

## Curriculum Vitae

**JONATHAN B. CLAYTON**, DVM/PhD Dual Degree Candidate, Department of Veterinary and Biomedical Sciences, University of Minnesota, Saint Paul, MN, August 2008-present.

### Education

<b>University of Minnesota College of Veterinary Medicine, St. Paul, MN</b>	2008-present
<b>DVM Candidate</b>	
Expected Graduation May 2017	
<b>University of Minnesota, Minneapolis, MN</b> ( <i>gpa 3.86</i> )	2010-2015
<b>Doctor of Philosophy, Veterinary and Biomedical Sciences</b>	
<b>Thesis:</b> <i>Associations between nutrition, gut microbial communities, and health in nonhuman primates</i>	
<b>Duke University, Durham, NC</b> ( <i>gpa 3.94</i> )	2008
<b>Certificate of Primatology, Evolutionary Anthropology</b>	
<b>Barton College, Wilson, NC</b> ( <i>gpa 3.47</i> ), <i>cum laude</i>	2002-2008
<b>Bachelor of Science, Biology</b>	
<b>Bachelor of Arts, Religion and Philosophy</b>	

### Honors and Awards (selected)

<b>Walter H. Judd International Graduate &amp; Professional Fellowship</b>	
• Global Programs and Strategy Alliance, University of Minnesota	2016
<b>CVM International Travel Scholarship</b>	
• College of Veterinary Medicine, University of Minnesota	2016
<b>VanSloun Scholarship</b>	
• College of Veterinary Medicine, University of Minnesota	2016
<b>Academy Pomeroy DVM/PHD Scholarship</b>	
• Minnesota Veterinary Medical Foundation (MVMF)	2016
<b>Top Graduate Student Award, American College of Veterinary Microbiologists (ACVM) Graduate Student Award Competition</b>	
• 96 <sup>th</sup> Conference of Research Workers in Animal Diseases (CRWAD), Chicago, Illinois 2015	
<b>Outstanding Oral Presentation Award (1<sup>st</sup> Place), American Society of Primatologists Student Competition</b>	
• 38 <sup>th</sup> Meeting of the American Society of Primatologists, Bend, Oregon	2015
<b>CMB Graduate Program Student Travel Award</b>	
• Department of Veterinary & Biomedical Sciences, University of Minnesota	2015
<b>Honorable Mention Award (3<sup>rd</sup> Place), International Primatological Society Paper (Oral) Presentation Competition</b>	

- XXV Congress of the International Primatological Society, Hanoi, Vietnam 2014
- MPGI Travel Grant Award**
- Microbial and Plant Genomics Institute, University of Minnesota 2014
- 3<sup>rd</sup> Place, UMN Global Health Case Competition (Twin Cities Team 7)**
- AHC Center for Global Health and Social Responsibility, University of Minnesota 2014
- Finalist, Dow Sustainability Innovation Student Challenge Award (SISCA)**
- Institute on the Environment, University of Minnesota 2013
- Finalist, Dow Sustainability Innovation Student Challenge Award (SISCA)**
- Institute on the Environment, University of Minnesota 2012
- CMB Graduate Program Student Travel Award**
- Department of Veterinary & Biomedical Sciences, University of Minnesota 2012
- William S. Pollitzer Student Travel Award**
- American Association of Physical Anthropologists 2012
- Phi Kappa Phi, *National Academic Honor Society***
- University of Minnesota 2011-present

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### Grants and Fellowships (selected)

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- Research Grant – Co-PI**
- The Mohamed bin Zayed Species Conservation Fund 2014
- UMN Doctoral Dissertation Fellowship – PI**
- University of Minnesota 2014
- IonE Mini Grant – Co-PI**
- Institute on the Environment (IonE), University of Minnesota 2014
- PharmacoNeuroImmunology (PNI) Fellowship (NIH/NIDA T32 DA007097-32) - PI**
- University of Minnesota/National Institutes of Health 2013-2015
- Research Grant - PI**
- Margot Marsh Biodiversity Foundation 2013
- Research Grant - PI**
- Margot Marsh Biodiversity Foundation 2011
- Veterinary Student Scholars Grant - PI**
- Veterinary Student Scholar Program, Morris Animal Foundation 2010
- Meriel/NIH Summer Scholars Grant - PI**
- College of Veterinary Medicine, University of Minnesota 2010

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### Publications

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**Clayton J. B.**, Johnson, T. J., Huang, H., Vangay, P., Ward, T., Travis, D. A., Ha, L. T., Bui, T. V., Vo, M. V., Glander, K. E., and Knights, D. (2016). Captivity humanizes the primate microbiome. *Proceedings of the National Academy of Sciences*, 113(37), 10376–10381.

Amato, K. R., Metcalf, J. L., Song, S. J., Hale, V. L., **Clayton, J.**, Ackermann, G., Humphrey, G., Niu, K., Cui, D., Zhao, H., Schrenzel, M. D., Tan, C L., Knight, R., and Braun, J. (2016). Using the gut microbiota as a novel tool for examining colobine primate GI health. *Global Ecology and Conservation*, 7, 225-237.

Gohl, D. M., Vangay, P., Garbe, J., MacLean, A., Hauge, A., Becker, A., Gould, T., **Clayton, J. B.**, Johnson, T. J., Hunter, R., Knights, D., and Beckman, K. B. (2016). Systematic improvement of amplicon marker gene methods for increased accuracy in microbiome studies. *Nature Biotechnology*, 34(9), 942-949.

Danzeisen, J. L., **Clayton, J. B.**, Huang, H., Knights, D., McComb, B., Hayer, S., and Johnson, T. J. (2015). Temporal relationships exist between cecum, ileum and litter bacterial microbiomes in a commercial turkey flock, and subtherapeutic penicillin treatment impacts ileum bacterial community establishment. *Frontiers in Veterinary Science*, 2:56. doi: 10.3389/fvets.2015.00056.

**Clayton J. B.**, Knights, D., Huang, H., Ha, L. T., Bui, T. V., Vo, M. V., Travis, D. A., Cabana, F., and Johnson, T. J. (2015). Associations between diet, gut microbial communities, and health in red-shanked doucs (*Pygathrix nemaeus*): A model for the subfamily colobinae. *American Journal of Primatology*, 77(S1):112-113.

**Clayton, J. B.**, Danzeisen, J. L., Trent, A. M., Murphy, T., and Johnson, T. J. (2014). Longitudinal characterization of *Escherichia coli* in healthy captive non-human primates. *Frontiers in Veterinary Science*, 1:24. doi: 10.3389/fvets.2014.00024.

**Clayton J. B.**, Kim, H. B., Glander, K. E., Isaacson, R. E., and Johnson, T. J. (2012). Fecal Bacterial Diversity of the Wild Mantled Howling Monkey (*Alouatta palliata*). *American Journal of Physical Anthropology*, 147(S54):116-117.

**Clayton J. B.**, Johnson, T. J., and Trent, A. M. (2011). Examination of *Escherichia coli* populations in a captive zoological collection of nonhuman primates. *American Journal of Physical Anthropology*, 144(S52):110.

**Clayton, J. B.** & Glander, K. E. (2011). Dietary Choices by Four Captive Slender Lorises (*Loris tardigradus*) When Presented With Various Insect Life Stages. *Zoo Biology*, 30:189-198.

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### Presentations (selected)

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**J. B. Clayton**, D. Knights, D. A. Travis, H. Huang, P. Vangay, T. Ward, L. T. Ha, T. V. Bui, M. V. Vo, K. E. Glander, T. Nadler, F. Cabana, T. Murphy, and T. J. Johnson. Examining Distinctive Signatures of Native Bacterial Taxa in Captive and Wild Nonhuman Primates. Joint meeting of the International Primatological Society and the American Society of Primatologists. Oral presentation. Chicago, Illinois. August 2016.

**J. B. Clayton**, D. Knights, H. Huang, L. T. Ha, T. V. Bui, M. V. Vo, D. A. Travis, F. Cabana, and T. J. Johnson. Associations between diet, gut microbiome, and health in red-shanked doucs

(*Pygathrix nemaeus*): a model for captive primate health. 96<sup>th</sup> Conference of Research Workers in Animal Diseases (CRWAD). Oral presentation. Chicago, Illinois. December 2015.

**J. B. Clayton**, D. Knights, H. Huang, L. T. Ha, T. V. Bui, M. V. Vo, D. A. Travis, F. Cabana, and T. J. Johnson. Associations between diet, gut microbial communities, and health in red-shanked doucs (*Pygathrix nemaeus*): A model for the subfamily colobinae. 38<sup>th</sup> Meeting of the American Society of Primatologists. Oral presentation. Bend, Oregon. July 2015.

**Jonathan B. Clayton**. Similar trends in microbiome shift between captive primates and modern humans. Microbial Plant and Genomics Institute (MPGI) Annual Retreat. Oral presentation. Saint Paul, Minnesota. May 2015.

**Jonathan B. Clayton**. Associations between nutrition, gut microbial communities, and health in nonhuman primates. 8<sup>th</sup> European Zoo Nutrition Conference. Oral presentation. Arnhem, Netherlands. January 2015.

**Jonathan B. Clayton**. The Association Between Nutrition, Gut Microbial Populations, and Health in Red shanked Doucs (*Pygathrix nemaeus*): A Model for Captive Asian Colobines. Lincoln Park Zoo Brown Bag Seminar. Oral presentation. Chicago, Illinois. October 2014.

T. V. Bui, L. T. Ha, T. A. Nguyen, M. V. Vo, T. J. Johnson, D. A. Travis, and **J. B. Clayton**. Protecting the red-shanked douc (*Pygathrix nemaeus*) in Son Tra Nature Reserve, Danang, Vietnam: A community-based conservation approach. International Primatological Society (IPS) XXV Congress. Poster presentation. Hanoi, Vietnam. August 2014.

**J. B. Clayton**, D. Knights, K. E. Glander, D. A. Travis, H. Huang, L. T. Ha, T. V. Bui, T. Nadler, and T. J. Johnson. Evolution of the gastrointestinal microbiome of the primate order. International Primatological Society (IPS) XXV Congress. Oral presentation. Hanoi, Vietnam. August 2014.

**J. B. Clayton**, D. Knights, H. Huang, L. T. Ha, T. V. Bui, T. Nadler, M. V. Vo, D. A. Travis, and T. J. Johnson. Associations between nutrition, gut microbiome, and health in red-shanked doucs (*Pygathrix nemaeus*): A model for the subfamily colobinae. International Primatological Society (IPS) XXV Congress. Oral presentation. Hanoi, Vietnam. August 2014.

**Jonathan B. Clayton** and Kevin S. Lang. Dioxin Contamination in Vietnam: Harnessing Untapped Microbial Communities for Bioremediation. Dow Sustainability Innovation Student Challenge Award (SISCA). Hosted by Dow Chemical and the Institute on the Environment, University of Minnesota. Oral and Poster Presentations. Saint Paul, MN. December 2013.

Bui, T. V., Ha, L. T., Nguyen, T. A., Vo, M. V., Johnson, T. J., Travis, D. A., and **Clayton, J. B.**, Understanding Red-shanked Douc Home Range in Son Tra Nature Reserve, Da Nang, Viet Nam. 3<sup>rd</sup> International Conference – Conservation of Primates in Indochina. Poster session. Cuc Phuong National Park, Vietnam. October 2013.

**Clayton, J. B.**, Ha, L. T., Bui, T. V., Nguyen, T. A., Vo, M. V., and Johnson, T. J. Understanding the Behavior and Ecology of the Red-shanked Douc in Central Vietnam: Notes from the Field. CVM Points of Pride Research Days. Poster session. Saint Paul, Minnesota. October 2013.

**Clayton, J. B.**, The Relationship between Gastrointestinal Bacterial Diversity and Nutritional Specializations in Captive and Wild Red-shanked Doucs (*Pygathrix nemaeus*). Wildlife Reserves Singapore Group Windows On Wildlife (WOW) Talk. Oral Presentation. Singapore. July 2013.

**Clayton, J. B.**, The Relationship between Gastrointestinal Bacterial Diversity and Nutritional Specializations in Captive and Wild Red-shanked Doucs (*Pygathrix nemaeus*). Danang Univeristy of Education Invited Speaker Seminar. Oral Presentation. Danang City, Vietnam. November 2012.

**Clayton, J. B.**, Kim, H. B., Danzeisen, J. L., Glander, K. E., Isaacson, R. E., and Johnson, T. J. Characterization and functional analysis of the fecal metagenome of the wild mantled howling monkey (*Alouatta palliata*). International Primatological Society (IPS) XXIV Congress. Oral presentation. Cancun, Mexico. August 2012.

**Clayton, J. B.**, Kim, H. B., Danzeisen, J. L., Glander, K. E., Isaacson, R. E., Singh, S., Grove, D., and Johnson, T. J. Fecal Bacterial Diversity of the Wild Mantled Howling Monkey (*Alouatta palliata*). 81<sup>st</sup> Annual Meeting of the American Association of Physical Anthropologists (AAPA). Poster session. Portland, Oregon. April 2012.

**Clayton, J. B.**, Kim, H. B., Danzeisen, J. L., Glander, K. E., Isaacson, R. E., Singh, S., Grove, D., and Johnson, T. J. Fecal Bacterial Diversity of the Wild Mantled Howling Monkey (*Alouatta palliata*). GPSAlliance Inaugural International Research Conference. Poster session. Minneapolis, Minnesota. February 2012.

**Clayton J. B.**, Johnson, T. J., and Trent, A. M. Examination of *Escherichia coli* populations in a captive zoological collection of nonhuman primates. 80<sup>th</sup> Annual Meeting of the American Association of Physical Anthropologists (AAPA). Poster session. Minneapolis, Minnesota. April 2011.

**Clayton J. B.**, Johnson, T. J., and Trent, A. M. Examination of *Escherichia coli* populations in a captive zoological collection of nonhuman primates. Morris Animal Foundation Wildlife Conference. Poster session. New Orleans, Louisiana. March 2011.

**Clayton J. B.**, Johnson, T. J., and Trent, A. M. Examination of *Campylobacter* and *Escherichia coli* populations in a captive zoological collection of nonhuman primates. 42<sup>nd</sup> Annual American Association of Zoo Veterinarians (AAZV) Conference. Oral presentation. South Padre Island, Texas. October 2010.

**Clayton J. B.**, Johnson, T. J., and Trent, A. M. Examination of *Escherichia coli* populations in a captive zoological collection of nonhuman primates. 10<sup>th</sup> Annual Meriel-NIH National Veterinary Scholars Symposium. Poster session. Athens, Georgia. August 2010.

**Clayton J. B.** and Glander, K. E. Dietary choices by slender lorises presented with insects at various life stages. Duke University Visible Thinking Symposium. Poster session. Durham, North Carolina. April 2008.

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### Research Experience

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**Postdoctoral Research, *The Primate Microbiome Project* (Founder)**

**Collaborators: Dan Knights, Tim Johnson, Dominic Travis, Ran Blekhman, Andres Gomez, Katie Amato, Rob Knight, Steven Leigh, and Rebecca Stumpf**

University of Minnesota, Saint Paul, MN

Northwestern University, Evanston, IL

University of Colorado at Boulder, Boulder, CO

University of California, San Diego, La Jolla, California

University of Illinois at Urbana-Champaign, Champaign, IL

J. Craig Venter Institute, La Jolla, California

2015-present

### **Graduate Student**

#### **Tim Johnson's Lab**

University of Minnesota, Saint Paul, MN

September 2010-August 2015

### **Veterinary Medicine Student**

#### **Tim Johnson's Lab**

University of Minnesota, Saint Paul, MN

June 2009-August 2010

### **Undergraduate Research, *Slender loris* predator behavior and prey selection**

#### **Ken Glander's Lab**

Duke University, Durham, NC

January 2008-August 2008

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## **Teaching Experience**

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### **Teaching Assistant**

Spring 2014

General Microbiology (VBS 2022 and 2032)

University of Minnesota, Minneapolis, MN

### **Teaching Assistant (Peer Leader)**

Fall 2006

First Year Seminar (FYS)

Barton College, Wilson, NC

Topic: Evolution of Nonhuman Primates

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## **Professional Service (selected)**

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**Student Ambassador**, University of Minnesota College of Veterinary Medicine

2016

### **MN State Science and Engineering Fair, Bloomington, MN**

- Senior High School Projects Judge

March 21, 2015

### **MN State Science and Engineering Fair, Bloomington, MN**

- Junior High School Projects Judge

March 31, 2014

**Officer**, PharmacoNeuroImmunology (PNI) Group, University of Minnesota

2014-2015

**Committee Member**, PharmacoNeuroImmunology (PNI) Seminar Series, University of Minnesota

2014-2015

**Appointee, Scientific Committee** – XXV Congress of the International Primatological Society, Hanoi, Vietnam

2014

JB Clayton

**Session Chair**, #508 titled “Microbiota”, XXV Congress of the International Primatological Society, Hanoi, Vietnam

August 15, 2014

**Invited scientific expert**, Vietnamese primate conservation symposium, Danang, Vietnam 2013