**Name: Moshe Gish Date: 3/5/2021**

**ID: 038241758**

**CURRICULUM VITAE**

1. **Personal Details**

Permanent Home Address: Naomi 9, Haifa, Israel

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**Note**: \* Marks activities and publications since my last appointment to Senior Lecturer (part time- 50%) on October 2017.

1. **Higher Education**

##### Undergraduate and Graduate Studies

|  |  |  |
| --- | --- | --- |
| **Degree** | **Name of Institution**  **and Department** | **Period of Study** |
| B.Sc. in Biology | University of Haifa – Oranim  Department of Biology | October 2001- July 2004 |
| M.Sc. in Ecology of Herbivores | University of Haifa  Department of Evolutionary and Environmental Biology | October 2005 – October 2006 |
| Ph.D. in Ecology of Herbivores | Department of Evolutionary and Environmental Biology University of Haifa | October 2006- May 2012 |

##### b. Post-Doctoral Studies

|  |  |  |
| --- | --- | --- |
| **Name of Host** | **Name of Institution and Department/Lab** | **Period of Study** |
| Consuelo De Moraes | Pennsylvania State University, Department of Entomology and Department of Biology | September 2012- July 2016 |

1. **Academic Ranks and Tenure in Institutes of Higher Education**

|  |  |  |
| --- | --- | --- |
| **Rank/Position** | **Name of Institution and Department** | **Years** |
| Teaching fellow  (part time) | University of Haifa Department of Natural Resources and Environmental Management | October 2016-  October 2017 |
| Senior Lecturer  (50% part time) | University of Haifa Department of Natural Resources and Environmental Management | \*October 2017-present |

1. **Offices in Academic Administration**

|  |  |  |
| --- | --- | --- |
| **Role** | **Name of Institution and Department** | **Years** |
| None | None | None |

1. **Scholarly Positions and Activities outside the University**

|  |  |
| --- | --- |
| **Memberships in Academic Professional Associations** | **Years** |
| Entomological Society of Israel | 2017 |
| Zoological Society of Israel | 2004-2012 |
| International Society for Behavioral Ecology | 2008-2009 |
| Ecological Society of America | 2014 |
| Entomological Society of Israel | \*2018-2019 |
| Entomological Society of America | \*2020 |

|  |  |
| --- | --- |
| **Reviewing for Refereed Journal** | **Years** |
| Journal of Experimental Biology | 2014 |
| PLOS ONE | 2015 |
| American Journal of Botany | 2016 |
| Oecologia | \*2018 |
| Canadian Journal of Zoology | \*2020, \*2021 |
| Pest Management Science | \*2021 |

1. **a. Active Participation in Scholarly Conferences**

**a1**. **International Conferences - Held Abroad**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Role** | **Subject of Lecture/Discussion** | **Place of Conference** | **Name of Conference** | **Date** |
| Speaker | How do tiny insect herbivores avoid being eaten by large mammalian herbivores? | Ithaca, New York | 12th International Behavioral Ecology Congress | 2008 |
| Speaker | The chemical defense of extrafloral nectaries | Urbana, Illinois | 30th annual meeting of the International Society for Chemical Ecology | 2014 |
| Speaker | Destructive consumption of extrafloral nectaries: An overlooked cost of an indirect defense mechanism | Sacramento, California | 99th annual meeting of the Ecological Society of America | 2014 |
| Poster presenter | Non-destructive detection across landscapes of mass marked insects | Sacramento, California | 99th annual meeting of the Ecological Society of America | 2014 |
| Speaker | How do aphids detect approaching coccinellid predators? | Virtual meeting | Annual Meeting of the Entomological Society of America | \*2020 |

**a2**. **International Conferences - Held in Israel**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Role** | **Subject of Lecture/Discussion** | **Place of Conference** | **Name of Conference** | **Date** |
| Speaker | Localized chemical defense of extrafloral nectary tissue | Sde-Boker | Plant Ecology | 2017 |

**a3**. **Local Conferences**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Role** | **Subject of Lecture/Discussion** | **Place of Conference** | **Name of Conference** | **Date** |
| Speaker | Dropping behavior in aphids as an escape response: suicide or calculated risk? | Sde-Boker | 40th annual meeting of the Zoological Society of Israel | 2003 |
| Speaker | Jump or die: How to avoid being eaten by an herbivore | Oranim | 27th annual meeting of the Entomological Society of Israel | 2008 |
| Speaker | How aphids avoid being eaten by mammalian herbivores | Mikhmoret | 45th annual meeting of the Zoological Society of Israel | 2008 |
| Speaker | Young aphids ride mature aphids back to the plant after dropping off the plant | Tel-Aviv | 28th annual meeting of the Entomological Society of Israel | 2009 |
| Speaker | Riding on adults to get back to the host | Haifa | 46th annual meeting of the Zoological Society of Israel | 2009 |
| **Invited plenary speaker** | The Mediterranean phrygana- a heaven for insects | Kfar-Tavor | Disappearing open landscapes- conference held by the Society for the Protection of Nature in Israel | \*2018 |
| Speaker | How do aphids sense an approaching predator? | Volcani Center | 38th annual meeting of the Entomological Society of Israel | \*2019 |

6. **b. Participation in Scholarly Conferences presented by co-author(s) including students (#)**

**b3**. **Local Conferences**

# - Student

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Role** | **Subject of Lecture/Discussion** | **Place of Conference** | **Name of Conference** | **Date** |
| # | Spiders and vineyards | Volcani Center | 38th annual meeting of the Entomological Society of Israel | \*2019 |
| # | Spiders in vineyard agroecological systems | Virtual meeting | 48th annual meeting of the Israel Society of Ecology and Environmental Sciences | \*2020 |

6. **c**. **Organization of Conferences or Sessions**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Role** | **Subject of Conference** | **Place of**  **Conference** | **Name of**  **Conference** | **Year** |
| Session Co-chair  And  Panel Co-chair | Plant ecology | Sde-Boker | Plant Ecology | \*2017 |
| Conference Co-chair | Environmental Sciences | Virtual meeting  (>3000 participants) | 48th annual meeting of the Israel Society of Ecology and Environmental Sciences | \*2020 |

1. **Invited Scholarly Lectures (Others than in Conferences)**

**Abroad**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Role** | **Subject of Lecture** | **Place of Lecture** | **Name of Forum** | **Year** |
| None | None | None | None | None |

**In Israel**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Role** | **Subject of Lecture** | **Place of Lecture** | **Name of Forum** | **Year** |
| None | None | None | None | None |

**Colloquium or Seminar Talks**

|  |  |  |  |
| --- | --- | --- | --- |
| **Presentation** | **Place of Lecture** | **Name of Forum** | **Year** |
| Speaker | From aphid defenses to defenses against aphids | Juniata College, Huntingdon, PA | 2014 |
| Speaker | Insect herbivory and plant chemical defense: ecological and evolutionary implications | Department of Entomology, Hebrew University, Rehovot | 2016 |

1. **Research Grants**
2. **Grants Awarded**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Relevant Publications** | **Amount** | **Funded by** | **Title** | **Other Researchers**  **(Name & Role)** | **Role in Research**  **(PI, Co-PI, CI)** | **Years** |
| D7 | **$4216** | Stoy G. and Della A. Sunday Program Support for Fruit Production Research | Tracking brown marmorated stink bug dispersal among multiple crop systems | Rice K.B., CI  Fleischer S.J., PI  Tooker J.F., PI | CI | 2014 |
| None | **3900₪** | Research forum of the Faculty of Management, University of Haifa | The impact of house cats on fauna near residential areas in Israel | None | PI | \*2018 |

1. **Submission of Research Proposals – Pending**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Amount** | **Funds Requested From** | **Title** | **Other Researchers**  **(Name & Role)** | **Role in Research**  **(PI, Co-PI, CI)** | **Years** |
| None | None | None | None | None | None |

**c. Submission of Research Proposals – Not Funded in the last three years.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Years** | **Funds requested from** | **Title** | **Other Researchers**  **(Name & Role)** | **Role in Research** |
| 2018 | Nitzoz Cleantec-Israeli Ministry of Science and Technology | Drought effects on insect-plant synchronization in the Mediterranean scrubland: ecosystem resistance and resilience | None | \*PI |
| 2020 | Nekudat Hen | Characterizing recreational motor vehicle activity in agricultural areas by social network data mining | Prof. Andrea Ghermandi (Co-PI) | Co-PI |

1. **Scholarships, Awards and Prizes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Amount** | **Source** | **Purpose of Award or Achievement** | **Name of Award** | **Years** |
| $152,259 | The Pennsylvania State University, Center for Chemical Ecology | Fellowship | Postdoctoral fellowship | 2012-2016 |
| 20,000**₪** | Ronit and Amalia Magen | Donation for research | Donation for research | \*2018 |
| 20,000**₪** | Ronit and Amalia Magen | Donation for research | Donation for research | \*2020 |

1. **Teaching**

###### Courses Taught in Recent Years

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Number of Students** | **Level** | **Type of Course**  **Lecture/Seminar/**  **Workshop/ Online Course/ Introduction Course (Mandatory)** | **Name of Course** | **Years** |
| 12, 8 | MA | Lecture, Introduction Course | Introduction to biological sciences | 2016 \*2017 |
| 13, 12, 19, 24 | MA | Lecture, Introduction Course | Introduction to Ecology | \*January 2018 \*October 2018  \*January 2020  \*October  2020 |
| 7, 14, 15, 24 | MA | Lecture, Elective | Nature Conservation | \*2018 \*2019  \*2020  \*2021 |
| 14, 22, 20 | MA | Online Course, Introduction Course | Introduction to biological sciences | \*2018 \*2019  \*2020 |
| 25 | PhD + Msc | Lecture, International course, given in East China Normal University, Shanghai | Scientific writing | \*2019 |
| 6, 3 | PhD + Msc | Lecture, Elective | Scientific writing | \*January  2020  \*October  2020 |

###### 

###### Supervision of Graduate Students

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Students' Achievements** | **Year of Completion/**  **In Progress** | **Degree** | **Title of Thesis** | **Name of**  **Other Mentors** | **Name of Student** |
|  |  |  |  |  | **M.A. Students**  **(with thesis)** |
| Currently- Ph.D student in the Hebrew University of Jerusalem | 2018 | M.A | Spiders in an agroecological system- vineyards | Prof. Yael Lubin  Dr. Efrat Gavish Regev | \*Zeana Ganem |
| Scholarship for excellence-  The Graduate Studies Authority of the University of Haifa | 2021 | M.A. | The impact of house cats on fauna near residential areas in Israel | None | \*Lyan Wolovelsky |
|  | In Progress | M.A. | Developing a novel, internet-based image-recognition system for ecological monitoring: an application to the painted lady butterfly Vanessa cardui (Lepidoptera: Nymphalidae) | Prof. Andrea Ghermandi | \*Kayla Kaplan |
|  | In Progress | M.A. | Damage to agricultural areas in Israel by off-road vehicles -Identification and analysis of activity patterns and characteristics | Prof. Ofira Ayalon | \*Aya Shalmon |
|  |  |  |  |  | **M.A. Students**  **(with final project)** |
|  | 2018 | M.A. (project) | Compensative irrigation as a novel management strategy for natural habitats | Dr. Doron Merkel | \*Yael Lavi Efrat |
|  | \*Yaniv Zelig |
|  | 2018 | M.A. (project) | Pine seedling management after fire | Prof. Ofira Ayalon | \*Yaron Bartov |
|  | \*Ehud Geva |
|  | 2019 | M.A. (project) | Pesticide use in Israeli homes | Dr. Tali Raveh | \*Shiri Valershtein |
|  | \*Hagit Shalev |
|  | In Progress | M.A. (project) | Public opinion on street cat feeding | Prof. Ofira Ayalon | \*Paz Leifer |
|  | In Progress | M.A. (project) | The environmental cost of street-cat feeding in Israel | Prof. Ofira Ayalon | \*Alon Feldman  \*Adva Shaider |
|  |  |  |  |  | **Ph.D. Students** |
|  |  |  |  |  | None |
|  |  |  |  |  | **Post Doctorate Students** |
|  |  |  |  |  | None |

12. **Miscellaneous**

**Significant change in academic field:** When I started working as a part time (50%) senior lecture at the University of Haifa, I changed my academic field from “insect ecology” to “nature conservation”.

# PUBLICATIONS

1. **Ph.D. Dissertation**

**Title:** Escape of herbivorous insects from incidental ingestion by mammalian herbivores.

**Date of submission:** February 2012

**Number of pages:** 72

**Language:** English

**Name of supervisor:** Professor Moshe Inbar and Professor Amots Dafni

**University:** University of Haifa

**Publications:** D2, D3, D4

**Index:**

**I.F. = Impact Factor (when published). Taken from JCR.**

**R = Ranking in specified category (when published). Taken from JCR.**

**Q = Quartile (when published).  
† These authors equally contributed to this work.**

**For all publications, first author is the main contributor, last author is the group head, the rest appear according to their relative contribution (unless otherwise specified).**

1. **Scientific Books (Refereed)**

None

1. **Monographs**

None

**D. Articles in Refereed Journals**

**Published**

1. **Gish M.** and Inbar M. (2006) Host location by apterous aphids after escape dropping from the plant. ***Journal of Insect Behavior*** 19: 143-153.

I.F. (JCR, 2006)= 0.967; R (JCR, 2006)=25/69 (Q2) in Entomology.

1. **Gish M.**, Dafni A. and Inbar M. (2010) Mammalian herbivore breath alerts aphids to flee host plant. ***Current Biology*** 20: R628-R629.

I.F. (JCR, 2010)= 10.026; R: (JCR, 2010) 16/286 (Q1) in Biochemistry & molecular Biology, 18/178 (Q1) in Cell Biology.

1. **Gish M.**, Dafni A. and Inbar M. (2011) Avoiding incidental predation by mammalian herbivores: accurate detection and efficient response in aphids. ***Naturwissenschaften*** 98: 731-738.

I.F. (JCR, 2011)= 2.278; R: (JCR, 2011) 11/56 (Q1) in Multidisciplinary Sciences.

1. **Gish M.**, Dafni A. and Inbar M. (2012) Young aphids avoid erroneous dropping when evading mammalian herbivores by combining input from two sensory modalities. ***PLoS ONE*** 7(4): e32706.

I.F. (JCR, 2012)= 3.730; R: (JCR, 2012) 7/56 (Q1) in Multidisciplinary Sciences.

1. Ribak G.†, **Gish M.**†, Weihs D. and Inbar M. (2013) Adaptive aerial righting during the escape dropping of wingless pea aphids. ***Current Biology*** 23: R102-R103.

† These authors **equally** **contributed** to this work.

I.F. (JCR, 2013)= 9.916; R: (JCR, 2013) 19/291 (Q1) in Biochemistry & molecular Biology, 19/185 (Q1) in Cell Biology.

1. Ben-Ari M., **Gish M.** and Inbar M. (2015) Walking aphids can partake in within-field dispersal to distant plants. ***Basic and Applied Ecology*** 16(2): 162-171.

I.F. (JCR, 2015)= 1.836; R: (JCR, 2015) 75/150 (Q2) in Ecology.

1. Rice K.B.†, Fleischer S.J., De Moraes C.M., Mescher M.C., Tooker J.F. and **Gish M.**† (2015) Handheld lasers allow efficient detection of fluorescent marked organisms in the field. ***PLoS ONE*** 10(6): e0129175.

I.F. (JCR, 2015)= 3.057; R: (JCR, 2015) 11/63 (Q1) in Multidisciplinary Sciences.

† These authors **equally** **contributed** to this work.

1. **Gish M.**, De Moraes C.M. and Mescher M.C. (2015) Herbivore-induced plant volatiles in natural and agricultural ecosystems: open questions and future prospects. ***Current Opinion in Insect Science*** 9: 1-6.

I.F. (JCR, 2015)= 2.719; R: (JCR, 2015) 20/86 (Q1) in Biology, 52/150 (Q2) in Ecology, 8/94 (Q1) in Entomology.

1. **Gish M.**, Mescher M.C. and De Moraes C.M. (2015) Targeted predation of extrafloral nectaries by insects despite localized chemical defense. ***Proceedings of the Royal Society B*** 282: 20151835.

I.F. (JCR, 2015)= 4.823; R: (JCR, 2015) 9/86 (Q1) in Biology, 19/150 (Q1) in Ecology, 8/46 (Q1) in Evolutionary Biology.

1. **Gish M.**, Mescher M.C. and De Moraes C.M. (2016) Mechanical defenses of plant extrafloral nectaries against herbivory. ***Communicative & Integrative Biology*** 9(3): e1178431.

SJR (2016)= 0.765; R: (SJR, 2016) 48/271 (Q1) in Agricultural and Biological Sciences.

1. **Gish M.,** Ben-Ari M. and Inbar M. (2017) Direct consumptive interactions between mammalian herbivores and plant-dwelling invertebrates: prevalence, significance and prospectus. ***Oecologia*** 183: 347-352.

I.F. (JCR, 2017)= 3.127; R: (JCR, 2017) 46/160 (Q2) in Ecology.

1. \*Berman, T.S., Ben-Ari, M., Glasser, T.A., **Gish, M.** and Inbar, M. (2017) How goats avoid ingesting noxious insects while feeding. ***Scientific Reports*** 7: 14835.

I.F. (JCR, 2017)= 4.122; R: (JCR, 2017) 12/64 (Q1) in Multidisciplinary Sciences.

1. **\*Gish, M.**, & Inbar, M. (2018). Standing on the shoulders of giants: young aphids piggyback on adults when searching for a host plant. ***Frontiers in zoology*** 15: 49.

I.F. (JCR, 2018)= 2.982; R: (JCR, 2018) 9/170 (Q1) in Zoology.

1. \*Ghermandi, A., Sinclair, M., Fichtman, E. and **Gish, M.** (2020) Novel insights on intensity and typology of direct human-nature interactions through passive crowdsourcing. ***Global Environmental Change*** 65: 102189.

I.F. (JCR, 2019)= 10.466; R: (JCR, 2019) 4/265 (Q1) in Environmental Sciences.

**Note: In this article, the order of the listed authors is according to their relative contribution.**

1. **\*Gish, M.** (2021)Aphids detect approaching predators using plant-borne vibrations and visual cues**. *Journal of Pest Science*** https://doi.org/10.1007/s10340-020-01323-6.

I.F. (JCR, 2019)= 4.578; R: (JCR, 2019) 2/101 (Q1) in Entomology.

**Accepted for Publication**

None

**E. Articles or Chapters in Scientific Books (Refereed)**

None

###### F. Articles in Conference Proceedings

None

**G. Entries in Encyclopedias**

None

**H. Other Scientific Publications**

None

**I. Other Works and Publications**

**Selected Media Coverage (Public Impact)**

* Humid breath fells insects. **Science News**. August 9, 2010.
* Insects sense danger on mammals' breath. **Science Daily**. August 9, 2010.
* Bad breath prompts insects to keel over. **Discovery News**. August 9, 2010.
* Hot and heavy: Insects sense the breath of approaching herbivores and flee plants. **Scientific American**. August 9, 2010.
* Impressive aerial maneuvers of the pea aphid. **Science Daily**. February 4, 2013.
* Aphids always land on their feet. **Discover**. February 5, 2013.
* How falling aphids land on their feet like cats. **National Geographic**. February 5, 2013.
* \*An insect flees danger. Suddenly, it picks up a tiny hitchhiker. **The New York Times**. December 6, 2018.
* \*Little aphids ride big ones to safety. **Scientific American**. December 11, 2018.

**Opinion Journalism**

* \*Who’s really in danger of extinction? **Haaretz**, 20.1.2019.

**J. Submitted Publications**

None

**In Preparation**

**Articles**

1. **\*Gish, M.,** Raveh, T. Does fear of insects increase the use of household insecticides?
2. **\*** Wolovelsky, L., **Gish, M.** Home ranges of domestic cats and their influence on the Israeli natural environment.

**K. Summary of my Activities and Future Plans**

I am an ecologist that works on interactions and conflicts between organisms and human beings. I am deeply committed to the scientific community’s growing effort to help alleviate the environmental crisis and to promote sustainable management of the natural resources we all depend on.

My main goal is to establish solid scientific knowledge in places where the successful management of pressing environmental problems is hindered by a shortage of scientific research.

In the past I worked mainly on the behavioral and chemical ecology of pest-insects and their host plants, and today I focus on several topics in the field of nature conservation:

* The effect of cats on wildlife in Israel: it is practically unknown to what extent house cats and street cats affect small animals in Israel. Currently, I am writing my first paper on the homing ranges of house cats. I plan to extend this research to street cats and to address other aspects of the “cat problem” in Israel, e.g. quantification of small-animal predation by cats, attitudes of the public toward street cat feeding, the attraction of wild boars and jackals to cat feeding sites, the ecological footprint of feeding street cats etc.
* Insecticide use in domestic and public environments (collaboration with Dr. Tali Rave, Faculty of Education, University of Haifa): I am currently writing a paper that concludes a student project that aimed to understand the underlying drivers of insecticide use in secular Jewish homes in Israel. I plan to extend this project to other sectors in Israeli society, in order to gain insight into the contribution of culture to people’s exposure to household pesticides. I also plan to study pest-control practices in public facilities.
* Using the internet for passive, online ecological monitoring (collaboration with Prof. Andrea Ghermandi): in this project we aim to use pictures of specific organisms of interest that were uploaded to the internet with geo-tags and time-tags, in order to construct new databases of spatial and temporal distributions of important species. We are currently developing a tool that scans the internet and retrieves images using image-recognition and machine-learning technologies.
* Damage to agricultural and natural areas in Israel by off-road vehicles. The project currently focuses on damage to crops and infrastructure in agricultural fields. After the completion of this step, I plan to expand it to natural areas and nature reserves.