



Yohay Carmel R E S U M E

1. PERSONAL DETAILS

Date and place of birth: December 6, 1959, Jerusalem, Israel
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Website: <https://ecologylab.net.technion.ac.il/>

2. ACADEMIC DEGREES

- B.Sc. 1990 Department of Biology, Oranim College, Haifa University, Israel. *Summa Cum Laude*.
- M.Sc. 1993 Environmental Biology Curriculum, Department of Evolution, Systematics and Ecology, Faculty of Mathematics and Science, The Hebrew University of Jerusalem, Israel. *Summa Cum Laude*. Supervisor: Prof. Uriel Safriel.
- Ph.D. 1999 Environmental Biology Curriculum, Department of Evolution, Systematics and Ecology, Faculty of Mathematics and Science, The Hebrew University of Jerusalem, Israel. Supervisor: Dr. Ronen Kadmon.

3. ACADEMIC APPOINTMENTS

- 2020 Full Professor, Faculty of Civil and Environmental Engineering, Technion.
- 2018 Research Fellow, University of Technology, Sydney, AUS (sabbatical).
- 2012 Guest scientist, University of Cambridge, UK. (sabbatical).
- 2008 Associate Professor, Faculty of Civil and Environmental Engineering, Technion, Haifa, Israel.
- 2003 Senior Lecturer, Faculty of Civil and Environmental Engineering, Technion, Israel.
- 2000 Lecturer, Faculty of Agricultural Engineering, Technion, Israel.
- 1998 - 2000 Research Associate. Department of Forest Sciences, College of Natural Resources, Colorado State University.

5. RESEARCH INTERESTS

1. Spatial and dynamic models of ecological systems.
2. Long term vegetation dynamics at the landscape scale.
3. Local and regional patterns of biodiversity.
4. Use of Remote Sensing and GIS for natural resources management.
5. Spatial accuracy and error propagation in GIS databases.
6. Modelling forest fire risk.

6. TEACHING EXPERIENCE

Title	Level	Credit	Years
Ecology for Engineers.	Undergraduate	Initiation, design, teaching	2001--Present
Ecological systems.	Undergraduate + graduate	Initiation, design, teaching	2002-Present
Environmental applications of GIS and Remote Sensing.	Undergraduate + graduate	Initiation, design, teaching	2002-2007
Plants and Environment.	Undergraduate	Design, teaching	2008-present
Environment in a technological era	Undergraduate	Supervision, teaching	2016, 2019-2021

7. TECHNION ACTIVITIES

2021 --	Co-chair , The Haifa U – Technion Center for Artificial Intelligence in the Humanities: Ethics, Society, Environment.
2021 --	Member , Technion Promotion Committee.
2001 – 2011, 2019 –	Scientific Director . The Ecological Garden of The Technion.
2016 – 2017	Member , Technion Library Committee.

8. DEPARTMENTAL ACTIVITIES

2019 – 2021	Vice Dean for student affairs, Faculty of Civil and Environmental Engineering.
2016 – present	Head , Environmental Engineering Curriculum.
2016 – 2017	Member , Undergraduate Studies Committee, Faculty of Civil and Environmental Engineering.
2015 – 2016	Member , Graduate Studies Committee, Faculty of Civil and Environmental Engineering.
2009 – 2011	Member , Graduate Studies Committee, Department of Environmental Engineering.
2009 – 2011	Seminar coordinator . Environment and Water Seminar. A joint seminar of the Department of Environmental Engineering and the Grand Water Institute.

9. PUBLIC PROFESSIONAL ACTIVITIES

2015 -- 2017	Chair . KKL Professional Scientific Committee (Established 2015).
2014	Member . International Advisory Panel, Science Division of Israel Nature and Parks Authority.
2013 – 2015	Affiliated member . Professional committee, Board of Israel Nature and Parks Authority.

- 2013 – 2014 **Member.** The Israel Council for Higher Education Committee for Central Research Infrastructure: Sub-Committee on Environment.
- 2009 – 2017 **Founder** and chair of the board. *Ecology and Environment*. A peer reviewed journal on the science and policy of environment. In Hebrew.
- 2009 – 2016 **Member.** Professional committee for research of the Sea of Galilee and its watershed, Israel Ministry of Infrastructure.
- 2008, 2011, 2014, 2018 **Plenary Lecturer.** Annual meeting of the Israel Biology Teachers. Various topics. Organized by the National Center for Biology Teachers.
- 2007 – 2008 **Member.** Accuracy-08 Scientific Committee (The 8th International Conference on Spatial Accuracy in Environmental Science, Shanghai, June 2008).
- 2007 – 2014 **Speaker.** Basha'ar activity: 1-2 visits annually in highschool classes, teaching on global environmental change.
- 2007 – 2013 **Member.** The Israel Council of Botanical Gardens.
- 2006 – 2010 **Chair.** The Israel Society of Ecology and Environmental Science.
- 2006 – 2008 **Member,** The National Biodiversity Committee, Israel Ministry of Environment.

Editorial activities:

- 2014 -- present Editorial Board Member. *Conservation Biology*.
- 2015 -- 2018 Editorial Board Member. *PLoS ONE*.
- 2006 – 2016 Editorial Board member. Israel Journal of Ecology and Evolution.

Reviewer for journals:

Applied Vegetation Science, Conservation Biology, Diversity and Distributions, Ecological solutions and Evidence, Ecology Letters, Ecosphere, Environmental Conservation, Environmental Management, Forest Ecology and Management, IEEE Transactions on Geoscience and Remote Sensing, International Journal of Geographic Information Systems, Journal of Arid Environments, Journal of Surveying Engineering, Journal of Vegetation Science, Landscape and Urban Planning, Landscape Ecology, Nature Ecology & Evolution, Perspectives in Plant Ecology Evolution and Systematics, Photogrammetric Engineering and Remote Sensing, Plant Ecology, PLoS ONE, Rangeland Ecology and Management, Small Ruminant research, Trees—Structure and Function.

Reviewer for funding agencies and promotion committees:

- 2013 Member. Forest Research Evaluation Committee, **National Academy of Finland.**
- 2007 – 2010 Member. Ecological and environmental research committee, **KKL.**
- 2006 – 2011 Member. Evaluation panel for forest research, The **Israel Ministry of Agriculture.**

Five separate years	Member. Research Evaluation Committee, Israel Science Foundation; Binational Science Foundation.
Various years	Promotion professional committees and evaluation letters: involvement in the promotion of a total of 9 faculty members from Haifa U. (2), Ben Gurion University (4), USFS, IOLR, Bar Ilan University, and Tel Aviv University.

10. MEMBERSHIP IN PROFESSIONAL SOCIETIES

2011–2016	The British Ecological Society.
2006 – 2011	The Ecological Society of America.
2005–present	Israel Society of Ecology and Environmental Science.

11. FELLOWSHIPS, AWARDS AND HONORS

2019	The Technion Award for Excellence in Teaching (top 12%).
2018	Ebbe Nielsen Challenge: GBIF's annual innovation competition to advance open science and open data for biodiversity (second prize to Tomer Gueta and Yohay Carmel).
2017	The Technion Award for Excellence in Teaching (top 12%).
2009	The Technion Award for Excellence in Teaching (top 5%).
2007	The Arenson Award for Excellence in Teaching, Faculty of Civil and Environmental Engineering.
2006	The Technion Award for Excellence in Teaching (top 15%).
2005	The Technion Award for Excellence in Teaching (top 15%).
2004	The Technion Award for Excellence in Teaching (top 15%).
2002	The Technion Award for Excellence in Teaching (top 5%).
2002	The Karney-Volovelsky Academic Lectureship, The Technion.
2001	The Donald Lewis Academic Award, The Technion.
1993	The 'Ben-Gurion Award', The Ministry of Science and Technology, Israel. Excellence in graduate studies.
1992	The 'Polak Award', Institute of Life Sciences, The Hebrew University of Jerusalem. Excellence in graduate research project.
1991	The Dean Award, Faculty of Mathematics and Sciences, The Hebrew University of Jerusalem. Excellence in M.Sc studies.

12. GRADUATE STUDENTS

Completed PhD theses (principle supervisor in bold).

Bar Massada, Avi. Mapping and Modeling the Dynamics of Mediterranean Vegetation for Various Management Activities. Supervisor: **Yohay Carmel**. Completed 2009. *Current position: Senior Lecturer, Haifa University, Oranim Campus.*

Blank, Lior. Representing biodiversity using woody vegetation patterns for ecosystem management. Supervisor: **Yohay Carmel**. Completed: 2010. *Current position: Researcher, Volcani Agricultural Research Organization.*

Makler, Vardit. A computer ecosystem model applied for studying the food web and water quality of Lake Kinneret. Supervisors: **Yohay Carmel**, Gideon Gal (Israel Oceanographic and Limnological Research Institution). Completed: 2010.

Kent, Rafi. Prioritizing land for ecosystem-conservation using multi-source and multi-scale information. Supervisor: **Yohay Carmel**. Completed: 2010. *Current position: Senior Scientist, Hamaarag.*

Troupin, David. Systematic conservation planning for dynamic ecological and anthropogenic processes. Supervisor: **Yohay Carmel**. Completed: 2015. *Current position: Research Associate, Haifa University.*

Shabtay, Ateret. Marine spatial planning along the Israeli Mediterranean coast: integrating infrastructure and marine protected areas. Supervisors: **Michelle Portman**, Yohay Carmel. Completed: 2018. *Current position: Postdoc in France.*

Gueta, Tomer. Enhancing biodiversity research using data quality assessment, bias detection and data cleaning. Supervisor: **Yohay Carmel**. Completed: 2019.

Segre, Hila. Supervisors: **Assaf Schwartz**, Yohay Carmel. Cost-benefit analysis of agro-ecological schemes. Initiated: 2015. Completed: 2019.

Tsafrir, Anat. Supervisors: **Ofer Ovadia** (BGU), Yagil Osem (ARO), Yohay Carmel. Initiated: 2015. Completed: 2019.

Gao, Junjing. Modelling grazing impact of nomadic pastoralists in the northern China and in the eastern Mediterranean region. Supervisor: **Yohay Carmel**. Initiated: 2015. Completed: 2020.

Hadar, Liat. Supervisors: **Daniel Orenstein** (Technion), Yagil Osem (ARO), Yohay Carmel. Initiated: 2015. Completed: 2021.

Rohatin, Shani. Supervisors: **Yohay Carmel**, Dan Yakir (Weizmann). Initiated: 2016. Completed: 2022.

Completed MSc theses

Stoller-Kavari, Liron. Using environmental surrogates for biodiversity mapping. Supervisor: **Yohay Carmel**. Completed 2003.

Altman, Talia. Continental scale GIS analysis of potential capacity of 'Energy Towers'. Supervisors: **Dan Zaslavsky**, Yerachmiel Deutcher, Yohay Carmel. Completed 2003, *Summa Cum Laude*.

Bar Massada, Avi. Assessment of temporal changes in above-ground forest tree biomass using aerial photographs and allometric equations. Supervisors: **Yohay Carmel**, Dan Yakir (Weizman Institute), Gilad Even Tzur. Completed 2004. *Current position: Senior Lecturer, Haifa University, Oranim Campus.*

Court, Lia. at the Natural Resources Program, Haifa University. GIS analysis of resource use by vultures in the Golan Heights. Supervisors: **Ido Izhaki** (Haifa University), Yohay Carmel. Completed 2004.

Fichler, Ezer. at the Faculty of Architecture and Town Planning. Development of a model to identify urban development influences on ecosystems using fragmentation measures. Supervisors: **Yohay Carmel**, Pnina Plaut. Completed 2006.

Segal, Bosmat. Nature reserve management for conservation of its natural resources. Supervisor: **Yohay Carmel**. Completed 2007.

Liberzon, Yonatan. Seasonal dynamics of chromophoric dissolved organic matter in Lake Kinneret. Supervisors: **Yohay Carmel**, Dror Angel (Haifa University). Completed: 2010.

Gahashan, Faris. Spatially explicit Fire risk assessment of Mediterranean forests in Israel. Supervisors: **Yohay Carmel**, Maxim Shoshani. Completed: 2011.

Federman, Roy. Potential distribution and monitoring the invasive species the Little Fire Ant *Wasmannia auropunctata*. Supervisor: **Yohay Carmel**. Completed: 2011. *Current position: Regional Scientist, Amakim region, Nature and Parks Authority.*

Porat, Yahel. Reptile- and Amphibian species diversity in the agro-ecosystems: evaluating the ecological value of agricultural land uses. Supervisors: **Tamar Dayan**, Tel Aviv University, **Yohay Carmel**. Completed: 2011. *Current position: Head of the Ecology Department, Israel Forest Authority, KKL.*

Nezer, Oded. Modelling distribution and habitat of the re-introduced Wild Ass in the Negev Desert. Supervisors: **Yohay Carmel**, Shirli Bar David (Ben Gurion). Completed: 2011. *Current position: Head of Solid Waste Department, Israel Ministry of Environment.*

Davidson, Achiad. Predicting movement pathways using non-invasive methods: The reintroduced Asiatic wild ass in the Negev. Supervisors: **Shirli Bar David** (Ben Gurion), **Yohay Carmel**. Completed: 2011. *Current position: PhD student, Haifa U.*

Vadov, Olga. Supervisors: **Yohay Carmel**, Gil Rilov (IOLR). Completed: 2013. *Current position: PhD student, Technion.*

Noy, Gili. A quantitative approach for Environmental Impact Assessment of a desalination plan: Shavei-Zion case study. Supervisors: **David Broday**, **Yohay Carmel**. Completed: 2014.

Zach, Aviv. Optimal Combination of Various Wildlife Overpasses and Underpasses in Roads in Israel. Supervisor: **Yohay Carmel**. Completed: 2017.

Zafon, Zohar. Can landscape characteristics represent biodiversity as an indicator of ecological value? Supervisors: **Daniel Orenstein**, **Yohay Carmel**. Completed: 2017. *Current position: Head of Planning Division, KKL South District.*

Segal, Ella. Quantifying the grazing services offered by goats for fire zone maintenance in Mt. Carmel. Supervisors: **Yohay Carmel**, Serge Yan Landau (Volcani ARO). Completed: 2017.

PhD theses in progress

Rozenberg, Gal. Supervisors: **Yohay Carmel**, Lior Blank (ARO). Initiated: 2020. Expected completion: 2024.

Regev, Shachar. Supervisors: **Yohay Carmel**, Gideon Gal (IOLR). Initiated: 2020. Expected completion: 2024.

Incomplete

The late Gil Sapir. PhD. Spatially explicit model for post-fire vegetation regeneration. Supervisor: **Yohay Carmel**. Initiated 2005. Died 2008.

13. SPONSORED LONG-TERM VISITORS AND POST-DOCTORAL ASSOCIATES

Dr. Vijay Barve. 2016-2017. Data-Cleaning of Big Biodiversity Data.

Dr. Harel Agra. 2013-2016. Forest conservation evidence.

Dr. Rafi Kent. 2011-2012. Multiscale quantification of species composition determinants. *Current position: Senior Scientist, Hamaarag.*

Dr. Hagai Shemesh. 2011-2013. Selecting optimal locations for establishing new populations of The Lortet Iris. *Current position: Lecturer, Tel Hai College.*

Dr. Amit Dolev. 2008-2010. Controlling space use by cattle using artificial troughs and feeding sites. *Current position: District Scientist, Northen District, Nature and Parks Authority.*

Dr. Jose Gruenzweig. 2003-2004. A Comparative Study of vegetation dynamics in Mediterranean Ecosystems in California and in Israel. *Current position: Associate Professor, The Hebrew University of Jerusalem.*

14. RESEARCH GRANTS

Competitive

2016-2020 **Israel Science Foundation (ISF)**. *Integrating data cleaning with data analysis to enhance usability of big biodiversity data.* \$210,000. **Y Carmel.**

2013-2016 **Binational Science Foundation (BSF)**. *Mycorrhiza as a mediator between the timing and intensity of fire and the regeneration of Mediterranean woodlands.* \$210,000. **H Shemesh** (Tel Hai College), **O Ovadia** (Ben Gurion University), **Y Osem** (ARO), **Y Carmel** (Technion).

2010-2012 **Israel Science Foundation (ISF)**. *Multi-scale determination of species composition determinants.* \$190,000. **Y Carmel.**

2005-2007 **Israel Science Foundation (ISF)**. *Hierarchical model for Mediterranean vegetation dynamics.* \$130,000. **Y Carmel**, **I Noy Meir** (Hebrew University). Technion share \$130,000.

Other sources

2019 **The Israel Academy of Sciences and Humanities** grant for: The Batsheva de Rothschild Seminar on 'Socio-Technological Evolution of the Human Species: Is Humanity undergoing an evolutionary transition'. \$40,000. **Y Carmel**, **A Shavit** (Tel Hai College), and **E Lam** (TAU).

2018-2021 **Israel Ministry of Science**. *Consequences of long-term droughts on lake Kinneret ecosystem structure and ecosystem services.* \$210,000. **G. Gal** (IOLR Institute), **Y. Carmel**. Technion share \$104,000.

2013-2016 **Yad Hanadiv**. *Forest Conservation Evidence.* \$154,000. **Y Carmel** (Technion).

2011-2013 **Israel Forest Authority (KKL)** and the **Nature and Parks Authority**. *Selecting the best locations for establishing new populations of The endangered Lortet Iris.* \$25,000. **Y Carmel**, (Technion), **H Shemesh** (Tel Hai College), **Y Sapir** (Tel Aviv University).

2006-2008 **Israel Forest Authority (KKL)**. *Fire risk assessment for The Judea Mountains.* \$35,000. **Y Carmel**, **M Shoshany** (Technion), **S Paz** (Haifa Univ).

2006-2008 **Israel Ministry of Science**. *Biodiversity and ecosystem management across a rainfall gradient in Israel.* \$300,000. Five research groups. Technion share \$32,000.

- 2006-2008 **Israel Forest Authority (KKL)**. *Model of post-fire vegetation regeneration*. \$15,000. **G Sapir** (Technion) and Y Carmel.
- 2004-2005 **Israel Ministry of Science**. *Assessment of chronic exposure of the Haifa Bay population to air pollution and possible relations to morbidity*. \$300,000, **S Linn** (Haifa University). D Broday, Y Carmel (Technion). Technion share \$200,000.
- 2004-2005 **International Arid Lands Consortium**. *Dryland vegetation dynamics and landscape vulnerability to wildfire*. \$100,000, groups from the University of Arizona, Technion, Alicante University (Spain) and Haifa University (Technion share \$15,000).
- 2003-2005 **Israel Forest Authority (KKL)**. *Spatially explicit fire risk assessment of Mediterranean forests in Israel*. \$25,000. **Y Carmel**.
- 2002-2004 **U.S. Forest Service**. *Comparative vegetation dynamics in California and Israel*. \$150,000. **Y Carmel**, C Flather (U.S. Forest Service, CI). Technion share \$110,000
- 2002-2004 **Israel Ministry of Agriculture**. *Hydrological and ecological functions of canals and streams – optimization approach*. \$90,000, U Shavit, O Lahav, Y Carmel (Technion).
- 2002-2003 **International Arid Lands Consortium**. *Optimizing resource management under spatial uncertainty*. \$90,000, T. Ellsworth (Univ. of Illinois), Y Carmel, D Broday (Technion). Technion share \$45,000
- 2002 **Israel Ministry of Environment**. *Environmental surrogates for mapping biodiversity*. \$15,000. **Y Carmel**.
- 2001-2003 **Israel Ministry of Agriculture**. *Spatial model of effluent irrigation effects on surface runoff*. \$50,000, R Wallach (Hebrew University), **A Shaviv**, Y Carmel (Technion).
- 2001-2002 **Israel Nature and Parks Authority**. *Nature reserve management for conservation of its endangered Iris species*. \$13,000. **Y Carmel**.

15. PUBLICATIONS

Theses

- 1993 M.Sc. Thesis: Conservation of insectivorous bats by means of nature reserve management. The Hebrew University, Jerusalem, Israel.
- 1998 Ph.D. Thesis: A spatial dynamic model for Mediterranean vegetation. The Hebrew University, Jerusalem, Israel.

Refereed papers in professional journals (students in my lab underlined)

1. Carmel Y, Safriel UN. 1998. Habitat use by bats in a Mediterranean ecosystem in Israel – Conservation implications. *Biological Conservation* 84:245-250.
2. Carmel Y, Kadmon R. 1998. Computerized classification of Mediterranean vegetation using panchromatic aerial photographs. *Journal of Vegetation Science* 9:445-454.
3. Carmel Y, Kadmon R. 1999. Effects of grazing and topography on long term vegetation changes in a Mediterranean ecosystem. *Plant Ecology* 145:239-250.
4. Carmel Y, Kadmon R, Nirel R. 2001. Spatio-temporal predictive models of Mediterranean vegetation dynamics. *Ecological Applications* 11(1):268-280.

5. Carmel Y, Dean DJ, Flather CH. 2001. Combining location and classification error sources for estimating multi-temporal database accuracy. *Photogrammetric Engineering & Remote Sensing* 67(7):865-872.
6. Carmel Y, Naveh Z. 2002. The paradigm of ecosystem and the paradigm of landscape in ecology – implications for land planning and management in the Mediterranean region. *Journal of Mediterranean Ecology* 4:79-91.
7. Carmel Y. **2004**. Characterizing location and classification error patterns in time-series thematic maps. *IEEE Geoscience and Remote Sensing letters* 1(1):11-14.
8. Carmel Y, Dean DJ. **2004**. Performance of a spatio-temporal error model for raster datasets under complex error patterns. *International Journal of Remote Sensing* 25 (23): 5283-5296.
9. Carmel Y. **2004**. Controlling data uncertainty via aggregation in remotely sensed data. *IEEE Geoscience and Remote Sensing Letters* 1(2):39-41.
10. Carmel Y, Flather CH. **2004**. Comparing landscape scale vegetation dynamics following recent disturbance in climatically similar sites in California and the Mediterranean basin. *Landscape Ecology*, 19:573-590.
11. Carmel Y, Ben Haim Y. **2005**. Info-gap robust-satisficing model of foraging behavior. *American Naturalist* 166(5): 633-640.
12. Yuval Z, Broday D, Carmel Y. **2005**. Mapping spatio-temporal variables: the impact of the time-averaging window width on spatial accuracy. *Atmospheric Environment* **39**(20):3611-3619.
13. Svoray T, Carmel Y. **2005**. Empirical method for topographic correction in aerial photographs. *IEEE Geoscience and Remote Sensing Letters* 2(2):211-214.
14. Altman T, Carmel Y, Gueta R, Zaslavsky D, Doytsher Y. **2005**. Assessment of an “Energy Tower” potential in Australia using a mathematical model and GIS. *Solar Energy* 78(6): 799-808.
15. Carmel Y, Stoler-Kavari L. **2006**. Comparing environmental and biological surrogates for biodiversity at a local scale. *Israel Journal of Ecology and Evolution* 52(1):11-27.
16. Moilanen A, Runge MC, Elith J, Tyre A, Carmel Y, Fegraus E, Wintle B, Burgman M, Ben-Haim Y. **2006**. Planning for robust reserve networks using uncertainty analysis. *Ecological Modelling* 199:115-124.
17. Bar Massada A, Carmel Y, Gruenzweig JM, Yakir D, Even Tzur G. **2006**. Assessment of temporal changes in above-ground forest tree biomass using aerial photographs and allometric equations. *Canadian Journal of Forest Research* 36(10):2585-2594.
18. Carmel Y, Flather CH. **2006**. Constrained range expansion and climate change assessments. A peer-reviewed letter. *Frontiers in Ecology and the Environment* 4(4):178-179.
19. Segal B, Sapir Y, Carmel Y. **2006**. Fragmentation and pollination crisis in the self-incompatible *Iris bismarckiana* (Iridaceae). *Israel Journal of Ecology and Evolution* 52:111-122.
20. Oman, SD, Landsman VL, Carmel Y, Kadmon R. **2007**. Analyzing Spatially Distributed Binary Data Using Independent-Block Estimating Equations. *Biometrics* 63:892-900.
21. Grünzweig JM, Carmel Y, Riov J, Sever N, McCreary DD, Flather CF. **2008**. Growth, resource storage, and adaptation to drought in California and eastern Mediterranean oak seedlings. *Canadian Journal of Forest Research* 38:331-342.
22. Bar Massada A, Gabay O, Perevolotzky A, Carmel Y. **2008**. Quantifying the effect of grazing and shrub-clearing on small scale spatial pattern of vegetation. *Landscape Ecology* 23(3):327-339.
23. Bar Massada A, Carmel Y. **2008**. Incorporating output variance in local sensitivity analysis for stochastic models. *Ecological Modeling* 213:463-467.

24. Steele K, Carmel Y, Cross J, Wilcox C. **2009**. Uses and Misuses of Multi-Criteria Decision Analysis (MCDA) in Environmental Decision-Making. *Risk Analysis* 29(1):26-33.
25. Carmel Y, Paz S, Jahshan F, Shoshany M. **2009**. Assessing fire risk using Monte Carlo simulations of fire spread. *Forest Ecology and Management* 257(1):370-377.
26. Dolev A, Carmel Y. **2009**. Distribution of threatened–unprotected vertebrates as a basis for conservation planning. *Israel Journal of Ecology and Evolution* 55(2):117-132.
27. Bar Massada A, Carmel Y, Koniak G, Noy Meir I. **2009**. The effects of disturbance based management on the dynamics of Mediterranean vegetation: A hierarchical and spatially explicit modeling approach. *Ecological Modelling* 220:2525-2553.
28. van Leeuwen WJD, Casady GM, Neary DG, Bautista S, Alloza JA, Carmel Y, Wittenberg L, Malkinson D, Orr BJ. **2010**. Monitoring post-wildfire vegetation response with remotely sensed time-series data in Spain, USA and Israel. *International Journal of Wildland Fire* 19:75-93.
29. Eitan O, Barchana M, Linn S, Yuval, Dubnov J, Carmel Y, Broday D. **2010**. Spatial analysis of air pollution and cancer incidence rates in Haifa Bay, Israel. *Science of the Total Environment* 408(20):4429-4439.
30. Kent R, Carmel Y. **2011**. Evaluation of five clustering algorithms for biodiversity surrogates. *Ecological Indicators* 11:896-901.
31. Makler V, Gal G, Gorfine M, Hipsey M, Carmel Y. **2011**. Sensitivity analysis for complex ecological models - a new approach. *Environmental Modelling & Software* 26:124-134.
32. Kent R, Carmel Y. **2011**. Presence-only vs. Presence-absence data in species composition determinant analyses. *Diversity & Distributions* 17:474-479.
33. Paz S, Carmel Y, Jahshan F, Shoshany M. **2011**. Post-fire Analysis of Pre-fire mapping of fire-risk: A recent case study from Mt. Carmel (Israel). *Forest Ecology and Management* 262(7):1184-1188.
34. Gabay O, Perevolotsky A, Bar Massada A, Carmel Y, Shachak M. **2011**. Differential effects of goat browsing on herbaceous plant community in a two-phase mosaic. *Plant Ecology* 212(10):1643-1653.
35. Kent R, Bar Massada A, Carmel Y. **2011**. Multiscale analyses of mammal species composition – environment relationship in the contiguous USA. *PLoS ONE* 6(9):e25440.
36. Blank L, Carmel Y. **2012**. Woody vegetation patch types affect herbaceous species richness and composition in a Mediterranean ecosystem. *Community Ecology* 13(1):72-81.
37. Bar Massada A, Kent R, Blank L, Perevolotsky A, Hadar L, Carmel Y. **2012**. Automated segmentation of vegetation structure units in a Mediterranean landscape. *International Journal of Remote Sensing* 33(2):346-364.
38. Blank L, Linker R, Carmel Y. **2013**. A Multiscale Analysis of Herbaceous Species Richness in a Mediterranean Ecosystem. *Journal of Plant Ecology* 6(2):113-121 .
39. Sutherland WJ, Freckleton RP, Godfray HCJ, Beissinger SR, Benton T, Cameron DD, Carmel Y, Coomes DA, Coulson T, Emmerson MC, Hails RS, Hays GC, Hodgson DJ, Hutchings MJ, Johnson D, Jones JPG, Keeling MJ, Kokko H, Kunin WE, Lambin X, Lewis OT, Malhi Y, Mieszkowska N, Milner-Gulland EJ, Norris K, Phillimore AB, Purves DW, Reid JM, Reuman DC, Thompson K, Travis JMJ, Turnbull LA, Wardle DA, Wiegand T. **2013**. Identification of 100 fundamental ecological questions. *Journal of Ecology* 101(1):58-67.
40. Carmel Y, Kent R, Bar Massada A, Blank L, Liberzon J, Nezer O, Sapir G, Federman R. **2013**. Trends in ecological research during the last three decades – a systematic review. *PLoS ONE* 8(4):e59813.

41. [Davidson A](#), [Carmel Y](#), [Bar David S](#). **2013**. Characterizing movement pathways using a non-invasive approach: The reintroduced Asiatic wild ass in the Negev . *Landscape ecology* 28(8):1465-1478.
42. [Federman R](#), [Kent R](#), [Carmel Y](#). **2013**. Irrigation as an important factor in species distribution models. *Basic and Applied Ecology* 14:651–658.
43. [Troupin D](#), [Carmel Y](#). **2014**. Can agro-ecosystems efficiently complement protected area networks? *Biological Conservation* 169:158-166.
44. [Bar-Massada A](#), [Kent R](#), [Carmel Y](#). **2014**. Environmental heterogeneity affects the location of modeled communities along the niche-neutrality continuum. *Proceedings of the Royal Society B* 281:20133249.
45. [Kent R](#), [Bar-Massada A](#), [Carmel Y](#). **2014**. Bird and mammal species composition in distinct geographic regions and their relationships with environmental factors across multiple spatial scales. *Ecology and Evolution* 4(10):1963-1971.
46. [Liberzon J](#), [Carmel Y](#), [Angel DL](#). **2016**. The elusive nature of fluorescent organic matter in Lake Kinneret, Israel. *Hydrobiologia* 763(1) 53-68.
47. [Troupin D](#), [Carmel Y](#). **2016**. Landscape patterns of development under two alternative scenarios: implications for conservation. *Land Use Policy* 54:221-234.
48. [Gueta T](#), [Carmel Y](#). **2016**. Quantifying the value of user-level data cleaning for big data: a case study using mammal distribution models. *Ecological Informatics* 34:139-145.
49. [Nezer O](#), [Bar-David, S](#), [Gueta T](#), [Carmel Y](#). **2017**. High-resolution species-distribution model based on systematic sampling and indirect observations. *Biodiversity and Conservation*, 26(2): 421–437.
50. [Carmel Y](#), [Suprunenko Y F](#), [Kunin W E](#), [Kent R](#), [Belmaker J](#), [Bar-Massada A](#), [Cornell S](#). **2017**. [Using competitive exclusion rate to unify Niche and Neutral perspectives on coexistence](#). *Oikos*, 126: 1451–1458.
51. [Makler-Pick V](#), [Hipsey M](#), [Zohary T](#), [Carmel Y](#), [Gal G](#). **2017**. [Intraguild predation dynamics in a lake ecosystem based on a coupled hydrodynamic-ecological model: the example of Lake Kinneret \(Israel\)](#). *Biology*, 6:2 22.
52. [Eshel G](#), [Carmel Y](#). **2017**. [Expanded View of Ecosystem Stability: A Grazed Grassland Case Study](#). *PLoS ONE*, 12(6) e0178235.
53. [Shabtay A](#), [Portman M](#), [Carmel Y](#). **2018**. [Incorporating principles of reconciliation ecology to achieve ecosystem-based marine spatial planning](#). *Ecological Engineering*, 120: 595-600.
54. [Troupin D](#), [Carmel Y](#). **2018**. [Conservation planning under uncertainty in urban development and vegetation dynamics](#). *PLoS ONE* 13(4): e0195429.
55. [Shabtay A](#), [Portman ME](#), [Carmel Y](#). **2018**. [Contributions of marine infrastructures to marine planning and protected area networking](#). *Aquatic Conservation*, 28(4):1-10.
56. [Shabtay A](#), [Portman M](#), [Gal G](#), [Ofir E](#), [Carmel Y](#). **2018**. [Using ecological modelling in marine spatial planning to enhance ecosystem-based management](#). *Marine Policy* 95:14-23.
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Books

[Agra H, Carmel Y, Smith RK, Ne'eman G. 2016. Forest conservation: Global evidence for the effects of interventions.](#) University of Cambridge, Cambridge, UK.

Chapters in books

Carmel Y. 2005. Aggregation as a means of increasing thematic map accuracy. In: Atkinson P, Martin D, Foody GM, editors. *Geodynamics*. CRC Press, London, pages 29-38.

Naveh Z, Carmel Y. 2004. The evolution of the cultural Mediterranean landscape in Israel as affected by fire, grazing, and human activities. In: Wasser S, editor. *Evolutionary theory and processes: modern horizons*. Kluwer Academic Publishers, Dordrecht, The Netherlands, Pages 337-409.

Carmel Y, Kadmon R. 2000. Using historical aerial photographs for mapping vegetation changes. In: Kedar B, editor. *Remote sensing*. Yad Ben Zvi, Jerusalem, Israel. In Hebrew.

Research reports and other publications

McCreary D, [Grüzweig](#) J. M. Carmel Y, Flather CH. 2008. The response of native oaks from California and Israel to Drought. In: A. Merelender, D. McCreary, K. L. Purcell, Technical Editors. *Today's Challenges, Tomorrow's Opportunities*. USDA Forest Service Pacific Southwest Research Station General Technical Report PSW-GTR-217. pp. 293-300.

[Sapir](#) G, Carmel Y. 2010. Predicting post-fire vegetation regeneration in pine plantations. *Ecology and Environment* 408(20):4429-4439. A peer-reviewed journal in Hebrew.

Professional projects

2006-2007. Development of Monitoring and Evaluation Program for a selected set of National Parks in **Nigeria**. A GEF (Global Environmental Facility) - World Bank project. Dr. Yehuda Shevah, Prof. Janice Elaine Olawoye, Dr. Yohay Carmel.

2007. Scientific Advisor of the Hebrew edition of '**Inconvenient Truth**' by Al Gore.

2010. Ecological assessment of protection alternatives for the South Dead Sea region, conducted for the Dead Sea Preservation Government Company.

2019. The Bat-Sheva de Rothchild seminar on [Socio-technological Evolution of the Human Species](#). A 5-day international workshop in Safed, September 2019, funded by the Israel Academy of Sciences.

16. CONFERENCES

Plenary or keynote talks

2019. Mythology in Ecology. A plenary lecture opening the 54th Annual Congress of the Grassland Society of Southern Africa. Uppington, Cape Province, **South Africa**, July 2019.

2006. A methodology for translating positional error into measures of attribute error, and combining the two error sources. A plenary lecture at the 7th international symposium on spatial accuracy in natural resources and environmental sciences. Pages 3-17 in *The Symposium Proceedings*, Lisbon, **Portugal**, July 2006.

2002. Ecosystem complexity and landscape complexity: implications for land planning and management. A plenary lecture at the XVII Conference of the Italian Association of Ecology, Urbino, **Italy**, September 2002.

Invited international talks

2018. Myth in Ecology. In: *The Ecological Seminar*, University of Cambridge, UK, April 2018.

2017. Myth-ecology. In: *The 3rd International Compassionate Conservation Conference*, Sydney, Australia, November 2017.

2016. Complete competitors coexist forever. In: The 'Ecology and Statistics seminar', Department of Ecological Modelling, University of Goettingen, Germany, July 2016.
2015. Fire, grazing, and Mediterranean vegetation dynamics. In: seminar, Department of Plant Biology, University of Barcelona, Spain, March 2015.
2014. A mechanism for the 'niche-neutrality continuum'. In: The Institute Seminar, The Smithsonian Tropical Research Institute, Gamboa, Panama, September 2014.
2014. Prediction in Ecology. In: The Barro-Colorado Seminar, The Smithsonian Tropical Research Institute, Barro-Colorado, Panama, September 2014.
2013. Putting the pieces together. In: The 4th NNC Workshop, Liverpool, UK, November 2013.
2012. Uncertainty and predictive power in ecological modelling. In: The Ecological Seminar, University of Cambridge, UK, March 2012.
2009. Comparing environmental and biological surrogates for biodiversity at a local scale. In: The 45th International Congress of SISV and FIP. Cagliari, Sardinia, Italy, June 2009.
2008. The necessity of clean technologies. In: Energy crossroads forum on advanced cleantech from Israel. Stanford, California, November 2008.
2007. Long-term monitoring for biodiversity conservation – the case of Nigeria national parks. In: Optimal and robust monitoring for conservation, a working group hosted by the Australian Centre for Excellence in Risk Assessment, Tasmania, August 2007.
2006. A methodology for translating positional error into measures of attribute error. Seminar at the Department of Civil and Environmental Engineering, Duke University, North Carolina. September 2006.
2006. Mapping biodiversity using alternative surrogates. Seminar at the Office of the Gran Paradiso National Park, Torino, Italy, September 2006.
2005. Landscape scale vegetation dynamics in the Mediterranean ecosystems. Department of Geography, University of Utrecht, The Netherlands, December 2005.
2004. Post-fire vegetation regeneration in Mediterranean Woodlands in Israel. Workshop on *Dryland Vegetation Dynamics and Landscape Vulnerability to Wildfire*. University of Alicante, Spain, December 2004.
2004. Biodiversity mapping using environmental surrogates. In: '*Setting priorities and making decisions for conservation risk management*' – a working group meeting in the National Center for Ecological Analysis and Synthesis, Santa Barbara, California, April 2004.
1999. Comparing long term dynamics of woodlands in California and Israel. In: *IHRMP (Integrated Hardwood Range Management) annual meeting*, Visalia, California, June 1999.
1999. An empirical model for predicting the consequences of alternative management decisions in Mediterranean vegetation. In: *Predicting species occurrences – issues of scale and accuracy*. Snowbird, Utah, October 1999.

Contributed Talks (T) and Posters (P).

2017. Carmel Y. **Recasting the competitive exclusion principle**. In: *EcoTas, Ecological Society of Australia and New Zealand Conference*. August 2017. Hunter Valley, NSW, Australia. T.
2016. Carmel Y, and Gueta T. **Why you must clean your big data**. In: *Ecosummit*. August 2016. Montpellier, France. P.
2015. Carmel Y, Suprunenko Y, Kunin B, and Cornell, S. 2015. **Complete competitors coexist forever**. In: *The Annual meeting of the British Ecological Society*. October 2015. Edinburgh, UK. T.

2014. A possible mechanism to solve the 'plankton paradox'. In: The 8th MEDECOS Conference (International Conference of Mediterranean Ecosystems), Olmué, Chile, October 2014. T.
2003. Carmel Y. **Aggregation as a means of reducing raster data uncertainty**. Proceedings of the *7th International Conference on GeoComputation*. University of Southampton, UK, September 2003. T.
2003. Carmel Y. and Naveh Z. **Ecosystems and landscapes: Land management implications**. The symposium on Science and Society, The *World Congress of the International Association for Landscape Ecology*, Darwin, Australia, July 2003. T.
2001. Carmel Y, Dean D.J and Flather C.H. **Combining Location and Classification Error Sources for Estimating Multi-temporal Database Accuracy**. Pages 107-108 in: Development of European landscapes -- Proceedings of The IALE European conference (*International Association of Landscape Ecology*), Tartu, Estonia, July 2001. T.
2000. Carmel Y, Flather C.H. and Dean D.J. **Modeling Vegetation Dynamics of Californian oak woodlands**. '*World Conference on Natural Resource Modelling*'. Wageningen, the Netherlands, June 2000. T.
1997. Carmel Y. Studying long-term vegetation changes using computerized classification of vegetation in aerial photographs. The annual meeting of US-IALE, East Lansing, Michigan, March 1997, T.

Plenary talks in Israel

2011. Summary of the symposium – from the viewpoint of an outsider. A plenary lecture closing the 2nd annual symposium of Conservation practice in the Nature and Parks Authority. Herzelia, Israel, December 2011.
2011. Disturbance and Mediterranean vegetation dynamics: Stochastic or deterministic processes? A plenary lecture at *The 12th Merav Ziv Symposium*, Sde-Boker, Israel, May 2011.

Invited talks in Israel

2014. A broad look at Israel's vegetation. In: Mediterranean woodlands in Israel. In: Israel tour guides conference, Ramat Hanadiv, April 2014.
2013. Studying global changes: can we integrate across domains? In: Batsheva de Rothschild Seminar: Coordinated Approaches for Studying Long-term Ecosystem Responses to Global Change. Ramat Hanadiv, October 2013.
2011. Prediction in ecology. In: The Zoology Seminar, Tel Aviv University, November 2011.
2011. LiDAR and image segmentation for mapping Mediterranean vegetation structure. In: Sensing in Agriculture – an International Symposium in Memory of Dahlia Greidinger, The Technion, February 2011.
2008. Do Foragers Optimize or Satisfice? In: Department seminar, Department of Life Sciences, Ben Gurion University, July 2008.
2008. Agriculture as a driving force in global environmental changes. In: 'Nekudat Chen' Annual Workshop, Zova, October 2008.
2007. Towards a strategy for coping with forest fires in Israel. In: The annual research workshop, KKL (Israel Forest Authority), Bet Dagan, December 2007.
2006. Mapping fire risk using multiple runs of fire behaviour model. In: The annual research workshop, KKL (Israel Forest Authority), Bet Dagan, December 2005.

2006. Two approaches to identify priority areas for Conservation. In: *International workshop on approaches in biodiversity modelling*. Department Seminar, Ben Gurion University, March 2006.
2005. A comparison of two approaches for identifying key areas for biodiversity conservation. In: *The international meeting of ISEEQS*, Weizmann Institute, May 2005.
2005. Mediterranean landscapes in Israel and in California: The vegetation point of view. In: *The Environmental History of Israel: An international workshop*, Yad Ben Tzvi, Jerusalem, June 2005.
2005. Landscape-scale vegetation changes following disturbance in California and the Mediterranean basin. In: *Active Management of Mediterranean Ecosystems*. Ramat Hanadiv International Workshop, Ramat Hanadiv, April 2005.
2003. Mapping Biodiversity with environmental parameters. Office of the Chief Scientist, Israel Ministry of Environment. Jerusalem, December 2003.
2002. Mediterranean Vegetation Dynamics. In: Department of Geography Seminar, University of Haifa, January 2002.
2000. Comparison of Vegetation Dynamics in Israel and California. In: Land cover/land use change in arid regions: Remote sensing applications in the middle east -- An international workshop. Ben Gurion University, October 2000.