

## Raphaël Royauté

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### PROFESSIONAL APPOINTMENTS AND EDUCATION

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- Postdoctoral Researcher (2021-present), Senckenberg Biodiversity and Climate Research Centre  
(Adviser: T. Müller)
- Visiting Researcher (October 2019-2020), LMU München/Department Biology II  
(Host: Niels Dingemanse)
- Postdoctoral Researcher (2014-2019), North Dakota State University, Fargo.  
(Adviser: N.A. Dochtermann)
- Ph.D. (2014), McGill University, Montréal, QC, Canada.  
(Advisers: CM. Buddle and C. Vincent)
- Diplôme d'Agronomie Approfondi (2008), École Nationale Supérieure Agronomique de Toulouse, Toulouse, France. (M.Sc. level degree with specialisation in Environmental Sciences)
- Classes Préparatoires aux Grandes Écoles (2005), Lycée Thiers, Marseille, France.  
(B.Sc. level degree with specialisation in Biology, Chemistry, Physics and Earth Sciences)

### PUBLICATIONS

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underlining indicates undergraduate coauthors, asterix indicate publication as corresponding author

- Peer-Reviewed Publications

372 citations, *h-index* 10

14. Hertel, A.G., **R. Royauté**, A. Zedrosser and T. Mueller. Biologging reveals individual variation in behavioral predictability in the wild. *Journal of Animal Ecology* (*In Press*)
13. **Royauté, R.**, A. Hedrick and N.A. Dochtermann. 2020. Behavioural syndromes shape evolutionary trajectories via conserved genetic architecture. *Proceedings of the Royal Society B*. 287, 20200183.
12. N.A. Dochtermann and **R. Royauté**. 2019. The mean matters: going beyond repeatability to interpret behavioural variation. *Animal Behaviour*. 153, 147-150
11. N.A. Dochtermann, T. Schwab, M.A. Berdal, J. Dalos and **R. Royauté**. 2019. The heritability of behaviour: a meta-analysis. *Journal of Heredity*. 110, 403-410
10. **Royauté, R.**,\* C.R. Garrison, J. Dalos, M.A. Berdal and N.A. Dochtermann. 2019. Current energy state interacts with the developmental environment to influence behavioral plasticity. *Animal Behaviour*. 148, 39-51
9. **Royauté, R.**, Berdal, M.A., Garrison, C.R., and N.A. Dochtermann. 2018. Painless life? A meta-analysis of the pace-of-life syndrome hypothesis. *Behavioral Ecology and Sociobiology*. 72, 64

8. **Royauté, R.,\*** E.S. Wilson, B.R. Helm, R.E. Malinge, J. Prasifka, K.J. Greenlee and J.H. Bowsher. 2018. Phenotypic integration in an extended phenotype: individual variation among nest-building traits in the alfalfa leafcutter bee (*Megachile rotundata*). *Journal of Evolutionary Biology*. 31, 944-956 [featured cover article]
  7. Hamilton, J. A., **Royauté, R.**, Wright, J.W., Hodgskiss, P., and F.T. Ledig. 2017. Genetic conservation and management of the California endemic, Torrey pine (*Pinus torreyana* Parry): implications of genetic rescue in a genetically depauperate species. *Ecology & Evolution*. 7, 7370-7381
  6. **Royauté, R.\*** and N.A. Dochtermann. 2017. When the mean no longer matters: Developmental diet affects behavioral variation but not population averages in the house cricket (*Acheta domesticus*). *Behavioral Ecology*. 28, 337-345
  5. **Royauté, R.**, K. Greenlee, M. Baldwin and N.A. Dochtermann. 2015. Behavior, metabolism, and size: phenotypic modularity or integration in *Acheta domesticus*? *Animal Behaviour*. 110, 163-169
  4. **Royauté, R.,\*** C.M. Buddle and C. Vincent. 2015. Under the influence: sublethal exposure to an insecticide affects personality expression in a jumping spider. *Functional Ecology*. 29, 962-970
  3. Montiglio, P.-O., and **R. Royauté**. 2014. Contaminants as a neglected source of behavioural variation. *Animal Behaviour*. 88, 29-35
  2. **Royauté, R.,\*** C.M. Buddle and C. Vincent. 2014. Interpopulation variations in behavioral syndromes of a jumping spider from insecticide-treated and insecticide-free orchards. *Ethology*. 120, 127-139
  1. **Royauté, R.\*** and C.M. Buddle. 2012. Colonization dynamics of agroecosystem spider assemblages after snow-melt in Quebec (Canada). *Journal of Arachnology*. 40, 48-58
- Manuscripts submitted on preprint servers, in review or in preparation
    - Royauté, R.\*** and N.A. Dochtermann. Comparing ecological and evolutionary variability within datasets. 2020. EcoEvoRxiv preprint: <https://doi.org/10.32942/osf.io/tn7u5>
    - Garrison, C.R., **Royauté, R.** and N.A. Dochtermann. 2020. Integration of intra- and inter-sexual selection signaling. bioRxiv preprint: <https://doi.org/10.1101/2020.05.14.088518> (*In Revision: Animal Behavior*)
    - Grinsted, L., **R. Royauté**, S. Eiserhardt, V. Settepani, N.J. Dingemanse and T. Bilde. The spiders that lost their personalities. (*Submitted: the American Naturalist*)
  - Popular Science and Non-Peer Reviewed Publications
    - Royauté, R.**, C.M. Buddle and C. Vincent. 2014. Effets des insecticides sur les syndromes comportementaux d'une araignée sauteuse. *Antennae* **21**, 3-5.
    - Royauté, R.** 2013. Les araignées sauteuses du Québec. *Antennae* **20**, 10-11.
    - Buddle, C.M., C. Ernst, M. Hervieux, S. Loboda, A. MacLeod, T. Maloney, C. Levya Mancilla, **R. Royauté**, and A.M. Solecki. 2011. Status of entomology in Canada: crisis or opportunity? 2011. *Bulletin of the Entomological Society of Canada* **43**, 141-147.

## GRANTS AND FUNDING

## • Grants Written

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- German Science Foundation. *Density-dependent selection as a driver of life-history and behavioural evolution*. Not funded (PI).
  - Bee Challenge Grant. Crowdfunding for summer undergraduate assistant (Experiment.com). *Does insecticide exposure affect solitary bee nesting behavior?* Summer 2017. Total funded: \$3,440. (co-PI)
  - National Science Foundation (IOS preproposal). *Development, feedback, and maternal effects on behavioral variation*. 2015. Not funded (PI)

## • Fellowships

- Margaret Duporte Fellowship, McGill University. 2010-2012. Total awarded: \$15,330.

## • Prizes and awards

- Marie Skłodowska-Curie Actions Seal of Excellence for the “ContaminAnts” proposal, given to proposal with a > 85% score (2016 & 2017)
- York Environment Fellowship Development Award. Travel grant to work on a Marie Curie Fellowship Application at the University of York. 2016. Total awarded: £800.
- Entomological Society of Canada. Graduate Student Showcase. 2013. Total awarded: \$100.
- Entomological Society of Canada President’s Prize. Poster presentation runner up. 2013.
- Quebec Center for Biodiversity Sciences Symposium. Best Oral Presentation. 2012. Total awarded: \$350.
- International Society for Behavioural Ecology. Travel grant for presentation of a poster. 2012. Total awarded: \$2,000
- Entomological Society of Canada President’s Prize. Oral presentation runner up. 2011.
- Melville DuPorte Award. Societé d’Entomologie du Québec. Best Oral Presentation. 2009. Total awarded: \$200.

## TEACHING EXPERIENCE

**Courses**

- Department of Biological Sciences;  
North Dakota State University  
Instructor of record: *Animal Behavior* Fall 2014/15
- Department of Natural Resource Sciences; McGill University, Montréal, QC, Canada
  - As a teaching assistant:  
Teaching Assistant and Guest Lecturer: *Ethology* Fall 2011/12  
Teaching Assistant: *St Lawrence Ecosystems* Fall 2010

## UNDERGRADUATE MENTORING

• **North Dakota State University** (2014-2019)

I coordinated and mentored a team of 3-6 undergraduate and graduate students working

in Dr Dochtermann's laboratory. Primary tasks included supervision of behavioural experiments on crickets and providing training in analysis of behavioural data using EthoVision and the R Statistical Software.

- **McGill University – Agriculture and AgriFood Canada (2009-2013)**

Supervision of over 10 undergraduate students participating in an exchange program and hosted by Agriculture and Agri-Food Canada. Students were co-mentored with Dr Charles Vincent to work on projects related to my PhD research. Primary tasks included the collection of wild spiders, supervision of behavioural experiments and providing training in analysis of behavioural data using the Observer and the R Statistical Software. The majority of students wrote a thesis as a requirement for their degrees.

## PROFESSIONAL SERVICE

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- Reviewer for many journals including: *Animal Behavior*, *Behavioural Ecology*, *Behavioural Ecology and Sociobiology*, *Evolution*, *Frontiers in Ecology and Evolution*, *Journal of Evolutionary Biology*, *Oecologia*, *Oikos*, *Proceedings B*. and *The Journal of Arachnology*.
- Animal Behavior Society: Graduate Student Research Grant Reviewer (2015 & 2016)
- Organization of the Biodiversity and Behaviour Symposium at the 2012 Entomological Society of Canada Joint Annual Meeting. Edmonton, AB.

## PROFESSIONAL PRESENTATIONS

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- Invited Talks

<sup>1</sup> Bielefeld University, <i>Department of Evolutionary Biology</i>	2020
<i>Canadian Entomology, Ecology and Evolution Virtual Seminar Series</i>	2020
<sup>1</sup> UQAM, <i>Groupe de Recherche en Ecologie Comportementale et Animale</i>	2020
LMU, <i>Behavioural Ecology Group</i>	2019
North Dakota State University, <i>Department of Biological Sciences</i>	2019, 2014
North Dakota State University-USDA, <i>Insect Cryobiology and Ecophysiology Group</i>	2018, 2015-14
CNRS, <i>Centre d'Études Biologiques de Chizé</i>	2019
Queen's University, <i>Department of Biology</i>	2018
UC Davis, <i>Sih Lab Group</i>	2016

<sup>1</sup> Via video-conference due to the COVID-19 pandemic

- Contributed Presentations

<sup>o</sup>: Oral presentation, <sup>ST</sup>: Short talk, <sup>P</sup>: Poster presentation, <sup>VP</sup>: Virtual presentation

German Ethological Society	2020 <sup>P</sup>
Evolutionary Biology Congress	2019 <sup>ST, P</sup>
Animal Behavior Society	2020 <sup>VP</sup> , 2019 <sup>o</sup> , 2017 <sup>o</sup> , 2015 <sup>o</sup>
Genetics Society	2018 <sup>o</sup>
International Behavioral Ecology Congress	2018 <sup>o</sup> , 16 <sup>o</sup> , 2014 <sup>P</sup> , 2012 <sup>P</sup>
Entomological Society of Canada	2015 <sup>o</sup> , 2014 <sup>o, P</sup> , 2013-09 <sup>o</sup>

Québec Center for Biodiversity Science	2012 <sup>O,P</sup>
Société Québécoise pour l'Étude Biologique du Comportement	2012-2011 <sup>O</sup>
Société d'Entomologie du Québec	2009 <sup>O</sup>
American Arachnological Society	2007 <sup>P</sup>

## OUTREACH ACTIVITIES

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- Press coverage
  - Radio and TV Interviews (all interviews related to article #4 in the Publication section)
    - Radio Canada International (Radio): Spider personality changes after tiny exposure to pesticide – 8 September 2015
    - CJBK (Local Ontario Radio) – 18 August 2015
    - CJAD (Local Montréal Radio) – 17 August 2015
    - 702 ABC Sydney (Radio) – 11 August 2015
    - CBC News Montréal (TV): Even the tiniest of creatures have personality – 10 August 2015
    - CBC Radio Montréal Homerun – 7 August 2015
  - Magazines, Websites and Blogs
    - Science & Vie Magazine: Insectes : à chacun sa personnalité. Cover article for November 2019
    - Discover Magazine Inktfish: How Spider Personalities Affect Pest Control – 24 November 2015
    - Science News for Students: Insecticide can change a spider's personality – 15 September 2015
    - CBC News Technology & Science section: Pesticides cause personality changes in spiders, study suggests – 7 September 2015
    - The Wildlife Society: Insecticides Alter Spiders' Personalities and Behaviors – 18 August 2015
    - Smithsonian Magazine Website: This Pesticide Doesn't Kill Spiders, But It Does Mess With Their Heads – 18 August 2015
    - Futurity: Insecticide changes helpful spider's 'personality' – 6 August 2015
    - McGill University Press Release: Pesticides: more toxic than previously thought? – 6 August 2015
- Lay Summaries of Scientific Articles
  - Hosted on the Arthropod Ecology Blog – written with Dr. Chris Buddle (<https://arthropodecology.com>)
    - Under the influence: how insecticides affect jumping spider personalities – 18 February 2015
    - The effect of insecticides on jumping spider personalities – 26 November 2013
    - Spiders after snow melt – 12 January 2012
  - Hosted on Pierre-Olivier Montiglio's Personal Blog – written with Dr P-O Montiglio (<https://montiglio.wordpress.com>) Contaminant as a neglected source of variation in behaviour – 10 June 2014