

December. 2022
Eran Levin, PhD

Faculty: Life Sciences

School: Zoology

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A. EDUCATION

<u>Period of Study</u>	<u>Name of University, City</u>	<u>Subject</u>	<u>Degree</u>	<u>Date Awarded</u>
1999 – 2002	Tel-Aviv University	Biology	BSc	2002
2003 – 2005	Tel-Aviv University	Zoology	MSc	2005
2006 – 2011	Tel-Aviv University	Zoology	PhD	2011

Title of Master's thesis Aspects in the biology and diet of some insectivorous bats, Microchiroptera, in Northern Israel **Supervisor:** Prof. Yoram Yom-Tov and Prof. Anat Barnea.

Title of Doctoral Dissertation Energetic and environmental factors affecting seasonal migration, sexual segregation, and fattening pattern in an arid-zone insectivorous bat. **Supervisor:** Prof. Yoram Yom-Tov and Prof. Noga Kronfeld-Schor

B. FURTHER STUDIES

C1. ACADEMIC EXPERIENCE

<u>Period</u>	<u>Name of University</u>	<u>Department</u>	<u>Rank/Function</u>
2011 – 2012	Tel-Aviv University	Zoology	Post-docotoral fellow (Prof. Noga Kronfeld-Schor)
2013 – 2016	University of Arizona	Entomology	Post-docotoral fellow (Prof. Goggy Davidowitz)
2017	Tel-Aviv University	Zoology	Senior Lecturer

C2. PROFESSIONAL EXPERIENCE

<u>Period</u>	<u>Name of Institution, City, Country</u>	<u>Department</u>	<u>Function</u>
2007 – 2012	Open University Ranana, Israel	Biology	Instructor
2011– 2013	SPNY Tel-Aviv, Israel		Manager of Mammalian Center

D. ACTIVE PARTICIPATION IN SCIENTIFIC MEETINGS

2004	The 41 th Annual Meeting of the Zoological Society of Israel, Haifa University, Israel, local conference, lecture
2005	The 42 th Annual Meeting of the Zoological Society of Israel, Hebrew University, Rehovot, Israel, local conference, lecture
2007	The 26 th Meeting of the Entomological Society of Israel. The Hebrew University, Rehovot, Israel, local conference, lecture (prize for student lecture)
2007	The 14 th International Bat Research Conference, Merida, Mexico, International Conference, lecture
2007	The 44 th Annual Meeting of the Zoological Society of Israel, Achva Campus, Israel, local conference, lecture
2007	The 37 th Meeting of the Ecological Society of Israel, Weizmann Institute, Israel, local conference, lecture (prize for student lecture)
2008	The 1 th International Congress on Biodiversity in the Middle East, Aqaba, Jordan, International conference, lecture
2009	The American Society of Mammologists meeting, Fairbank-Alaska, USA,

	International conference, lecture
2009	The 46 th Annual Meeting of the Zoological Society of Israel, Haifa University. Israel.
	Local conference, lecture
2009	The 10 th Merav Ziv symposium: behavior & conservation, Ben Gurion University, Israel, local conference, lecture
2010	The 27 th Australian and New Zealand Society for comparative physiology and biochemistry meeting, Canberra, Australia. International conference, lecture
2011	The 48 th Annual Meeting of the Zoological Society of Israel, Tel-Aviv University, Israel, local conference, lecture.
2012	SICB Annual Meeting, Charleston, South Carolina, USA, International conference, Lecture
2015	NASBR Meeting, Monterey CA, USA, International conference, invited lecture
2015	SICB Annual Meeting, Palm Beach, FL, USA, International conference, lecture
2017	FISEB Meeting, Eilat, Israel, local conference, Invited lecture
2017	Batsheva de Rothschild Workshop on Linking Mechanics and Physiology in Animal Flyers, Kfar Bloom, Israel, International workshop, Invited lecture
2018	SICB Annual Meeting, San Francisco, USA, International conference, lecture
2018	International Ornithology Congress, Vancouver, Canada, International conference, In lecture
2022	SICB Annual Meeting, Phoenix, AZ, USA, International conference, lecture (canceled to COVID 19)
2022	International Union for the Study of Social Insects- San Diego, USA, International Conference, lecture
2022	The 3 rd Israeli Conference for Conservation Studies, Tel-Aviv University, Israel, local conference, lecture
D2. Invited seminars	
2019	University of Bristol
2020	Dartmouth College, NE, USA
2022	Haifa University
2022	Ben Gurion University
2022	Oranim college

E. COURSES TAUGHT

<u>Year, Semester</u>	<u>Course</u>	<u>Institution (if not TAU)</u>	<u>hrs</u>	<u>no.of students</u>	<u>obligatory/ elective</u>	<u>Evaluation (scale of 7)</u>
2018-2022	Physiology		1 of 3	250		6.46
2020-2022	Faunistics of vertebrates in Israel		1 of 3	25		6.82
2020-2022	Metabolism		1 of 6	25		6.5

F. ADDITIONAL ACADEMIC ACTIVITIES

Editorial positions:

<i>Ad hoc reviewer:</i>	<i>BSF (2016), Acta Chiropterologica (2015), Journal of Endangered Species (2010), Journal of Small Carnivores (2010), Journal of Mammalogy (2011), Journal of Ethology (2013), Journal of Arid Environments (2013), Journal of Biogeography (2015), Mammalian Review (2017), Mammalian Biology (2016) Proceedings of the Royal Society B (2018), Journal of Comparative Physiology B (2018), Oecologia (2019), Ecology Letters (2021), Insects (2022), Molecular Biology and Evolution (2022), Journal of Insects Physiology (2022)</i>
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Tel Aviv University administrative roles:

2019- Zoological garden comitee

2020- School of Zoology technical comitee

Lectures to general audience: Avshalom institute (2017-2020), "Etnhta" (2019), Steindhart Museum of Natural History (2018-2021), Natural Park Autirity training of new rangers (2018-2022), "Cuticula" (2022).

G. ACADEMIC AND PROFESSIONAL AWARDS

G1. EXTERNAL GRANTS

<u>Year</u>	<u>Name of Agency (and Collaborators)</u>	<u>Total (NIS)</u>	<u>For my use</u>	<u>My Role (PI/Co-PI)</u>
2018	ISF equipment grant	1613000	1613000	PI
2018 – 2022	ISF Macronutrient use by the Oriental Hornet, <i>Vespa orientalis</i> : A Nutritional Ecology Study	960000	960000	PI
2019 – 2022	BARD (with Etya Amsalem) The impacts and underlying mechanisms of carbon dioxide narcosis in bumble bees	1103000	375000	Co-PI

G2. INTERNAL GRANTS (AT TAU)

<u>Year</u>	<u>Name of Agency (and collaborators)</u>	<u>Total (NIS)</u>	<u>For my use</u>	<u>My Role (PI/Co-PI)</u>
2019	Porter – Life in Extreme Environments Thermal adaptation on the edge: Oriental hornet (<i>Vespa orientalis</i>) physiology and behavior at the Dead Sea Region	178000	178000	PI

G3. Fellowships/Scholarships/Prizes

<u>Year</u>	<u>Name of Institution</u>	<u>Occasion</u>
2004	Roni Piffiano Award for Excellence in teaching and research- Tel-Aviv University	
2002-2005	M.Sc. Fellowship, Department of Zoology, George S. Wise Faculty of Life Sciences, Tel Aviv University.	
2006	Rami Levin award for excellence in graduate studies in Zoology.	
2007	First prize for presentation at the 37 th meeting of the Ecological Society of Israel, Weizmann Institute, Israel.	
2007	Adesman travel award.	
2008	Israel-Templer award for excellence in teaching and research.	
2009	Adesman travel grant.	
2009	The Zoology Society of Israel travels grant.	
2006-2009	Tel-Aviv University Rector Fellowship for excellent Ph.D. students.	
2009	Ford Conservation and Environmental Research Grant	
2011	Australia-Israel travel grant for a short period of research.	
2011	The Hoopoe Foundation- grant for the study of bats in the Jordan Valley	
2015	Office of the Vice President for Research, University of Arizona, seed grant for preliminary research	

H. MEMBERSHIP IN PROFESSIONAL SOCIETIES

2005- Israel Zoological Society (Israel)

2015- Society of integrative and comparative Biology (USA)

2019- 2020 International Ornithologists' Union (Internatinal)

2019- Israel Entomological Society (Israel)

I. STUDENTS SUPERVISED BY CANDIDATE**I1. DOCTORAL STUDENTS**

<u>Dates</u>	<u>Name</u>	<u>Title of thesis/proposal</u>	<u>Institution</u> <u>(if not TAU)</u>
2017-2023*	Levona Bodner	Brood care in <i>Vespa orientalis</i>	
2021	Shahar Dubiner	Hibernation physiology of reptiles	

*Thesis will be submitted during Feb 2023

I2. M.Sc. STUDENTS

<u>Dates</u>	<u>Name</u>	<u>Title of thesis/proposal</u>	<u>Institution</u> <u>(if not TAU)</u>
2017-2019	Nitzan Cohen	Aspects in the physiology of the Oriental hornet	
2017-2020	Mika Volov	Biochemical adaptation along a climatic gradient	
2019-2021	Ariel Drabkin	Seasonal changes in the metabolism of the Etruscan shrew	
2021	Sharif Hamdo (co-supervised with Dr. Victoria Soroker)	The nutrition of honey bee drones	
2021	Roi Cohen (co-supervised with Dr. Roi Dor)	Population genetic of <i>Oenanthé lugens</i>	
2022	Yechzkel Trablsi	Environmental adaptations in the nutrition of the American cockroach	
2022	Ofer Frumkin	Nutrition and population structure of the lesser mouse tailed bats along climatic gradient	
2022	Klil Kestin (co-supervised with Dr. Roi Dor)	Invasion biology of the common myna	

I3. POST-DOCTORAL FELLOWS

<u>Dates</u>	<u>Name</u>	<u>Title of project</u>	<u>Present position</u>
2019-2021	Tali Magory Cohen	Cyptic diversity in peripheral populations of a horseshoe and slit-faced bats	Postdoc UC Davis
2019-2021	Rya Seltzer	The impacts and underlying mechanisms of carbon dioxide narcosis in bumble bees	Beewise Ltd
2019-2020	Hagai Shpigler	Winter diapause in Oriental hornets	PI in Volacany Research Center
2020	Sofia Bouchebti	Macronutrients and their use by the Oriental hornet	
2021-2022	Adi Domer	Myoinositol metabolism in Hymenopterans	Postdoc UC Berkeley
2021	Reut Vardi (co-supervised with Prof. Shai Meiri)	Morphological and physiological adaptations of lizards to urban habitats	

PUBLICATIONS (as of Dec 30, 2022) H-index 14

Ranking (H-Index, impact factor, Q, citation) based on ISI

- My students are underlined, Technicians double underlined.
- corresponding author *.
- Equal contribution - ^
- Supervisors' names (Doctorate and Post-doctorate)– with broken underline

C1. Research articles publishedGraduate research:

- 1) **Levin, E***, Barnea, A., Yovel, Y., and Yom-Tov, Y. Have introduced fish initiated piscivory among the long-fingered bat? *Mammalian Biology*, 2006 Jan; 71, 139-143. (Zoology IF 1.63, Journal ranking 47/170 (Q2), cited 33 times).
- 2) **Levin, E***, Yom-Tov, Y., Barnea, A., and Huchon, D., Genetic diversity and phylogeography of the greater mouse-tailed bat *Rhinopoma microphyllum* (Brünnich, 1782) in the Levant. *Acta Chiropterologica*, 2008 Feb; 10, 207-212. (Zoology IF 1.56, Journal ranking 50/170 (Q2), cited 16 times).
- 3) **Levin, E***, Yom-Tov, Y., and Barnea, A. Frequent nuptial flights of ants provide a primary food source for bats. *Naturwissenschaften*, 2009 Jul; 96, 477-483 (Multi-Disciplinary Science IF 1.971, Journal ranking 32/69 (Q2), cited 43 times).
- 4) Yuan, L.*, Zuo, X., He, L., Racey, P., **Levin, E.**, and Zhang, S., Cloning and Characterization of Novel Isoforms of the *BOULE* Gene in Bats. *Biochemical Genetics*, 2009 Mar; 48, 173-180 (Genetics and Heridity IF 0.822, Journal ranking 120/174 (Q3), cited 3 times).
- 5) Kanfi, Y.*, Peshti, V., Gil, R., Naiman, S., Nahum, L., **Levin, E.**, Kronfeld-Schor, N., and HY, Cohen, S. SIRT6 protects against pathological damage caused by diet-induced obesity. *Aging Cell*, 2010 Jan; 1-12 (best paper prize for 2010). (Cell Biology IF 7.34, Journal ranking 31/193 (Q1), cited 212 times).
- 6) Amichai, E.*, **Levin, E.**, Yom-Tov, Y., Kronfeld-Schor, N., Natural history, physiology and energetic strategies of *Asellia tridens* (Chiroptera). *Mammalian Biology*, 2013 Jul; 78, 94-103. (Zoology IF 1.63, Journal ranking 47/170 (Q2), cited 16 times).
- 7) **Levin, E***, Yom-Tov, Y., Hefetz, A., Kronfeld-Schor, N. Changes in diet, body and fatty acids composition during pre-hibernation in a subtropical bat, in relation to NPY and AgRP expression. *Journal of Comparative Physiology B*, 2013 Jul; 183, 157-166. (Zoology IF 2.53, Journal ranking 16/170 (Q1), cited 26 times).
- 8) **Levin, E***, Roll, U., Dolev, A., Yom-Tov, Y., Kronfeld-Schor, N., Bats of a gender flock together: sexual segregation in a subtropical bat. *PLoS one*, 2013 Feb; 8: 1-7 (Multi-Disciplinary Science IF 2.776, Journal ranking 24/69 (Q2), cited 27 times).
- 9) Cvikel, N., Berg, K.E., **Levin E.**, Hurme E., Borissov I., Boonman A., Amichai E. and Yovel Y*, Bats aggregate to improve prey search but might be impaired when density becomes to high. *Current Biology*, 2015 Jan; 25: 201-206. (Biochemistry and Molecular Biology IF 9.19, Journal ranking 20/299 (Q1), cited 100 times).
- 10) Cvikel, N., Greitzer, K., **Levin, E.**, Hurme, E., Borissov, I., Boonman, A., Amichai, E., and Yovel, Y*. On board recordings reveal no jamming avoidance in wild bats. *Proceedings of the Royal Society B*, 2015 Sep; 282: 1-7. (Biology IF 4.3, Journal ranking 11/87 (Q1), cited 44 times).
- 11) **Levin, E***, Plotnik, B., Amichai, E., Braulke, L.J., Yom-Tov, Y., and Kronfeld-Schor, N., Subtropical mouse-tailed bats using geothermal heated caves for winter hibernation at warm temperatures. *Proceedings of the Royal Society B*, 2015 Jan; 282: 1-9. (Biology IF 4.3, Journal ranking 11/87 (Q1), cited 22 times).

Postdoctoral research:

- 12) **Levin, E***, Mitra, C., and Davidowitz, G., Fed males increase oviposition in female hawk moths via male-provided non-nutritive direct benefits. *Animal Behaviour*, 2016 Jan; 112: 111-118. (Zoology IF 2.67 Journal ranking 13/170 (Q1), cited 16 times).

- 13) **Levin, E***, McCue, M., and Davidowitz, G., More than just sugar: allocation and metabolism of nectar amino acids and fatty acids in a Lepidopteran. Proceedings of the Royal Society B, 2017 Feb; 284: 1-7 (Biology IF 4.3, Journal ranking 11/87 (Q1), cited 28 times).
- 14) **Levin, E***, Lopez, G., Fane B, Davidowitz, G., Hawkmoth use sugar to reduce oxidative damage from flight. Science, 2017 Feb; 355: 733-735. (Multi-Disciplinary Science IF 41.063, Journal ranking 2/69 (Q1) cited 46 times).
- 15) **Levin, E***, McCue, M., and Davidowitz, G., Sex Differences in the utilization of essential and non-essential amino acids in Lepidoptera. Journal of Experimental Biology, 2017 Feb; 220: 2743-2747 (Biology IF 3.017, Journal ranking 19/87 Q1, cited 13 times).
- 16) Nielsen, ME., **Levin, E.**, Davidowitz, G., and Papaj, DR*, Colour plasticity alters thermoregulatory behaviour in *Battus philenor* caterpillars by modifying the cue received. Animal Behaviour, 2018 May; 140:93- 98. (Zoology IF 2.67 Journal ranking 13/170 (Q1), cited 2 times).

The following articles are with Tel-Aviv University affiliation

- 17) Çoraman, E*, Dietz, C., Hempel, E., Gazaryan, A., **Levin, E.**, Presetnik, P., Zgmaister, M. and Mayer, F., Reticulate evolutionary history of a western Palaearctic bat complex explained by multiple mtDNA introgressions in secondary contacts. Journal of Biogeography, 2019 Feb; 46:343-352. (Ecology IF 3.8, Journal ranking 34/165 (Q1), cited 15 times).
- 18) Dubiner, S., Cohen, N., Volov, M., Hefetz, A., Settler, R., and **Levin, E***. The exocrine chemistry of the parasitic wasp *Sphecophaga orientalis* and its host *Vespa orientalis*: A Case of Chemical Deception? Insects, 2020 Jan; 12: 1-10 (Entomology, Journal ranking 18/102 IF 2.2,Q1, cited 2 times).
- 19) Urca, T*, **E. Levin^***, and G. Ribak^*. Insect flight metabolic rate revealed by bolus injection of the stable isotope ¹³C Proceedings of the Royal Society B, 2021 Aug; 284: 1-7 (Biology IF 5.3, Journal ranking 13/93 (Q1), cited 2 time).
- 20) Magory Cohen, T., Kiat, Y., Sharon, H. and **Levin, E***. An alternative hypothesis for the evolution of sexual segregation in endotherms Global Ecology and Biogeography, 2021 Sep; 30: 2420-2430 (Ecology IF 7.1 Journal ranking 9/166, Q1, cited 2 time).
- 21) Volov, M., Cohen, N., Bodner, L., Dubiner, S., Hefetz, A., Bouchebti, S. and **Levin, E***. The effect of climate and diet on body lipid composition in the Oriental hornet (*Vespa orientalis*). Frontiers in Ecology and Evolution, 2021 Oct; 9:1-10 (Ecology IF 4.1 Journal ranking 38/166, Q1, cited 2 time).
- 22) Shpigler*, H.Y., Magory Cohen, T., Ben Shimol, E., Ben-Betzalel, R. and **Levin, E***. Juvenile hormone functions as a metabolic rate accelerator in bumble bees (*Bombus terrestris*). Hormones and Behavior, 2021 Oct; 136: 1-8 (Behavioral Sciences IF 3.6 12/53 Q1, cited 2 time).
- 23) Bodner, L., Bouchebti, S*, and **Levin, E***. Allocation and metabolism of naturally occurring dietary amino acids in the Oriental hornet. Insect Biochemistry and Molecular Biology, 2021 Nov; 139: 1-5 (Entomology IF 4.7 Journal ranking 7/102, Q1, cited 1 time).
- 24) Urca, T*, **E. Levin^**, and G. Ribak^ . The metabolic cost of flight and aerobic efficiency in Rose chafers, (*Protaetia cuprea*). Insect Science, 2022 Jan;1-12 (Entomology IF 3.6 Journal ranking 14/100, Q1).
- 25) Bodner, L., Bouchbeti, S., Watted, Omar., Seltzer, R. , Drabkin, A. and **Levin, E***. Digestive Division of labor in the Oriental hornet: the role of larval secretions in colony nutrition. Biology, 2022 Feb; 241:1-12 (Biology IF 5.07 Journal ranking 16/93, Q1).
- 26) Bouchebti, S., Bodner, L. and **Levin, E***. The effects of dietary proline, β -alanine, and γ -aminobutyric acid (GABA) on the nest construction behavior in the Oriental hornet (*Vespa orientalis*). Scientific Reports, 2022 Jul; 1-8 (Multidisciplinary Sciences IF 4.99 Journal ranking 19/134, Q1, cited 1 time).
- 27) Parikh, S*, Parikh, R, Michael, K, Bikovski, L, Barnabas, G, Mardamshina, M, Hemi, R, Goldstein, N, Malcov-Brog, H, Ben-Dov, T, Glaich, O, Liber, D,

- Bornstein, Y, Goltseker, K, Ben-Bezalel, R, Golan, T, Pavlovsky, M, Spitzer, L, Matz, H, Gonen, P, Percik, R, Leibou, L, Perluk, T, Ast, G, Frand, J, Brenner, R, Ziv, T, Khaled, M, Ben-Eliyahu, S, Barak, S, Karnieli-Miller, O, **Levin, E**, Gepner, Y, Pfluger, P, Weller, A, Weiss, R, and Levy, C. Solar exposed-skin induce sex-dependent food-seeking behavior. *Nature Metabolism*, 2022 Jul; 1-18 (Endocrinology & Metabolism IF 19.9 Journal ranking 5/146, Q1, cited 1 time).
- 28) Barie, K., **Levin, E.** and Amsalem, E*. CO₂ narcosis induces a metabolic shift mediated via juvenile hormone in *Bombus impatiens* gynes. *Insect Biochemistry and Molecular Biology*, 2022 Sep; 149, 103831. (Entomology IF 4.7 Journal ranking 7/102, Q1, cited 1 time).
- 29) Meiri, S. and **Levin, E.** Revisiting life history and morphological proxies for early mammaliaform metabolic rates. *Nature Communications*, 2022 Sep; 13, 5562. (Multidisciplinary Science IF 17.6 Journal ranking 6/74, Q1).
- 30) Cohen, N., Volov, M., Bodner, L., Bouchebti, S. and **Levin, E***. 2022. Body size, metabolic rate, and diapause in the Oriental hornet (*Vespa orientalis*), in two extreme climatic regions. *Ecological Entomology*, 2022 Oct; 1-10 (Entomology IF 2.3 Journal ranking 30/105, Q2).
- 31) Bouchebti, S., Bodner, L. and **Levin, E.** 2022. Continuous exchange of nectar nutrients in an Oriental hornet colony. *Communications Biology*, 2022 Oct; 5, 1-6. (Biology, IF 6.5 Journal ranking 7/113, Q1).
- 32) Bouchebti, S., Bodner, L., Magory-Cohen, T. and **Levin E.** 2023 (**accepted**) Chitin digestion in a eusocial insect: the digestive role of larvae in hornet colonies. *Entomologia Generalis* (Entomology, IF 6.6 Journal ranking 2/100, Q1).
- 33) Vardi, R., Dubiner, S., Ben-Bezalel, R., Meiri, S. and **Levin, E.** 2023 (**accepted**) Metabolic rate and evaporative water loss during a shedding event in *Hemidactylus turcicus*. *Reptiles and Amphibians* (Zoology, IF 1.3 Journal ranking Q2).