# CHRIS J. LAW, PHD cjlaw@uw.edu | chrisjlaw.com

Early Career Provost Fellow | University of Texas Acting Instructor & Affiliate Curator | University of Washington & Burke Museum

### **EDUCATION**

2013–19	Ph.D. Ecology and Evolutionary Biology. University of California, Santa Cruz
2008–12	B.S. Environmental Systems. University of California, San Diego
2010	Marine Biology and Terrestrial Ecology Program. University of Queensland

# **ACADEMIC HISTORY**

2024-	Affiliate Curator, Burke Museum of Natural History
2021-	Early Career Provost Fellow, University of Texas, Austin
2021-	Acting Instructor, University of Washington
2021-	Visiting Scholar, University of California, Berkeley
2019–23	<b>Gerstner Scholar</b> , American Museum of Natural History Sponsors: Dr. John Flynn and Dr. Robert Voss
2019–22	NSF Postdoctoral Fellow, University of Washington Sponsor: Dr. Sharlene Santana
2013–19	<b>PhD Student</b> , Ecology & Evolutionary Biology, University of California Santa Cruz Advisor: Dr. Rita Mehta
2011–13	Research Assistant/Associate, Scripps Institution of Oceanography Advisors: Dr. Kelly Dorgan & Dr. Greg Rouse

### **AWARDS**

2024	<b>DVM Mentorship Award,</b> Society of Integrative and Comparative Biology.
2022	Undergraduate Research Mentor Award, University of Washington.
2022	Postdoc Science Slam Best Presentation Award, University of Washington.
2019	Wake Award (finalist), Society of Integrative and Comparative Biology.
2018	D. Dwight Davis Award (finalist), Society of Integrative and Comparative Biology.
2016	James L. Patton Award, American Society of Mammalogists.
2014	Global Oceans Student Award, Friends of Long Marine Laboratory.

### **FELLOWSHIPS**

\$720,9	950 in awarded fellowships	
2021–24	Early Career Provost Fellowship, University of Texas, Austin.	\$213,272
2019–22	Postdoctoral Fellowship, National Science Foundation. (DBI–1906248)	\$162,000
2019–21	<b>Gerstner Scholars Postdoctoral Fellowship</b> , American History Museum of Natural. <i>Partially declined to accept NSF fellowship</i>	\$127,030
2018–19	Chancellor's Dissertation Quarter Fellowship, UC Santa Cruz.  ARCS Scholar Fellowship, ARCS Foundation.  EEB Departmental Quarter Fellowship, UC Santa Cruz.	\$13,086 \$11,000 \$15,500
2015–18	NSF Graduate Research Fellowship, National Science Foundation.	\$138,000
2013–15	Regent's Fellowship, UC Santa Cruz.	\$30,812
2013–18	Fellowship in Marine Mammals, Rebecca & Steve Sooy Endowment.	\$10,250
DECEA	RCH GRANTS	
	339 in awarded funding for research	
submitted	<b>BCS: Biological Anthropology</b> , National Science Foundation. <i>Request</i> "Collaborative Research: Convergence of craniodental morphology and musculature in gummivorous primates." BCS–2418592. Lead-PI Law.	
submitted	<b>DEB: Evolutionary Processes</b> , National Science Foundation. Request "Investigating the ecomorphology and evolution of sexual dimorphism in mammalian skulls." DEB–2414866. PI Law.	ed \$634,942
2022-23	Stengl-Wyer Endowment Grant, University of Texas.  "The evolution of mammalian body plans: a case study in squirrels."  SWG-22-02. PI: Law.	\$59,370
2021–24	Integrative Research in Biology, National Science Foundation.  "Disentangling the genetic, biomechanical, and deep-time factors underlying mammalian skeletal diversity." DBI–2128146. PI Tseng, co-PI Hlusko, co-PI Law - Role: I conceived of the project idea and led writing efforts, but I could not technically submit as PI.	
2021–23	<b>Early Career Provost Fellow Research Funds</b> , University of Texas. "Disentangling the genetic, biomechanical, and deep-time factors underlying mammalian skeletal diversity." PI Law.	\$20,000
2019–22	Postdoctoral Fellowship Research Funds, National Science Foundation. "Ecomorphology and evolution of carnivoran body shapes." DBI— 1906248. PI Law.	\$45,000
2019–23	Gerstner Research Grant. American Museum of Natural History.	\$25,000

"Ecomorphology and evolution of carnivoran body shapes." PI Law.

2017–19	Dissertation Improvement Grant, National Science Foundation.  "Dissertation Research: The effects of sexual dimorphism on morphological diversification of Musteloidea." DEB–1700989. PI Mehta, co-PI Law - Role: I conceived of the project idea and led writing efforts, but I could not technically submit as PI.	\$19,189
2017–18	Packard Endowment Grant, Packard Foundation.  "Linking feeding performance & energetics to dietary specialization & fitness in southern sea otters." Pls: Law and Mehta.	\$17,844
	nts (≤\$5000)	
2024	Ranges Imaging Mini-Award, Ranges Digitization Network.	\$2,252
2023	<b>Division of Vertebrate Morphology Publication Award</b> , SICB. <b>Domino Award</b> , University of Texas.	\$1,000 \$1,500
2022	Arthur James Boucot Research Grant, Paleontological Society.  Pathway to Research Independence Grant, University of Texas.	\$4,600 \$5,000
2021	Research Exchange, Research University Alliance.	\$1,500
2020	Iuvo Postdoctoral Award, University of Washington.	\$1,416 \$1,400
2020	Vertebrate Paleontology Collections Study Grant, Burke Museum.	
2019	Student Travel Award, Society of Marine Mammalogy.  Graduate Student Association Travel Grant, UC Santa Cruz. [2013–2019].	\$250 <i>\$2,234</i>
2018	Collections Study Award, Natural History Museum of LA County. Student Travel Award, American Society of Mammalogists.	\$1,175 \$400
2017	Field Museum Visiting Scholarship, Field Museum.  Grant-in-Aid of Research, Society of Integrative & Comparative Biology.  IMC-12 Travel Grant, American Society of Mammalogists.	\$1,520 \$1,894 \$1,250
2016	James L. Patton Award, American Society of Mammalogists.	\$5,000
2015	Research Grant, American Cetacean Society—Monterey Bay Chapter. Collection Study Grant, American Museum of Natural History. Rosemary Grant Student Grant, Society for the Study of Evolution. Grant-in-Aid of Research, Sigma Xi.	\$1,500 \$700 \$1,800 \$700
2014	Lerner Gray Fund, American Museum of Natural History. Grant-in-Aid of Research, American Society of Mammalogists. Myers Trust Grant, Myers Oceanographic & Marine Biology Trust. Student Research Grant, Friends of Long Marine Laboratory.	\$2,000 \$1,500 \$2,000 \$850

# PEER-REVIEWED PUBLICATIONS

\*Chosen as one of the top two recipients

### 23 first/senior authored papers

- X) **Burtner A**<sup>‡</sup>, Grossnickle D, Santana S, & <u>Law CJ</u>. In revision. Gliding towards an understanding of the origin of flight in bats. Invited to resubmit to *PeerJ*. <u>BioRxiv</u> 2022.09.26.509622
- X) Grossnickle DM, Brightly WH, Pevsner SK, Polly PD, Roston RA, Stanchak KE, Stayton T, Weaver LN, & <u>Law CJ</u>. In revision. Challenges and advances in methods for measuring phenotypic convergence. Invited to resubmit to *Evolution*. <u>BioRxiv</u> 2022.10.18.512739
- X) <u>Law CJ</u>, Linden T<sup>‡</sup>, & Flynn JJ. In review. Skull evolution and lineage diversification in endemic Malagasy carnivorans. Target journal: *Royal Society Open Science*. <u>BioRxiv</u> 2024.03.25.586658
- X) <u>Law CJ</u>, Hlusko LJ, & Tseng ZJ. In review. The carnivoran adaptive landscape reveals tradeoffs among functional traits in the skull, appendicular, and axial skeleton. Target journal: *Proceedings of Royal Society B*.
- X) Valenciano A, Jiangzuo Q, Abella J, Alcalá L, <u>Law CJ</u>, Morales J, & DeMiguel D. In prep. The oldest weasel from the fossil record reveals Mustelinae originates from the Miocene (Mammalia, Carnivora, Mustelidae). Target journal: *Nature Ecology and Evolution*
- 34) <u>Law CJ</u>, Tinker MT, Fujii, JA, Nicholson T, Staedler M, Tomoleoni J, Young C, & Mehta RS. In press. Tool use increases mechanical foraging success and tooth health in southern sea otters (*Enhydra lutris nereis*). *Science*. <u>doi.org/10.1126/science.adj6608</u>
- 33) Jiangzuo Q, Wang X, <u>Law CJ</u>, Jia Y, Li S, Fu J, Wang S, Deng T, & Ji X. In press. Presence of *Cernictis* and *Lutravus* (Ictonychinae, Mustelidae, Carnivora) in eastern Asia and the dispersal of Ictonychinae during the Late Miocene. *Journal of Systematic Paleontology*. <u>doi.org/10.1080/14772019.2024.2348032</u>
- 32) López-Torres S, Bertrand OC, Fostowicz-Frelik Ł, Lang MM, <u>Law CJ</u>, Martin-Flores GS, Schillaci MA, Silcox MT. Accepted. The allometry of brain size in Euarchontoglires and an exploration of group-specific encephalization. *Journal of Mammalogy*.
- 31) <u>Law CJ</u>, Hlusko LJ, & Tseng ZJ. 2024. Uncovering the mosaic evolution of the carnivoran skeletal system. *Biology Letters*. 20:20230526. <u>doi.org/10.1098/rsbl.2023.0526</u>
- 30) Kemp ME, Boville AE\*, Carneiro CM\*, Jacisin III JJ\*, <u>Law CJ</u>\*, Ledesma DT\*, Meza A\*, Shields-Estrada A\*, Xu T\*. 2023. Looking back for the future: the ecology of terrestrial communities through the lens of conservation paleobiology. *Annual Review of Ecology, Evolution, and Systematics*. 54:259-282. doi.org/10.1146/annurev-ecolsys-110421-101343
- 29) **Rickman J**<sup>†\*</sup>, **Burtner A**<sup>†\*</sup>, **Linden T**<sup>†</sup>, Santana S, & <u>Law CJ</u>\*. 2023. Size and locomotor ecology have differing effects on the external and internal morphologies of squirrel (Rodentia: Sciuridae) limb bones. *Integrative Organismal Biology.* 5:obad017. <u>doi.org/10.1093/iob/obad017</u>
- 28) Linden T<sup>†\*</sup>, Burtner A<sup>‡</sup>, Rickman J<sup>‡</sup>, McFeely A<sup>‡</sup>, Santana S, & <u>Law CJ</u>\*. 2023. Scaling patterns of body plans differ between squirrel ecotypes. *PeerJ.* e14800. doi.org/10.7717/peerj.14800

- 27) <u>Law CJ</u>, Blackwell E<sup>‡</sup>, Curtis AA, Dickinson E, Hartstone-Rose A, & Santana SE. 2022. Decoupled evolution of crania and mandibles in carnivoran mammals. *Evolution*. 76:2959-2974. doi.org/10.1111/evo.14578
- 26) Lang MM, Bertrand OC, Flores GSM, <u>Law CJ</u>, Abdul-Sater JAD, Spakowski S, Silcox MT. 2022. Scaling patterns of cerebellar petrosal lobules in Euarchontoglires: impacts of ecology and phylogeny. *Anatomical Records*. 305:3472-3503. <u>doi.org/10.1002/ar.24929</u>
- 25) <u>Law CJ</u>. 2022. Different evolutionary pathways lead to incomplete convergence of elongate body shapes in carnivoran mammals. *Systematic Biology*. 71:788–796. doi.org/10.1093/sysbio/syab091
- 24) Shrestha MB, Shrestha G, Reule S, Oli S, Ghartimagar TB, Singh G, Tripathi DM, <u>Law CJ</u>, Shah KB, & Savage M. 2021. First evidence of Eurasian otter in Nepal in three decades. *IUCN-SSC Otter Specialist Group Bulletin*. 38:279–291. <u>iucnosqbull.orq</u>
- 23) Higham TE, Ferry LA, Schmitz L, Irschick DJ, Starko S, Anderson PSL, Bergmann PJ, Jamniczky HA, Monteiro LR, Navon D, Messier J, Carrington E, Farina SC, Feilich KL, Hernandez LP, Johnson MA, Kawano SM, <u>Law CJ</u>, Longo SJ, Martin CH, Martone PT, Rico-Guevara A, Santana SE, and Niklas KJ. In press. Linking biomechanical models and functional traits to investigate phenotypic diversity. *Trends in Ecology and Evolution.* 36:860-873. doi.org/10.1016/j.tree.2021.05.009
- 22) <u>Law CJ</u>. 2021. Ecological drivers of carnivoran body shape evolution. *The American Naturalist*. 198:406–420. <a href="https://doi.org/10.1086/715588">doi.org/10.1086/715588</a>
- 21) <u>Law CJ</u>. 2021. Evolutionary and morphological patterns underlying carnivoran body shape diversity. *Evolution*. 75:365–375. <u>doi.org/10.1111/evo.14143</u>
- 20) <u>Law CJ</u>. 2020. Sex-specific ontogenetic patterns of cranial morphology, theoretical bite force, and underlying jaw musculature in fishers and American martens. *Journal of Anatomy*. 237:727-740. <u>doi.org/10.1111/joa.13231</u>
- 19) <u>Law CJ</u>. 2019. Solitary meat-eaters: solitary, carnivorous carnivorans exhibit the highest degree of sexual size dimorphism. *Scientific Reports*. 9:15344. <u>doi.org/10.1038/s41598-019-51943-x</u>
- 18) <u>Law CJ</u> & Mehta RS. 2019. Dry versus wet and gross: Comparisons between the dry skull method and gross dissection-based modeling in bite force estimations. *Journal of Morphology*. 280:1706–1713. <u>doi.org/10.1002/jmor.21061</u>
- 17) <u>Law CJ</u>. 2019. Evolutionary shifts in extant mustelid (Mustelidae: Carnivora) cranial shape, body size, and body shape coincides with the Mid-Miocene Climate Transition. *Biology Letters*. 15:20190155. doi.org/10.1098/rsbl.2019.0155
- 16) <u>Law CJ</u>, Slater GJ, & Mehta RS. 2019. Shared extremes by ectotherms and endotherms: body elongation in mustelids is associated with small size and reduced limbs. *Evolution*. 73:735–749. doi.org/10.1111/evo.13702

- 15) <u>Law CJ</u>, Duran E<sup>†</sup>, Hung N<sup>†</sup>, Richards E<sup>‡</sup>, Santillan I<sup>†</sup>, & Mehta RS. 2018. Effects of diet on cranial morphology and biting ability in musteloid mammals. *Journal of Evolutionary Biology*. 31:1918-1931. <u>doi.org/10.1111/jeb.13385</u>
- 14) Higgins BA, <u>Law CJ</u>, & Mehta RS. 2018. Eat whole and less often: ontogenetic shift reveals size specialization on kelp bass by the California moray eel, *Gymnothorax mordax*. *Oecologia*. 188:875–887. <u>doi.org/10.1007/s00442-018-4260-x</u>
- 13) <u>Law CJ</u> & Mehta RS. 2018. Carnivory maintains cranial dimorphism between males and females: Evidence for niche divergence in extant Musteloidea. *Evolution*. 72:1950–1961. doi.org/10.1111/evo.13514
- 12) <u>Law CJ</u>, Slater G, & Mehta RS. 2018. Lineage diversity and size disparity in Musteloidea: testing patterns of adaptive radiation using molecular and fossil-based methods. <u>Systematic Biology.</u> 67:127–144. <u>doi.org/10.1093/sysbio/syx047</u>
- 11) Jones K<sup>†\*</sup> & <u>Law CJ</u>\*. 2018. Differentiation of craniomandibular morphology in two sympatric *Peromyscus* mice (Cricetidae: Rodentia). *Mammal Research*. 63:277–283. doi.org/10.1007/s13364-018-0364-2 <sup>†</sup>Joint first authors
- 10) <u>Law CJ</u>. 2018. *Mustela sibirica* (Carnivora: Mustelidae). *Mammalian Species*. 50:109–118. doi.org/10.1093/mspecies/sey013
- 9) Kienle SS, <u>Law CJ</u>, Costa DP, Berta A, & Mehta RS. 2017. Revisiting the behavioural framework of feeding in predatory aquatic mammals. *Proceedings of the Royal Society B*. 284:20171035. <u>doi.org/10.1098/rspb.2017.1035</u>
- 8) <u>Law CJ</u>, Baliga VB, Tinker MT, & Mehta RS. 2017. Asynchrony in craniomandibular development and growth in *Enhydra lutris nereis* (Carnivora: Mustelidae): Are southern sea otters born to bite? *Biological Journal of Linnean Society*. 121:420-438. <a href="https://doi.org/10.1093/biolinnean/blw050">doi.org/10.1093/biolinnean/blw050</a>
- 7) **Hung N**<sup>†\*</sup> & <u>Law CJ</u>\*. 2016. *Lutra lutra* (Carnivora: Mustelidae). *Mammalian Species*. 48:109–122. <u>doi.org/10.1093/mspecies/sew011</u>
- 6) <u>Law CJ</u>, Young C, & Mehta RS. 2016. Ontogenetic scaling of theoretical bite forces in southern sea otters (*Enhydra lutris nereis*). *Physiological and Biochemical Zoology*. 89:347-363. doi.org/10.1086/688313
- Law CJ, Venkatram V<sup>†</sup>, & Mehta RS. 2016. Sexual dimorphism of craniomandibular morphology in southern sea otters (*Enhydra lutris nereis*). *Journal of Mammalogy*. 97:1764-1773. doi.org/10.1093/jmammal/gyw148
- 4) Baliga VB & <u>Law CJ</u>. 2016. Cleaners amongst wrasses: phylogenetics and evolutionary patterns of cleaning behavior within Labridae. *Molecular Phylogenetics and Evolution*. 94:424-435. <u>doi.org/10.1016/j.ympev.2015.09.006</u>
- 3) <u>Law CJ</u>, Dorgan KM, & Rouse GW. 2014. Relating divergence in polychaete musculature to different burrowing behaviors: A study using Opheliidae (Annelida). *Journal of Morphology*. 571:548–571. <u>doi.org/10.1002/jmor.20237</u>

- Dorgan KM, <u>Law CJ</u>, & Rouse GW. 2013. Meandering worms: Mechanics of undulatory burrowing in muds. *Proceedings of the Royal Society B*. 280:20122948. doi.org/10.1098/rspb.2012.2948
- 1) <u>Law CJ</u>, Dorgan KM, & Rouse GW. 2013. Validation of three sympatric *Thoracophelia* species (Annelida: Opheliidae) from Dillon Beach, California using mitochondrial and nuclear DNA sequence data. *Zootaxa*. 3608:67–74. doi.org/10.11646/zootaxa.3608.1.4

#### **INVITED BOOK REVIEWS**

1) <u>Law CJ</u>. 2019. Book review of *Biology and Conservation of Musteloids* by David W. Macdonald, Chris Newman, and Lauren A. Harrington. *The Quarterly Review of Biology*. 94:297–298. doi.org/10.1086/705063

#### **INVITED SEMINARS**

- 2024 **Texas State University.** *Ecomorphological diversity of carnivoran mammals.* Biology Department Seminar. 01.26.24.
- 2023 **Baylor University.** *Linking phenotypic diversity to individual fitness and species diversification.* Biology Department Seminar. 03.31.23.
- The University of Texas. Linking phenotypic diversity to individual fitness and species diversification. Integrative Biology Department Seminar. 12.05.22.
  - **Western Washington University.** *Ecomorphological mechanisms underlying individual fitness and species survival.* Biology Department Seminar. 11.30.22.
  - **Washington State University.** *Linking phenotypic diversity to individual fitness and species diversification.* Biological Science Department Seminar. 11.14.22.
  - Natural History Museum of Los Angeles County. Linking phenotypic diversity to individual fitness and species diversification. Research & Collections Department Seminar. 11.10.22.
  - **University of California Riverside.** *Linking phenotypic diversity to individual fitness and species diversification*. Evolution, Ecology, & Organismal Department Biology Seminar. 5.23.22.
  - **The University of Texas.** Body elongation and diversification in carnivoran mammals. Paleontology Seminar. 3.31.22.
  - **California State University, East Bay.** *Linking phenotypic diversity to individual fitness and species diversification.* Biological Sciences Department Seminar. 2.01.22
- 2021 **University of Michigan.** *Linking phenotypic diversity to individual fitness and species diversification.* Ecology and Evolutionary Biology Department Seminar. 11.08.22
  - **University of California Museum of Paleontology.** *Carnivoran body shape evolution.* Paleo Seminar. 10.12.22
  - **University of Washington.** Foraging benefits of tool using behavior in sea otters. Biology Department Seminar.
  - American Museum of Natural History. Linking phenotypic diversity to individual fitness and species diversification. Comparative Biology Department Seminar. 3.1.21.

- 2020 **University of Washington.** *Musteloid diversification and body shape evolution.* Paleobiology Seminar. 2.27.20.
  - **Cornell University.** *Linking natural history to species diversification and individual fitness.* Ecology and Evolutionary Biology Seminar. 2.6.20.
  - **New York Institute of Technology.** Anatomy Department Seminar (covid, cancelled).
  - **Adelphi University.** *Linking natural history to species diversification and individual fitness.* Biology Seminar. 1.31.20.
- 2019 **University of California, Santa Cruz.** *Patterns of intraspecific and interspecific variation in sea otters and other musteloids.* Ecology and Evolutionary Biology Seminar. 5.31.19.
  - **Santa Clara University.** Patterns of intraspecific and interspecific variation in sea otters and other musteloids. Biology Department Seminar. 5.29.19.
  - **University of California, Davis.** *Ecomorphology and evolution of sea otters and other musteloids.* Center for Population Biology Seminar. 1.22.19.

#### **TEACHING EXPERIENCE**

# **Biological Collections Ecology and Evolution Network (BCEENET)**

<u>Collaborating Developer</u>: (Summer 2020). Provided consultation in the development of Course-based Undergraduate Research Experiences (CUREs) that used online natural history collection data records.

## **University of Washington**

Guest lecturer: Mammalogy (Fall 2021, Winter 2021, Fall 2023).

### **University of California, Santa Cruz**

<u>Co-instructor</u>: Comparative Vertebrate Anatomy Lab (Fall 2017); Comparative Vertebrate Anatomy Lab (Summer 2017). Developed lectures and labs focused on anatomy, morphology, and biomechanics underlying vertebrate locomotion and feeding, and its evolution

Guest lecturer: Comparative Vertebrate Anatomy Lab (Spring 2019); Functional Anatomy (Spring 2017); Mammalogy (Fall 2015); Development and Physiology (Fall 2015); Biology of Marine Mammals (Spring 2015); Comparative Vertebrate Anatomy Lab (Fall 2014)

<u>Teaching Assistant</u>: Marine Mammals (Spring 2015); Comparative Vertebrate Anatomy Lab (Fall 2014); Development & Physiology (Spring 2014)

<u>Invited Panelist</u>: Creating Active and Inclusive Section Experiences Workshop (Fall 2017)

### STUDENTS MENTORED

#### **Graduate Student Committees:**

1. **William Zang** (West Chester University, Jan 2021–Oct 2022). *Maternal drivers of reproductive output in the lizard family Scincidae* 

### Undergraduate Researchers (36). 7 student co-authors\*

University of Washington (second stint)

- 36. Ana Luisa Gutierrez (May 2024–present): TBD
- 35. Anna Ostrem (Sept 2023–present): Ecomorphology of mustelid jaw morphology
- 34. **Ariyanna Haygood** (Sept 2023–present): *Brain evolution in primates*
- 33. Coby Huizenga (Sept 2023–present): Body shape allometry in rabbits and hares
- 32. Crystal Khem (Sept 2023–present): Primate skull ecomorphology
- 31. Furkan Cardakli (Sept 2023–present): Brain evolution in primates
- 30. Gomathy Shunmugapriyan (Sept 2023–present): Sexual dimorphism in mustelid jaws
- 29. Kanika Saravanan (Sept 2023–present): Ecomorphology of mustelid jaw morphology
- 28. Milli Tripathi (Sept 2023–present): Sexual dimorphism in mustelid jaws
- 27. Mirra Chinta (Sept 2023–present): Ecological correlates to limb morphology in rabbits
- 26. Nia Brice (Sept 2023–present): Ecological correlates to limb morphology in rabbits
- 25. **Simran Gupta** (Sept 2023–present): *Primate skull ecomorphology*
- 24. **Suhyeon Kim** (Sept 2023–present): Body shape evolution in rabbits and hares

# **University of Texas**

- 23. **Brenda Chavez** (Aug 2022–May 2023): *Sexual dimorphism in mustelid jaw morphology*
- 22. Vedika Shirtekar (Aug 2022–May 2023): Sexual dimorphism in mustelid jaw morphology
- 21. **Rodrigo Andrade Luna** (Angelo State University/UT INSTINCT REU, Jun 2022–Jan 2023): Evaluating mandible size and shape using Rensch's rule in Felidae

### *University of Washington (first stint)*

- 20. **Fletcher Levy** (Wesleyan University, Jun–Aug 2022): *Evaluating mandible size and shape using Rensch's rule in Felidae*
- 19. Tate Linden\* (Jan 2022-present): Scaling patterns of body plans in squirrels
- 18. **Alise Newman** (Jan 2022–present): *Sexual dimorphism in bobcat craniodental morphology*
- 17. Rada Soonthonvan (Jan 2022–Jun 2022): Sexual dimorphism in canid jaw morphology
- 16. Anna Heeter (Jan 2022–Jun 2022): Sexual dimorphism in canid jaw morphology
- 15. **Abby Burtner\*** (Jan 2021–present): Gliding towards an understanding of the origin of flight in bats
- 14. **Hannah Rickman\*** (Jan 2021–Jun 2023): Effects of locomotion on external and internal forelimb structure: a case study in Sciuridae
- 13. **Annika McFeely\*** (Jan 2021–Jun 2022): Scaling patterns of body plans differ between squirrel ecotypes

### American Museum of Natural History

- 12. **Julia Padro** (Smith College/AMNH REU, Jun 2022–Jan 2023): *Sexual dimorphism in carnivoran jaw morphology*
- 11. **Emily Blackwell\*** (Smith College/ AMNH REU, Jun 2021–Jan 2023): *Craniomandibular evolution in carnivoran mammals*
- 10. **Bennett Slibeck** (Columbia/ AMNH REU, Nov 2019–Jan 2021): *Effects of morphology on species range size*

### UC Santa Cruz

9. **Ana Moreland** (Jun 2018–Apr 2019): *Physical performance of southern alligator lizards in a changing climate* 

- 8. Carly Sanchez (Jun-Sept 2018): Quantifying kinematics of sea otter tool use behavior
- 7. **Parker Kaye (**Sept 2017–Mar 2018): *Small mammal population survey of Younger Lagoon Natural Reserve*
- 6. **Jennilyn Stenske** (June 2017–June 2019): *Population dynamics of small mammals at UC Santa Cruz FERP*
- 5. Ekai Richards\* (Jan-Aug 2017): Effects of diet on the scaling of bite forces in Musteloidea
- 4. **Sam Sambado** (Jan–Apr 2017): *Population dynamics of small mammals at UC Santa Cruz FERP*
- 3. **Kaz Jones\*** (Sept 2016–Jun 2017): Differentiation of craniomandibular morphology in two sympatric Peromyscus mice
- 2. **Meghan Yap-Chiongco** (Aug 2016–Jun 2017): *Phylogenetics of Ophelidiformes*
- 1. Shohei Burns (Mar–Aug 2014): Ecological variation in musteloids

### High School Students (5). 4 student co-authors

### UC Santa Cruz

- 1. **Emma Duran\*** (June–Aug 2017): Effects of diet on the scaling of bite forces in Musteloidea
- 4. **Isaac Santillan\*** (June–Aug 2017): Effects of diet on the scaling of bite forces in Musteloidea
- 3. **Anna Wadhwa** (June–Aug 2016): Sexual dimorphism of North American river otters
- 2. Vikram Venkatram\* (June–Aug 2015): Craniodental sexual dimorphism in sea otters
- 1. Nancy Hung\* (June–Aug 2014): Craniodental variation in Procyonidae

# Cultivamos Excelencia Program – Community College Program

- 2. **Jasmin Lara** (San Jose City College, Sept 2018–June 2019): *The Limitations of recycling in the community*
- 1. **Joanna Gonzalez Lugo** (San Jose City College, Sept 2018–June 2019): *The values and impact of Mexican American Studies on Latinx students in San Jose City College*

### Small Mammal Undergraduate Research in the Forest (SMURF) Program (2015–2019)

Trained and supervised 52 SMURF interns in mammal trapping: Jasmin Regalado (Apr-June 2019), Filippa Erixon (Apr-June 2019), Jamie Becher (Apr-June 2019), Olivia Wilms (Apr-June 2019), Josue Lopez (Apr-June 2019), Maria Zepeda (Apr-June 2019), Marie Gredell (Apr-June 2019), Christina Olague (Apr-June 2019), Amanda Smith (Jan-Mar 2019), Ari Statler (Jan-Mar 2019), Giselle Wendt (Jan-Mar 2019), Ishana Shukla (Jan-Mar 2019), Linnea Gullikson (Jan-Mar 2019), Lucy Malamud-Roam (Jan-Mar 2019), Nicholas Bergeron (Jan-Mar 2019), Vanessa Cortez (Jan-Mar 2019), Gabby Reynosa (Sept-Jun 2019); Maggie Choi (Sept-Dec 2018); Ray Hunter (Sept-Dec 2018); Benji Le (Sept-Dec 2018); Freddy Manzarez (Sept-Dec 2018); Shelby Thompson (Sept-Jun 2019); Jingyun Wu (Sept-Dec 2018); Samantha Abarca (Apr-June 2018); Lia Del Vecchio (Apr-June 2018); Maggy Feng (Apr-June 2018); Esmeralda Reyes (Apr-June 2018); Ciera Castillo (Jan-Apr 2018); Noelle Duerwald (Jan-Apr 2018); Shaun Kehrmeyer (Jan-Apr 2018); Samuel Sacco (Jan-Apr 2018); Samantha Gautreaux (Jan-Apr 2018); Jazmin Rios (Jan-Apr 2018); David Castaneda (Sept-Dec 2017); Aaron Gormley (Sept-Dec 2017); Sabrina Sanchez (Sept-Dec 2017); Kaz Jones (Sept 2016-June 2017); Jessica Elgersma (Sept 2016-June 2017); Deanna Rhoades (Sept 2016-June 2017); Carly Sanchez (Sept 2016-June 2018); Jazzmin Ilas (Sept 2016-June 2017);

Sami Akiba (Sept 2016–June 2017); Isabelle Panza (Sept 2016–June 2017); Megan Pasternak (Sept 2016–June 2017); Erin Huntsinger (Sept 2016–June 2017); Ilona Wilde (Sept 2016–June 2017); Tatiana Delgadillo (Sept 2016–Dec 2016); Ana Moreland (Sept 2016–Dec 2016); Aliya Cacanindin (Sept 2016–Dec 2016); Ethan Slattery (Sept 2016–Dec 2016); John Ahrens (Sept 2016–Dec 2016); Natalie Neff (Sept 2015–June 2017)

### DIVERSITY, EQUITY, INCLUSION, & JUSTICE INITIATIVES AND TRAINING

Founding con	nmittee member Femme2STEM Outreach Committee. <i>University of Washington</i>
Mentor	Temme231EW Outreach Committee. Onliversity of Washington
2023	SICB Broadening Participation Mentor-Mentee Program
2022	SICB Broadening Participation Mentor-Mentee Program
2018–19	Cultivamos Excelencia Community College Research Program
Attendee	
2021	Mentoring Graduate Students Workshop. The University of Texas
2021	Inclusive Classroom Management Workshop. The University of Texas
2021	Research Mentor Training Workshop. <i>University of Wisconsin-Madison</i>
2020	Empowering Prevention & Inclusivity Community (EPIC) Training. <i>University of Washington</i>
2016	Creating Active & Inclusive Section Experiences Workshop. UC Santa Cruz
Panelist	
2023	Opening the Door to Letters of Recommendation. <i>University of Washington</i>
2017	Creating Active & Inclusive Section Experiences Workshop. UC Santa Cruz
Member	
2015	Graduate Student Committee for Diversity Enhancement. UC Santa Cruz

### **RELEVANT RESEARCH EXPERIENCE**

#### **Museum Collections Work**

Collection visits (18 institutions): American Museum of Natural History; Beaty Biodiversity Museum; Burke Museum of Natural History and Culture; California Academy of Sciences; Field Museum; John Day Fossil Beds National Monument; Kansas University Natural History Museum; Museum of Vertebrate Zoology at UC Berkeley; National Museum of Natural History; Natural History Museum at London; Natural History Museum of Los Angeles County; Norris Center for Natural History at UC Santa Cruz; University of California Museum of Paleontology; University of Oregon Museum of Natural and Cultural History; University of Puget Sound Museum of Natural History; University of Texas Vertebrate Paleontology Collection; Yale Peabody Museum of Natural History.

# **Field Experience**

*UC Santa Cruz Natural Reserve, CA, USA*. Trapped and tagged small mammals for long-term population study. [2015–2019].

- **Fort Ord Natural Reserve, CA, USA**. Trapped and tagged small mammals for long-term population study. [2015–2019].
- Catalina Island, CA, USA. Trapped, tagged, and collected moray eels for morphological analyses and long-term population. [2015, 2016, 2018, 2019].
- **Rancho los Pinos, Baja California, Mexico**. Trapped, tagged, and collected moray eels for morphological analyses and long-term population. [2019].
- **San Juan Island, WA, USA**. Trapped and collected marine invertebrates for biomechanical analyses and accession in Scripps Institution of Oceanography collection [2010–2012].
- **San Diego, CA, USA**. Trapped and collected marine invertebrates for biomechanical analyses and accession in Scripps Institution of Oceanography collection [2010–2012].

### **INVITED WORKING GROUPS**

2019 National Science Foundation Rules of Life: Forecasting and Emergence in Living Systems (RoL:FELS) Working Group. Reciprocal illumination between ecology and biomechanics: evolution, integration, and constraint. Pls: Tim Higham and Lara Ferry.

#### CONTRIBUTED PRESENTATIONS

Mentored coauthors: † = high school student, ‡ = undergraduate student, \* = equal contributions

- 2024 **European Association of Vertebrate Palaeontologists**, Longyearbyen, Svalbard.
  - 1. López-Torres S, Bertrand OC, Fostowicz-Frelik Ł, Lang MM, <u>Law CJ</u>, Martin-Flores GS, Schillaci MA, Silcox MT. *The allometry of brain size in Euarchontoglires and an exploration of group-specific encephalization*. Poster.
  - Society for Integrative and Comparative Biology Annual Meeting, Seattle, WA.
    - 2. <u>Law CJ</u>, Hlusko L, & Tseng ZJ. *Uncovering the mosaic evolution of carnivoran skeletal systems*. Talk.
    - 3. <u>Linden T</u><sup>‡</sup>, Flynn JJ, & <u>Law CJ</u>. Quantifying skull shape convergence between Eupleridae and other feliform carnivorans. Poster.
    - 4. Grossnickle DM, Brightly WH, Pevsner SK, Polly PD, Roston RA, Stanchak KE, Stayton T, Weaver LN, & <u>Law CJ</u>. A novel method for measuring phenotypic convergence. Talk.
- 2023 Society of Vertebrate Paleontology Annual Meeting, Cincinnati, Ohio, USA.
  - 1. López-Torres S, Bertrand OC, Fostowicz-Frelik Ł, Lang MM, Law CJ, Martin-Flores GS, Schillaci MA, Silcox MT. The allometry of brain size in Euarchontoglires and an exploration of group-specific encephalization. Poster.
  - International Congress of Vertebrate Morphology, Cairns, Queensland, Australia.
    - 2. <u>Law CJ</u>, Hlusko L, & Tseng ZJ. *Evolutionary convergence and integration among carnivoran skeletal systems*. Talk.
  - 13<sup>th</sup> International Mammalogical Congress, Anchorage, AK.
    - 3. <u>Law CJ</u>, Hlusko L, & Tseng ZJ. *Evolutionary convergence and integration among carnivoran skeletal systems*. Talk.
  - American Association of Biological Anthropologists Annual Meeting, Reno, NV.

4. Burrows AM, <u>Law CJ</u>, Lopez-Torres S, Selig KR, & Silcox MT. Strepsirrhine gumfeeders have short skulls: searching for the evolutionary morphology of gummivory. Talk.

# Society for Integrative and Comparative Biology Annual Meeting, Austin, TX.

- 5. <u>Law CJ</u>, <u>Blackwell E</u><sup>‡</sup>, Curtis AA, Dickinson E, Hartstone-Rose A, & Santana SE. Decoupled evolution of crania and mandibles in carnivoran mammals. Poster.
- 6. <u>Linden T</u><sup>‡</sup>, <u>Pardo J</u><sup>‡</sup>, <u>Blackwell E</u><sup>‡</sup>, & <u>Law CJ</u>. *Mandibular sexual dimorphism in mongooses (herpestids) and civets (viverrids).* Poster.
- 7. <u>Blackwell E<sup>‡</sup></u>, <u>Newman A<sup>‡</sup></u>, & <u>Law CJ</u>. Mandibular sexual dimorphism in canids. Poster.
- 8. Andrade Luna R<sup>‡</sup>, Levy F<sup>‡</sup>, and Law CJ. Evaluating mandible size and shape
- 9. using Rensch's rule in the family Felidae. Poster.
- 10. <u>Rickman J</u><sup>‡</sup>, <u>Burtner A</u><sup>‡</sup>, <u>Linden T</u><sup>‡</sup>, Santana S, & <u>Law CJ</u>. *Differences in limb bone micro-anatomy across ecotypes in Sciuridae*. Poster.

# 2022 World Marine Mammal Conference, West Palm Beach, FL.

1. Maresh J, Law CJ, Kerr S, Costa D, & Adams D. *Maternal investment strategies in marine mammals: a phylogenetic comparative approach*. Talk.

# Society for Integrative and Comparative Biology Annual Meeting, Phoenix, AZ.

- 2. <u>Law CJ.</u> Different evolutionary pathways lead to incomplete convergence of elongate body shapes. Poster.
- 3. <u>Blackwell E<sup>‡</sup></u>, <u>Law CJ</u>, Curtis AA, Dickinson E, Hartstone-Rose A, & Santana SE. *Ecomorphology of the carnivoran skull*. Poster.
- 4. <u>Burtner A</u><sup>‡</sup>, Grossnickle D, Santana S, & <u>Law CJ</u>. *Understanding the origin of bat flight*. Poster.
- 5. <u>Rickman J</u><sup>‡</sup>, <u>Burtner A</u><sup>‡</sup>, <u>McFeely A</u><sup>‡</sup>, Santana S, & <u>Law CJ</u>. *Effects of locomotion on external and internal forelimb structure in Sciuridae*. Poster.

# 2021 Society for the Study of Evolution Annual Meeting. Virtual.

- 1. **Law CJ**. Ecological drivers of carnivoran body shape evolution. Talk.
- 2. Grossnickle DM, Brightly WH, <u>Law CJ</u>, Pevsner SK, Roston RA, Stanchak KE, & Weaver LN. *Testing the prevalence of morphological convergence among mammalian forelimb skeletons*. Talk.

### American Society of Mammalogists Conference. Virtual.

- 3. Law CJ. Ecological drivers of carnivoran body shape evolution. Talk.
- 4. Burtner A, McFeely A, Rickman J, Santana SE, & <u>Law CJ</u>. Evolution of body shape diversity in squirrels. Talk.

# Sea Otter Research and Conservation Symposium. Virtual.

5. <u>Law CJ</u>, Tinker MT, Fujii, JA, Nicholson T, Staedler M, Tomoleoni J, Young C, & Mehta RS. *Tool use increases biomechanical and bioenergetic foraging success in southern sea otters*. Talk. 1.4.20.

### Society for Integrative and Comparative Biology Annual Meeting. Virtual.

- 6. Slibeck B<sup>‡</sup> & Law CJ. Effects of morphology on species range size. Talk.
- 7. <u>Law CJ</u>. Evolutionary and morphological patterns underlying carnivoran body shape diversity. Talk.

8. Grossnickle DM, Brightly WH, <u>Law CJ</u>, Pevsner SK, Roston RA, Stanchak KE, & Weaver LN. *Testing the prevalence of morphological convergence among mammalian forelimb skeletons*. Talk.

### 2020 **Western Society of Naturalists Conference.** Virtual.

1. <u>Law CJ</u>, Tinker MT, Fujii, JA, Nicholson T, Staedler M, Tomoleoni J, Young C, & Mehta RS. *Tool use increases foraging success in southern sea otters*. Talk.

### Animal Behavior Society Annual Meeting. Virtual.

2. <u>Law CJ</u>, Tinker MT, Fujii, JA, Nicholson T, Staedler M, Tomoleoni J, Young C, & Mehta RS. *Tool use increases foraging success in southern sea otters*. Talk.

# Society for Integrative and Comparative Biology Annual Meeting, Austin, TX.

- 3. <u>Law CJ</u>, Tinker MT, Fujii, JA, Nicholson T, Staedler M, Tomoleoni J, Young C, & Mehta RS. *Tool use increases biomechanical and bioenergetic foraging success in southern sea otters*. Talk. 1.4.20.
- 4. <u>Law CJ</u>. Morphological and evolutionary patterns underlying carnivoran body shape diversification. Poster. 1.4.20.

### 2019 World Marine Mammal Conference, Barcelona, Spain.

1. <u>Law CJ</u>, Tinker MT, Fujii, JA, Nicholson T, Staedler M, Tomoleoni J, Young C, & Mehta RS. *Tool use increases foraging success in southern sea otters*. 12.12.19.

### International Congress of Vertebrate Morphology, Prague, Czech Republic.

2. **Law CJ**. Ecomorphology and evolution of carnivoran body plans. Talk. 7.23.19.

# Society for Integrative and Comparative Biology Annual Meeting, Tampa, FL.

- 3. <u>Law CJ</u> & Mehta RS. Carnivory maintains cranial dimorphism between males and females: Evidence for niche divergence in extant Musteloidea. 1.4.19.
- 4. <u>Law CJ</u>, <u>Duran E</u><sup>†</sup>, <u>Hung N</u><sup>†</sup>, <u>Richards E</u><sup>‡</sup>, <u>Santillan I</u><sup>†</sup>, & Mehta RS. *Cranial shape differences do not translate to bite force differences between musteloids with distinct dietary ecologies*. 1.4.19.

### 2018 American Society of Mammalogists Annual Meeting, Manhattan, KS.

- 1. <u>Law CJ</u>, Slater G, & Mehta RS. Shared extremes by ectotherms and endotherms: body elongation in mustelids is associated with small size and reduced limbs. Talk. 6.27.18.
- 2. Maresh JL, Corl A, Costa DP, & <u>Law CJ</u>. Predictors of metabolic rates in aquatic mammals. Poster. 6.26.18.

### Sea Otter Research Update Meeting, Santa Cruz, CA.

3. Law CJ, Tinker T, & Mehta RS. Strike force in tool using otters. Talk. 3.20.18.

### Society for Integrative and Comparative Biology Annual Meeting, San Francisco, CA.

- 4. <u>Law CJ</u>, Slater G, & Mehta RS. *Small and slender: evolutionary shifts towards elongate body plans within Mustelidae*. 1.4.18.
- 5. Mehta RS, <u>Law CJ</u>, <u>Duran E</u><sup>†</sup>, <u>Hung N</u><sup>†</sup>, <u>Richards E</u><sup>‡</sup>, <u>Santillan I</u><sup>†</sup>. *Effects of diet on the evolution of bite force in adult musteloids*. 1.6.18.
- 6. Higgins BA, <u>Law CJ</u>, & Mehta RS. Functional ecology of the California moray eel (Gymnothorax mordax): dietary breadth and bite force over ontogeny. Talk. 1.6.18.

- 7. Maresh JL, Corl A, Costa DP, & <u>Law CJ</u>. Predictors of metabolic rates in aquatic mammals. Poster. 1.5.18.
- 2017 **12**th International Mammalogical Congress, Perth, Western Australia.
  - 1. <u>Law CJ</u>, Slater G, & Mehta RS. *Lineage diversity and size disparity in Musteloidea:* testing patterns of adaptive radiation using molecular and fossil-based methods. Talk. 7.14.17.
  - 2. <u>Law CJ</u> & Mehta RS. *Evolution of sexual dimorphism in musteloid crania*. Poster. 7.10.17.

### Society for Integrative and Comparative Biology Annual Meeting, New Orleans, LA.

- 3. <u>Law CJ</u>, Young C, & Mehta RS. *Ontogenetic scaling of theoretical bite forces in southern sea otters (Enhydra lutris nereis)*. Talk. 1.8.17.
- 2016 Southern Sea Otter Research Update Meeting, Santa Cruz, CA.
  - 1. <u>Law CJ</u>. Sexual dimorphism in cranial form and function of southern sea otters. Talk. 2.19.16.
  - Society for Integrative and Comparative Biology Annual Meeting, Portland, OR.
    - 2. <u>Law CJ</u>, Baliga VB, Tinker MT, & Mehta RS. *Sexual dimorphism in the cranial morphology of southern sea otters*. Talk. 1.6.16.
- 2015 Society for Integrative and Comparative Biology Annual Meeting, West Palm Beach, FL.
  - 1. <u>Law CJ</u> & Mehta RS. Divergent times and diversification rates of Musteloidea (Mammalia:Carnivora). Talk. 1.4.15.
- 2013 Society for Integrative and Comparative Biology Annual Meeting, San Francisco, CA.
  - 1. <u>Law CJ</u>, Dorgan KM, & Rouse GW. *Differences in polychaete musculature lead to distinctive burrowing behaviors*. Poster.
- 2012 Society for Integrative and Comparative Biology Annual Meeting, Charleston, SC.
  - 1. <u>Law CJ</u>, Dorgan KM, & Rouse GW. *The anatomical features and kinematics of undulatory burrowing in the polychaete Armandia brevis*. Poster.

#### **PROFESSIONAL SERVICE**

### **Reviewer for the National Science Foundation**

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2024 Ad Hoc Reviewer. Integrative Organismal Systems (IOS)—Developmental Systems

### **Research Mentor**

2024–	Louis Stokes Alliance for Minority Participation (LSAMP) Program
2023-24	NSF DBI-2128146 Research Experience for Undergraduates (REU) Program
2022–23	Texas Excellence in Jobs and Service (TEJAS) Program
2022	Wesleyan University College of the Environment Summer Research Fellowship
2022	UT Austin Inclusive Student Training in Collections Topics (INSTINCT) Program
2022	AMNH Research Experience for Undergraduates (REU) Program
2021	NSF PRFP Research Experience for Undergraduates (REU) Program
2021	AMNH Research Experience for Undergraduates (REU) Program
2020	AMNH Research Experience for Undergraduates (REU) Program

- 2018–19 Cultivamos Excelencia Community College Research Program
- 2015–19 Small Mammal Undergrad Research in Forest (SMURF) Program
- 2014–17 Science Internship Program (SIP)

#### **Reviewer for Scientific Journals**

American Naturalist, Anatomical Records, Biological Journal of the Linnean Society, Biology Letters, Evolution, Functional Ecology, Integrative Organismal Biology, Journal of Anatomy, Journal of Evolutionary Biology, Journal of Experimental Biology, Journal of Mammalian Biology, Journal of Mammalogy, Journal of Zoology, Nature Communications, PeerJ, PLOS One, Proceedings of the National Academy of Sciences, Proceedings of the Royal Society B

### **Reviewer for Professional Societies**

2021 **Reviewer.** Abstracts for SACNAS Research Presentation

### SCIENCE COMMUNICATION

K-12	
2024	Presenter. Gulf of Maine Research Institute's Scientist To Go Program, Portland,
	ME.
2021	Presenter. California State Summer School for Mathematics and Science,
	(COSMOS), Santa Cruz, CA.
2021	<b>Presenter.</b> K–5 Science & Nature Program, American Museum of Natural History
2019	Presenter. Watsonville Wetlands Watch, CA.
2018	Presenter. Boys and Girls Clubs of Santa Cruz County, CA.
2017	Presenter. Ocean Explorers Summer Camp, Seymour Center, CA.
2016	Presenter. Ocean Explorers Summer Camp, Seymour Center, CA.
2014	Presenter. Science Alive Workshop, Gavilan College, Gilroy, CA.
Public Talks	
2021	Speaker. Curated Conversations at the Burke Museum.
2018	Speaker. Coastal Student Awards Celebration.
2015	Speaker. Citizen Science at the Santa Cruz Public Libraries.
	Speaker. Annual Sea Otter Awareness Week.
Outreach	
2024	Judge. University of Washington Art in Science Symposium
2023	Consultant. True Facts - The Rise of the Kitten Snake
2022	Interviewee. Ologies - <u>Lutrinology</u>
2021	Interviewee. KSQDFM Santa Cruz Naturalist segment
2020	Exhibit Presenter. Burke Museum Member's Night