



Oren Shelef Curriculum Vitae

PERSONAL INFORMATION

Oren Shelef

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EDUCATION

- 2014 Ph.D. in Plant Physiology, French Associates Institute for Agriculture & Biotechnology of Drylands, The Jacob Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev, Israel (Advisor: Prof. Shimon Rachmilevitch)
Title of thesis: Physiological aspects and technological applications of xerophytes
- 2008 MSc Ecology of Drylands, Mitrani Department of Desert Ecology, Ben-Gurion University of the Negev (Advisors: Prof. Moshe Shachack; Dr Elli Groner)
Title of thesis: Effect of shrub two-phase mosaic on beetle diversity in grazed drylands
- 2004 B.Sc. in Biology, The George S. Wise Faculty of Life Sciences, Tel-Aviv University, Israel

EMPLOYMENT

- 8/2018 – Current Researcher, Agricultural Research Organization (ARO), Israel
- 1/2016 – 6/2018 Postdocotorate fellow, UNR
- 10/2013-1/2016 Scientific Advisor, Ministry of Science, Technology and Space, Israel
- 10/2007-12/2015 Research Assistant, Professor Shimon Rachmilevich's lab for plant eco-physiology Ben-Gurion University of the Negev, Israel
- 3/2005-8/2005 Research assistant, biodiversity research, Ben-Gurion University of the Negev

PUBLICATIONS

Peer-reviewed journal articles (25)

Tencer Y., Idan G., Strom M., Nusinow U., Banet D., Cohen E., Schroeder P., **Shelef O.**, Rachmilevitch S., Soares M.I.M., Gross A. and Golan-Goldhirsh A. (2009). Establishment of a constructed wetland in extreme dryland.

Environmental Science and Pollution Research 16: 862-875

IF = 3.056; Environmental Sciences, Rank 99/265 (Q2)

Shelef O., Lazarovitch N., Rewald B., Golan-Goldhirsh A., and Rachmilevitch S., (2010) Root halotropism: Salinity effects on *Bassia indica* root.

Plant Biosystems. 144(2): 471-478

IF = 1.787; Plant Sciences, Rank 103/234 (Q2)

Shelef O. and Groner E. (2011), Linking landscape and species: Effect of shrubs on patch preference of beetles in arid and semi-arid ecosystems.

Journal of Arid Environments, 75(10): 960-967

IF = 1.830; Ecology, Rank 96/168 (Q3)

Shelef O., Golan-Goldhirsh A., Gendler T., and Rachmilevitch S. (2011), Physiological parameters of plants as indicators of water quality in a constructed wetland.

Environmental Science and Pollution Research, 18(7):1234-42

IF = 3.056; Environmental Sciences, Rank 99/265 (Q2)

Shelef O., Gross A., and Rachmilevitch S. (2012), The use of *Bassia indica* for salt phytoremediation in constructed wetlands.

Water Research, 46(13): p. 3967-397

IF = 9.130; Water Resources, Rank 1/94 (Q1)

Pongrac P., Vogel-Mikuš K., Regvar M., Kaligarič M., Vavpetič P., Kelemen M., Grlj N., **Shelef O.**, Golan-Goldhirsh A., Rachmilevitch S., and Pelicon P., (2013) On the distribution and evaluation of Na, Mg and Cl in leaves of selected halophytes.

Nuclear Instruments and Methods in Physics Research Section B, Volume 306: 144–149

IF = 1.270; Nuclear Science and Technology, Rank 16/34 (Q2)

Shelef O., Gross A., and Rachmilevitch S. (2013), Role of Plants in a Constructed Wetland: Current and New Perspectives.

Water, 5, 415-419

IF = 2.544; Water Resources, Rank 31/94 (Q2)

Meier I. C., Angert A., Falik O., **Shelef O.**, and Rachmilevitch S. (2013). Increased root oxygen uptake in pea plants responding to non-self neighbors.

Planta, 238(3): 577-586.

IF = 3.390; Plant Sciences, Rank 41/234 (Q1)

Shelef O., Helman Y., Friedman A.L.L., Behar A., Rachmilevitch S., (2013) Tri-Party Underground Symbiosis between a Weevil, Bacteria and a Desert Plant.

PLoS ONE, 8(11): e76588. doi:10.1371/journal.pone.0076588.

IF = 2.74; Multidisciplinary Sciences, Rank 27/71 (Q2)

Freedman A., Gross A., **Shelef O.**, Rachmilevitch S. and Arnon S., (2014) Salt uptake and evapotranspiration under arid conditions in horizontal subsurface flow constructed wetland planted with Halophytes.

Ecological Engineering, 70, 282–286.

IF = 3.512; Ecology, Rank 37/168 (Q1)

Shelef O., Stavi I. Zdruli P. and Rachmilevitch S., Land-use change, a case study from southern Italy: General implications for agricultural-subsidy policies.

Land Degradation and Development, 27(4), 868-870

IF = 3.775; Soil Sciences, Rank 6/38 (Q1)



Hill, A. J., Dawson, T. E., **Shelef O.**, & Rachmilevitch, S. (2015). The role of dew in Negev Desert plants. *Oecologia*, 178(2): 317-327.

IF = 2.654; Ecology, Rank 58/168 (Q2)

Shelef O., Gendler T., Gutterman Y., & Rachmilevitch S. (2016). Low water availability and salinity effects on seedling viability of *Bassia indica* compared to *B. iranica* and *B. prostrata* (Amaranthaceae). *Seed Science Research*, 26(01), 77-83

IF = 1.681; Plant Sciences, Rank 107/234 (Q2)

Shelef O., Guy O., Solowey E., Kam M., Degen A. A., & Rachmilevitch S. (2016). Domestication of plants for sustainable agriculture in drylands: Experience from the Negev Desert.

Arid Land Research and Management, 30(2), 209-228

IF = 1.148; Environmental Sciences, Rank 233/265 (Q4)

Shelef O., Pongrac P., Pelicon P., Kelemen M., Seifan M., Rewald B., & Rachmilevitch S. (2016). Insights into root structure and function of *Bassia indica*: water redistribution and element dispersion.

Functional Plant Biology, 43(7), 620-631

IF = 2.617; Plant Sciences, Rank 64/234 (Q2)

Dirks I., Raviv B., **Shelef O.**, Hill A., Eppel A., Aidoo MK., Hoefgen B., Rapaport T., Gil H., Geta E., Kochavi A., Cohen I., & Rachmilevitch S., (2016). Green roofs: what can we learn from desert plants? *Israel Journal of Ecology & Evolution*, 62:1-2, 58-67, DOI: 10.1080/15659801.2016.1140619

IF = 0.357; Ecology, Rank 165/168 (Q4)

Shelef O., Weisberg P.J., and Provenza F.D., (2017). The Value of Native Plants and Local Production in an Era of Global Agriculture

Frontiers in Plant Science

<https://www.frontiersin.org/articles/10.3389/fpls.2017.02069/abstract>

IF = 4.402; Plant Sciences, Rank 19/234 (Q1)

Bar-Shmuel N., Rogovin E., Rachmilevitch S., Friedman A.L.L., **Shelef O.**, Hoffman I., Rosenberg T., and Segoli M., (2018), Tripartite symbiosis of plant-weevil-bacteria is a widespread phenomenon in the Negev Desert, *Scientific Reports*

Scientific Reports

IF = 3.998; Multidisciplinary Sciences, Rank 17/71 (Q1)

Harrison J. G., Philbin C., Gompert Z., Forister G., ..., **Shelef O.**, Yoon S., Forister M. L., (2018). Deconstruction of a plant-arthropod community reveals influential plant traits and nonlinear effects on arthropod assemblage, *Functional Ecology*, March 2018 Revision submitted to *Functional Ecology*

IF = 4.434; Ecology, Rank 27/168 (Q1)

Dyer L.A., Philbin C.S., Ochsenrider K.M., Richards L.R., Massad T.J., Forister M.L., Parchman T.L., Smilanich A.M., Galland L., Hurtado P.J., Espeset A.E., Glassmire A.E., Harrison J.G., Yoon C. Mo, S., Pardikes N.A., Muchoney N.D., Jahner J.P., Slinn H.L., **Shelef O.**, and Jeffrey C.S (2018). Modern approaches to study plant–insect interactions in chemical ecology. *Nature Reviews Chemistry*, 2(6), 50-64. <https://www.nature.com/articles/s41570-018-0009-7>

IF = 34.953; Chemistry Multidisciplinary, Rank 3/177 (Q1)

Shelef, O., Hahn, P. G., Getman-Pickering, Z., & Martinez Medina, A. (2019). Coming to common ground: the challenges of applying ecological theory developed aboveground to rhizosphere interactions. *Frontiers in Ecology and Evolution*, 7, 58.

IF = 2.416; Ecology, Rank 70/168 (Q2)

Shelef, O., Summerfield, L., Lev-Yadun, S., Villamarin-Cortez, S., Sadeh, R., Herrmann, I., & Rachmilevitch, S. (2019). Thermal benefits from white variegation of *Silybum marianum* leaves. *Frontiers in plant science*, 10, 688.

IF = 4.402; Plant Sciences, Rank 19/234 (Q1)

Shelef, O., Hahn, P. G., Pineda, A., Mysore, T., & Martinez Medina, A. (2019). As Above so Below? Progress in understanding the role of belowground interactions in ecological processes. *Frontiers in Ecology and Evolution*, 7, 318.

IF = 2.416; Ecology, Rank 70/168 (Q2)

Ben-Simchon, E., Sapir, E., Vaknin, Y., & **Shelef, O.** (2019). Malvaceae spp. leaves as a novel crop for food. *International Journal of Agriculture Forestry and Life Sciences*, 3(2), 279-286.

Not ranked at the time of publication

Forister, M., Yoon, S., Philbin, C., Dodson, C., Hart, B., Harrison, J., **Shelef, O.**, Fordyce, J., Marion, Z., Nice, C., Richards, L., Buerkle, C., Leibis, S., Lucas, L., and Z. Gompert, 2020, Caterpillars on a phytochemical landscape: The case of alfalfa and the Melissa blue butterfly, *Ecology and Evolution*, 00:1–13

IF = 2.392; Ecology, Rank 71/168 (Q2)

Hill, A., Lincoln N., Rachmilevitch, S., and **Shelef, O.**, Modified Hiltner Dew Balance: Ecological Implications Using Isotope Analysis in Studies of the Plant-atmosphere continuum, *Water*, Major revision submitted September 4th 2020

IF = 2.544; Water Resources, Rank 31/94 (Q2)



Books (2)

Shelef O., Shachack M. and Groner E. (2014), Linking Landscape and Species: Shrub Effect on Beetle Diversity in Grazed Drylands, LAP LAMBERT Academic Publishing, ISBN 3659439738

Shelef, O., Hahn, P. G., Pineda, A., Tejesvi, M. V., Martinez-Medina, A., eds. (2020). Below-Ground Interactions in Ecological Processes. Lausanne: Frontiers Media SA. doi: 10.3389/978-2-88963-258-9

Book chapters (4)

Rewald B., Eppel A., **Shelef O.**, Hill A., Degu A., Friedjung A., & Rachmilevitch S. (2011), Hot Desert Environments, in Life at Extremes: Environments, Organisms and Strategies for Survival, editor Elanor M. Bell. CABI, 196-218

Rewald B., **Shelef O.**, Y. Ephrat, & Rachmilevitch S., (2013), Adaptive plasticity of salt-stressed root systems, in Ahmad, P; Azooz, MM; Prasad, MNV (Eds.), Ecophysiology and responses of plants under salt stress Springer, New York, 169-201; ISBN 978-1-4614-4746-7.

Shelef O., Fernández-Bayo J., Sher Y., Ancona V., Slinn H. & Achmon Y. (2018), Elucidating Local Food Production to Identify Principles and Challenges for Sustainable Agriculture, in "Sustainable food systems from agriculture to industry: improving production and processing" editor Charis M. Galanakis, Publisher: Elsevier-Academic Press, ISBN: 9780128119358, pp 416.

Shelef, O., Summerfield, L., Lev-Yadun, S., Villamarin-Cortez, S., Sadeh, R., Herrmann, I., & Rachmilevitch, S. (2019). Thermal benefits from white variegation of *Silybum marianum* leaves. *Frontiers in plant science*, 10, 688. In "The Role of Light in Abiotic Stress Acclimation Janda", editors T., Hideg, É., & Vanková, R. (2020). *Frontiers in Plant Science*, 11, 184.

Articles in Reviewed Journals in Hebrew (2)

Shelef O., Dag A. and Rachmilevitch S. (2014), Old olive trees conservation – lessons from south Italy to Israel, *Ecology and Environment* 4, 286-288

Shelef O., Ben-Simchon E., Dovrat G., and Zaady E. (2020), Pandemic impact on food security perception, *Ecology and Environment* 1, special edition devoted to corona virus influence

Publications in other journals (9, Hebrew)

Shapira (former surname) **O.**, Land of gems, (2002), *Teva Hadvarim* 79, 78-89

Shelef O., Shmida A. (2006), Plant heaven – The Kachkar, a land of grass and forests, *Teva Hadvarim* 131, 52-60

Shelef O. (2008), Arthropods and conservation, *Teva Hadvarim*.150, 66-77

Shelef O. (2010), Where water meets sky, *Teva Hadvarim* 176, 24-36



Shelef O. (2014), Olives, Pasta and stones – rich legacy and unclear future in south Italy, *Teva Hadvarim* 219, 72-82

Shelef O. and Shimon R. (2014), A meeting between a plant, a beetle and bacteria, *Galileo* 185, 37

Shelef O. and Giladi I., go to the ant thou sluggard, *Teva Hadvarim* 227, 18-22

Shelef O. and Gavish-Regev E., Spiders for natural pest control in agriculture, *Teva Hadvarim* 230, 80-84

Shelef O., Prodomos days, *Teva Hadvarim* 246, pp 30-40

Selected presentations (15 of 30+)

- 8/2007 Shelef O., Groner E., Shachak M, How Landscape Diversity affects Species Diversity: The Case of Shrub Effect on Beetle Diversity 13th European Carabidologists' Meeting , the American University, Bulgaria (oral presentation)
- 10/2007 Shelef O., Groner E., Shachak M, "My shadow and I" by the beetle, Effects of shrub mosaic on beetle diversity, 27th annual conference of the Entomological Society of Israel, (oral presentation)
- 9/2009 Shelef O., Lazarovitch N., Gendler T., Golan-Goldhirsh A. and Rachmilevitch S., Root halotropism? Salinity effects on Kochia (*Bassia indica*) roots, 7th ISRR Symposium Root Research and Applications BOKU, Wien, Austria (Poster)
- 8/2010 Shelef O., Lazarovitch N., Gendler T., Golan-Goldhirsh A. and Rachmilevitch S., Root halotropism? Salinity effects on Kochia (*Bassia indica*) roots, ASPB annual conference in Montreal, Canada (Poster)
- 10/2011 Shelef O., Gross A. and Rachmilevitch S., Special adaptations to soil salinity in a desert plant: Halotropism in *Bassia indica* and the use for salt phytoremediation, CAREX Conference on Life in Extreme Environments, Stillorgan Park Hotel, Dublin, Ireland, (Oral presentation)
- 3/2012 Shelef O., Gross A. and Rachmilevitch S., Role of Plants in a Constructed Wetland: new perspectives, WWPR2012, International Water Association (IWA) Regional Conference on Wastewater Purification and Resuse, Heraklion, Crete, Greece (Oral presentation)
- 6/2012 Shelef O., Rewald B., Golan-Goldhirsh A. and Rachmilevitch S., Horizontal root growth in *Bassia indica*: halotropism or nutrient tropism?, 8th Symposium of the International Society of Root Research, Dalhousie Building, University of Dundee, Dundee, Scotland (Oral presentation)
- 2/2013 Shelef O., Helman Y., Friedman A. L. L., Behar A. and Rachmilevitch S., Tri-trophic underground symbiosis between a weevil, bacteria and a desert plant, Plant-Herbivore interaction, The Changing Face of Plant Herbivore Studies, Gordon Research Center, Ventura, California USA, (Poster)



- 9/2013 Shelef O., Physiological Aspects and Technological Applications of Xerophytes, COST ES1104 Training School #2: Semi-Arid Land Management for Crop Production and Restoration of Man-Made Soils, Bari, Italy (Oral presentation)
- 4/2014 Shelef O., Soloway E. and Rachmilevitch S. Introduction and domestication of woody plants for sustainable agriculture in desert areas, European Geosciences Union General Assembly (EGU2014), Vienna, Austria (Oral presentation)
- 5/2014 Shelef O., Expert, make me a plant – on plants and robotics, Yerucham Science Center, Science day event, Israel (Oral presentation)
- 9/2014 Shelef O., How Ministry of Science, Technology and Space Promote Biodiversity Conservation in Israel, Israel Society of Ecology and Environmental Sciences 42nd Annual conference, Israel (Oral presentation)
- 1/2015 Shelef O., Before You Get Rid of a Weed: Aspects of physiology and implementation of woody plants introduction for sustainable agriculture in desert areas, COST ES1104 Training School #5: Plants, ecology and management for enhanced vegetation establishment for arid land restoration, 26 – 30 April 2015, Thessaloniki, Greece (Oral presentation)
- 2/2017 Shelef O., Pardikes N., Salcido D., Dyer L., Journey beneath the surface of Earth – Arthropod associations with desert shrub roots, Plant-Herbivore interaction, Novel Approaches and Technologies for Understanding How Plants and Herbivores Interact at Multiple Scales, Gordon Research Center, Ventura, California USA, (Poster)
- 4/2019 Sapir E., Saranga Y. and Shelef O., Increasing Agroecosystem Diversity: Malvaceae leaves As a Novel Crop, International Conference on "Agriculture, Forestry & Life Sciences" (ICAFLS 2019), Prague, Czech Republic
- 5/2019 Shelef O., Applied Agroecology, Bavaria-Israel Symposium "Food Security" Meeting for collaborations ISERD, Munich, Germany



Research expeditions

- 2/2008 (Jordan) Botanical expedition for plant collection, mainly cuttings of *Ficus palmata* for research. Products: research plot of *F. palmata* trees; a video and a peer-reviewed article and
- 2/2010 (Zambia) Student expedition as part of a course on rural water development, Ben Gurion University of the Negev. Products: an article in a popular magazine (Hebrew); a documentary video "Sede Boqer Kabanga"
- 9/2012 (Slovenja) Spirit TNA 188 research program. Scanning root samples of *B. indica* by micro-PIXE to analyse element distribution of a halophyte. Product: a peer-reviewed article
- 9/2013 (Italy) COST ES1104 training school Arid Land Restoration and Combat of Desertification: Setting up a Drylands and desert Restoration Hub. Products: a peer reviewed article, two articles in Hebrew journals
- 4/2015 (Greece) COST ES1104 training school title "Plants, ecology and management for enhanced vegetation establishment for arid land restoration"

MAIN PROFESSIONAL MEMBERSHIPS AND ACTIVITIES

Journal reviewer

Acta Physiologiae Plantarum, Arid Land Research and Management, Desalination and Water Treatment, Environmental Science and Pollution Research, Physiologia Plantarum, Plant biology, Water, Journal of Water Reuse and Desalination, AoB PLANTS, International Journal of Phytoremediation, Ecological Engineering, Frontiers in Plant Science (Editorial Board)

Grant reviewer and Evaluation committees

As the person in charge on environment and agriculture R&D in the Israeli Ministry of Science Technology and space, I was involved in evaluating dozens of research proposals and accepting reports of more than 100 sponsored studies In Israel and in collaboration with Italy, France and Germany

Research Topic Editor

With international network of colleagues, we proposed and finally edited a Research Topic for Frontiers in Ecology and Evolution: [As Above so Below? Below-ground Interactions in Ecological Processes](#).

COST actions

CM at the CA18237 [EUdaphobase](#) European Soil-Biology Data Warehouse for Soil Protection
MC Substitute at the CA18221 - [PEsticide RIsk AssessMent](#) for Amphibians and Reptiles

Courses taught

TA, Plant physiology in response to abiotic stress, Ben Gurion University
Entomology, UNR



PRIZES AND AWARDS

- 2017 UNR travel grant to GRC conference
- 2015 SDB travel grant to Asilomar workshop on plants under drought stress
- 2015 Vaadia-BARD Postdoctoral Fellowship
- 2015 Grant for Participation in Training School #5: Plants, ecology and management for enhanced vegetation establishment for arid land restoration, 26 – 30 April 2015, Thessaloniki, Greece
- 2014 Travel grant for delivering presentation, EGU2014 conference, Viena, Austria
- 2014 [MIMSHAK](#) practical post-doc fellowship of the "Israeli Society for Ecology and Environmental Sciences
- 2013 Dean's Award for Excellency
The Jacob Blaustein Institutes for Desert Research
Ben Gurion University of the Negev
- 2013 Grant for Participation in Training School #2: Semi-Arid Land Management for Crop Production and Restoration of Man-Made Soils, 19-24 September 2013, Italy
- 2013 Award for Promoting Agriculture in the Negev In memory of Prof. Colt Sruia & Mr. Emmanuel Shemin
- 2013 Krietman School short term post-doctoral scholarship
- 2012 Research grant in JSI, Slovenia the Transnational access project SPIRIT TNA 188
- 2011 Travel grant to Dublin, Irland Salinity center, Ben-Gurion University of the Negev
- 2010 Travel grant to Montreal, Canada Salinity center, Ben-Gurion University of the Negev
- 2009 Poster award Root halotropism? Salinity effects on Kochia (*Bassia indica*) roots 7th ISRR Symposium Root Research and Applications BOKU Wien September 2009
- 2005 Full scholarship for Master's degree, The Jacob Blaustein Institute for Desert Research, Ben-Gurion University of the Negev, Sede-Boqer Campus, Israel
- 2005 Full scholarship for Master's degree, Even Ari farm at Avdat for the Research of Ecology and Surface Runoff in the Desert, joint project of Ben Gurion University of the Negev and The Hebrew University, Israel

RESEARCH GRANTS

As a research assistant in BGU I was significantly involved in the following successful research proposals: [root of the matter](#) (\$6,000,000), ISF (\$200,000, \$150,000), Koshland (\$20,000) and ICA (\$20,000)

Studying *Myrtus communis* for agricultural pest control, Chief Scientist of the Ministry of Agriculture (180k ILS for 3 years)

Two Malvaceae species as novel food crop, The Plants Production & Marketing Board, Israel (14K for one year)