staff, writing REC applications, SOPs for work with SARS CoV-2. Coordinating sample collection and processing. Developing new methods for single virus sequencing on PacBio. Arranging and coordinating meetings, writing and managing budgets. Project advisement for colleagues and students.

**2019-2020** *Advisor in Research, Innovation and Funding (pre-award)*

Section for Research and Innovation, University of South-Eastern Norway

Led in developing processes for large, complex project applications. Advising on strategy, identifying and recruiting key partners and organizations. Critical review, technical and persuasive writing, layout and graphic design for grant applications. Planning and leading internal competence building workshops. Awards management for USN's stipend mobility grants: creating calls, coordinating with legal and accounting sections. Assessing and analyzing PhD programs at the University.

**2009-2020** *Assistant Researcher (2009-2012), Post-Doc Researcher (2012-2018), guest researcher (2018-2020, 2022-current)*

Centre for Ecological and Evolutionary Synthesis, University of Oslo, Norway

Conducting and managing research on tick-borne disease, anthrax and plague including pathogen detection, typing and pathogenesis, host immunology and genomics. Grant writing, national policy advising on gene drives (CRISPR), supervising, recruiting and placing students. Developed research tools for genomics/metadata. Developed risk

mitigation strategies while working with pathogens. Extensive fieldwork in remote, challenging locations in Africa and Asia.

**2008 - 2009 *Brucellosis Research Technician***

Montana Fish, Wildlife & Parks, Bozeman, MT, USA

Planned and conducted brucellosis surveillance in elk in the Greater Yellowstone Area, performed necropsies, collected blood and other biological specimens from wildlife (deer, elk, grizzly bear, etc.). Liaison to ranchers, hunters and other stakeholders concerning wildlife/livestock disease management. Extensive fieldwork in extreme conditions.

**2007 - 2008 *Senior Researcher***

Bridger Technologies Inc., Bozeman, MT, USA

Collaborated in developing a novel pathogen-detection instrument, managing molecular biology lab, purchasing equipment, basic molecular biology including cloning, DNA extraction, designing DNA capture/detection assays. Networking, planning research projects for new applications.

**2002 -2006 *Research Specialist***

Keim Genetics Lab, Northern Arizona University, Flagstaff, AZ, USA

Plague (*Yersinia pestis*) surveillance fieldwork, capturing fleas, GIS mapping. Small animal necropsies, high-throughput screening of fleas, pathogen genetics, leading forensic work and developing molecular tools for the FBI and CIA on the Amerithrax case (2001 anthrax letters), supervising and teaching students/technicians. Visiting scientist to Kazakhstan through Defense Threat Reduction Agency.

**2001 *Fisheries Research Summer Intern***

Arizona Game and Fish Dept., Tucson, AZ, USA

Stream ecology fieldwork, electro-shocking fish, conducting fish surveys (including surveys for endangered species) communicating with public, kayaking in remote areas.

**PEER-REVIEWED PUBLICATIONS**

---

1. Pernille Nilsson, Mark Ravinet, Yujun Cui, Paul R Berg, Yujiang Zhang, Rong Guo, Tao Luo, Yajun Song, Emiliano Trucchi, Siv NK Hoff, Ruichen Lv, Boris V Schmid, **W. Ryan Easterday**, Kjetill S Jakobsen, Nils Chr Stenseth, Ruifu Yang, Sissel Jentof. Polygenic plague resistance in the great gerbil uncovered by population sequencing **PNAS Nexus**. 2022.
2. **W. Ryan Easterday**. The first step in the success or failure of emerging pathogens. Commentary. **PNAS**. 2020.
3. **W. Ryan Easterday**, Wendy C. Turner, Matthew Van Ert, José Miguel Ponciano, Ted Hadfield, Karoun Bagamian, Jason K. Blackburn & Nils Chr. Stenseth. Coalescence modeling of intra-infection *Bacillus anthracis* populations allows non-invasive estimation of anthrax infection parameters in wild populations. **PNAS (cover article)**. 2020.
4. Pernille Nilsson, Monica H Solbakken, Boris V Schmid, Russell JS Orr, Ruichen Lv, Yujun Cui, Yajun Song, Yujiang Zhang, Nils Chr Stenseth, Ruifu Yang, Kjetill S Jakobsen, **W. Ryan Easterday** & Sissel Jentoft. The genome of the plague-resistant great gerbil reveals species-specific duplication of an MHCII gene. *BioRx*. 2018. **Genome Biology and Evolution**. 2020.
5. Yujun Cui, Boris Schmid, Hanli Cao, Xiang Dai, Zongmin Du, **W. Ryan Easterday**, Haihong Fang, Chenyi Guo, Shanqian Huang, Wanbing Liu, Zhizhen Qi, Yajun Song, Huaiyu Tian, Min Wang, Yarong Wu, Bing Xu, Chao Yang, Jing Yang, Xianwei Yang, Qingwen Zhang, Kjetill Jakobsen,

- Yujiang Zhang, Nils Stenseth, and Ruifu Yang. Evolutionary selection of biofilm-mediated extended phenotypes in *Yersinia pestis* in response to a changing environment. **Nature Communications**. 2020.
6. SA Bruce, NJ Schiraldi, PL Kamath, **W. Ryan Easterday**, WC Turner. A classification framework for *Bacillus anthracis* defined by global genomic structure. **Evolution Applications**. 2019.
  7. Nilsson, Shair Gurbanov and **W. Ryan Easterday**. Rapid, specific detection of *Yersinia pestis* using furMAMA. **BioRx**. 2018.
  8. Atle Mysterud, Vetle Malmer Stigum, Ingrid Vikingsdal Seland, Anders Herland, **W. Ryan Easterday**, Solveig Jore, Olav Østerås, and Hildegunn Viljugrein. Spatial variation in tick-borne diseases at the northern distribution range of Europe. **Parasites & Vectors**. 2018.
  9. Colin J. Carlson, Wayne Getz, Kyrre Kausrud, Carrie Cizauskas, Jason Blackburn, Fausto A Bustos Carrillo, Rita Colwell, **W. Ryan Easterday**, Holly Ganz, Pauline Kamath, Ole Andreas Okstad, Wendy Turner, Anne-Brit Kolsto and Nils C. Stenseth. Spores and soil from six sides: interdisciplinarity and the environmental biology of anthrax (*Bacillus anthracis*). **Biological Reviews**. 2018.
  10. Karoline Valseth, Camilla L. Nesbø, **W. Ryan Easterday**, Wendy C. Turner, Jaran S. Olsen, Nils Chr. Stenseth and Thomas H. A. Haverkamp. Temporal dynamics in microbial soil communities at anthrax carcass sites. **BMC Microbiology**. 2017.
  11. Karoline Valseth, Camilla L. Nesbø, **W. Ryan Easterday**, Wendy C. Turner, Jaran S. Olsen, Nils Chr. Stenseth and Thomas H. A. Haverkamp. Draft genomes of two *Bacillus anthracis* strains from Etosha National Park, Namibia. **ASM Genome Announcements**. 2016.
  12. Wendy Turner, Kyrre Kausrud, Wolfgang Beyer, **W. Ryan Easterday**, Zoe Barandongo, Elisabeth Blaschke, Claudine Cloete, Judith Lazak, Matthew N Van Ert, Holly Ganz, Peter Turnbull, Nils Chr Stenseth, and Wayne Getz. Lethal exposure: An integrated approach to pathogen transmission via environmental reservoirs. **Scientific Reports**. 2016.
  13. Atle Mysterud, **W. Ryan Easterday**, Vetle Malmer Stigum, Anders Bjørnsgaard Aas, Erlin Meisingset & Hildegunn Viljugrein. Contrasting limitation of Lyme disease across ecosystems. **Nature Communications**. 2016.
  14. Boris V. Schmid, Ulf Büntgen, **W. Ryan Easterday**, Christian Ginzler, Lars Walløe, Barbara Bramanti, Nils Chr. Stenseth. Climate-driven introduction of the Black Death and successive plague reintroductions into Europe. **PNAS**. 2015.
  15. Atle Mysterud, **W. Ryan Easterday**, Lars Qviller, Hildegunn Viljugrein, and Bjørnar Ytrehus. Spatial and seasonal variation in the prevalence of *Anaplasma phagocytophilum* and *Borrelia burgdorferi* sensu lato in questing *Ixodes ricinus* ticks in Norway. **Parasites and Vectors**. 2013.
  16. **W. Ryan Easterday**, Kyrre L. Kausrud, Bastiaan Star, Lise Heier, Bradd J. Haley, Vladimir Ageyev, Rita R. Colwell & Nils Chr. Stenseth. An additional step in the transmission of *Yersinia pestis*? **ISME**. 2012.
  17. Aikembayev, A. , Lukhnova L. , Temiraliyeva G. , Meka-Mechenko T. , Pazylov Y. , Zakaryan S., Denisov J., **Easterday W.R.** , Van Ert, M.N. , Keim, P. , Francesconi, S.C. , Blackburn J.K. , and Martin Hugh-Jones, Hadfield, T.L. Historical Distribution and Molecular Diversity of *Bacillus anthracis* in Kazakhstan. **Emerging Infectious Diseases**. 2010.
  18. Tatum S Simonsen, Richard T Okinaka, Bingxiang Wang, **W. Ryan Easterday**, Lynn Huynh, Jana M U'Ren, Meghan Dukerich, Shaylan R Zanecki, Leo J Kenefic, Jodi Beaudry, James M Schupp,

Talima Pearson, David M Wagner, Alex Hoffmaster, Jacques Ravel and Paul Keim. *Bacillus anthracis* in China and its relationship to worldwide lineages. **BMC Microbiology**. 2009.

19. Van Ert MN, **Easterday WR**, Huynh LY, Okinaka RT, Hugh-Jones ME, Ravel J, Zanecki SR, Pearson T, Simonson TS, U'ren JM, Kachur SM, Leadem-Dougherty RR, Rhoton SD, Zinser G, Farlow J, Coker PR, Smith KL, Wang B, Kenefic LJ, Fraser-Liggett CM, Wagner DM, Keim P. Global Genetic Population Structure of *Bacillus anthracis*. **PLoS ONE**. 2007 May.
20. Van Ert MN, **W. Ryan Easterday**, Tatum S. Simonson, Jana M. U'Ren, Talima Pearson, Leo J. Kenefic, Joseph D. Busch, Lynn Y. Huynh, Megan Dukerich, Carla B. Trim, Jodi Beaudry, Amy Welty-Bernard, Timothy Read, Claire M. Fraser, Jacques Ravel, and Paul Keim. Strain-Specific Single-Nucleotide Polymorphism Assays for the *Bacillus anthracis* Ames Strain. **Journal of Clinical Microbiology**. 2007.
21. U'Ren JM, Van Ert MN, Schupp JM, **Easterday WR**, Simonson TS, Okinaka RT, Pearson T, Keim P. Use of a real-time PCR TaqMan assay for rapid identification and differentiation of *Burkholderia pseudomallei* and *Burkholderia mallei*. **Journal of Clinical Microbiology**. 2006.
22. **W. Ryan Easterday**, Matthew Van Ert, Shaylan Zanecki and Paul Keim. Specific detection of *Bacillus anthracis* using a TaqMan® mismatch amplification mutation assay (TaqMAMA). **Biotechniques**. 2005. **(featured article)** <https://www.future-science.com/doi/pdf/10.2144/05385AA02>
23. **W. Ryan Easterday**, Matthew N. Van Ert, Tatum S. Simonson, David M. Wagner, Leo J. Kenefic, Christopher J. Allender, and Paul Keim. Specific identification of *Bacillus anthracis* using SNPs in the plcR gene. **Journal of Clinical Microbiology**. 2005.
24. Mark Achtman, Giovanna Morelli, Peixuan Zhu, Thierry Wirth, Ines Diehl, Barica Kusecek, Amy J. Vogler, David M. Wagner, Christopher J. Allender, **W. Ryan Easterday**, Viviane Chenal-Francisque, Patricia Worsham, Nicholas R. Thomson, Julian Parkhill, Luther E. Lindler, Elisabeth Carniel, and Paul Keim. Microevolution and history of the plague bacillus, *Yersinia pestis*. **PNAS**. 2004.
25. Allender, C.J., **W. R. Easterday**, M.N. Van Ert, D.M. Wagner, and P. Keim. 2004. High-throughput extraction of arthropod vector and pathogen DNA using bead milling. **BioTechniques**. 2004.

## FUNDED GRANTS

---

- 2020** COVID-19 Emergency Call for Proposals: Collaborative and Knowledge-building Projects for the Fight Against Coronavirus Disease (COVID-19). "COVIDOSE: Determining infectious dose for SARS-CoV-2 and assessing contact/proximity risk" **(awarded)** Primary Investigator
- 2018** U.S. National Science Foundation (call: Ecology and Evolution of Infectious Diseases) "Transmission and evolution of a persistent pathogen: linking within-host and environment dynamics comparing two natural systems" **(awarded)** work-package leader
- 2015** Norwegian Research Council (Miljøforsk): EcoTick (A. Mysterud) Land use, climate and tick-borne diseases in dynamic multi-host ecosystems: estimated risk and experienced fear **(awarded)** work package leader
- 2013** Molecular Life Sciences (MLS) PhD student. Evolution of the host immunity and immune responses to plague (*Yersinia pestis*) – a case study of the great gerbils **(awarded)** supervisor
- 2012** European Science Foundation LESC Exploratory Workshop: "Plague and natural hosts-Evolutionary Interactions" **(awarded)** organizer
- 2012** European Research Council (call: SH6 Advanced Grant). "MedPlag - The medieval plagues: ecology, transmission modalities and routes of the infections" **(awarded)** participant

## POPULAR SCIENCE

---

- 2020 Various advising and commenting for news pieces concerning covid-19.

- 2017      **“Nobody Dies in Longyearbyen”** interview for short film; approx. 1 million views.  
See: <https://www.youtube.com/watch?v=lyrjDpkX6nA>
- 2017      **Advisor to Norwegian Biotechnology Council** on use of gene drives; see:  
[www.bioteknologiradet.no/filarkiv/2017/02/Gen-driverere.pdf](http://www.bioteknologiradet.no/filarkiv/2017/02/Gen-driverere.pdf)
- 2015      **Interview for National FFA, USA**; listen:  
<https://www.podbean.com/media/player/xumyv-56c8b0>

### **TEACHING/OTHER RELEVANT INFO**

---

- 2016-current      Course planning and lecture on “One Health” and zoonoses (UiO, USN)
- 2011              U of Oslo International summer school course: International Community Health
- 2013              NATO secret security clearance. Forsvarets Forskningsinstitut (FFI)
- 2006              USA secret clearance, US Dept. of Defense