

# A/Prof Noam Levin, Head of the Remote Sensing Lab

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## The Remote Sensing Lab

### RESEARCH INTERESTS

### POSITIONS IN ACADEMIC AND RESEARCH INSTITUTIONS

### HIGHER EDUCATION

### PRIZES

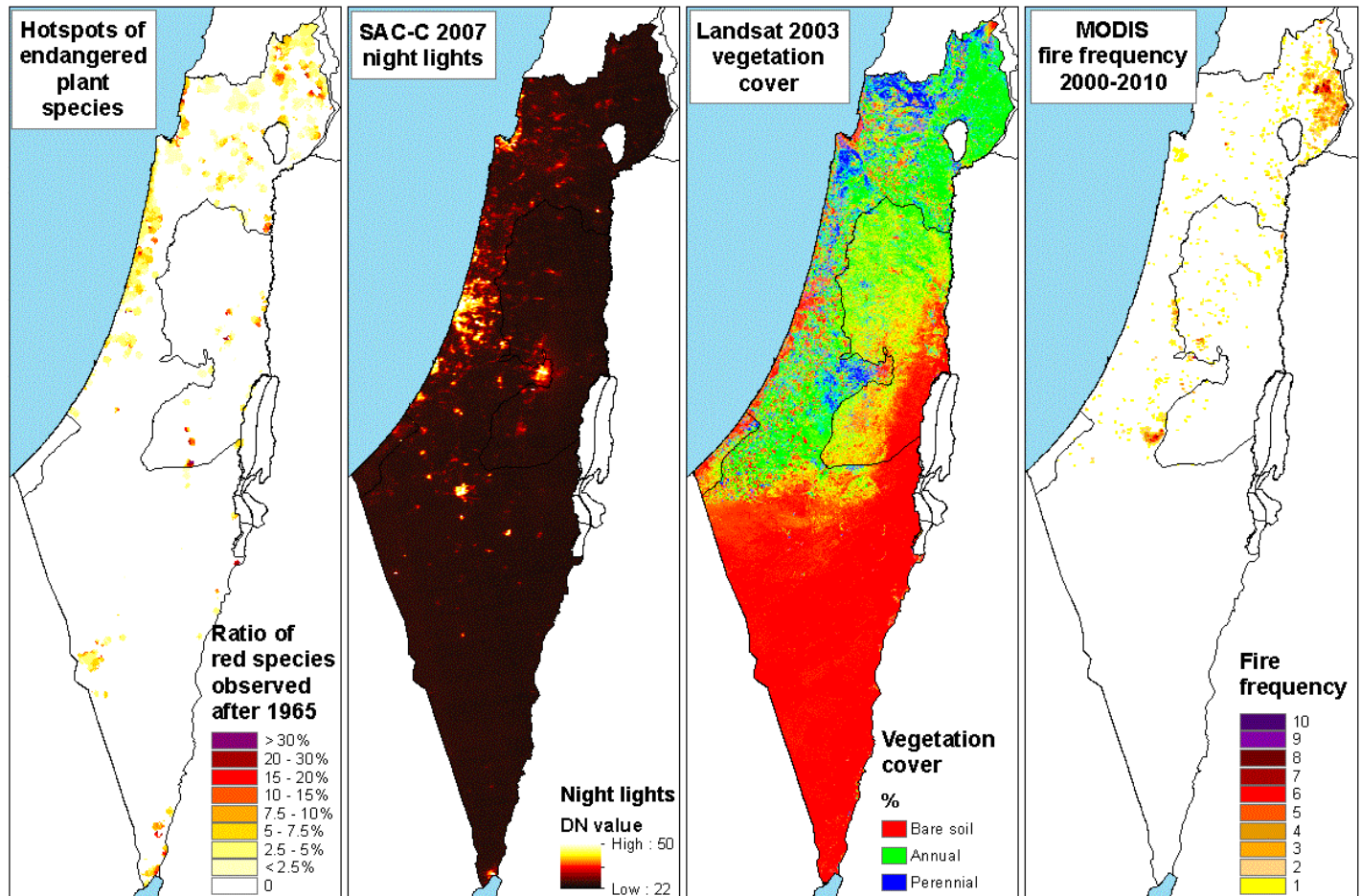
### RESEARCH GRANTS

### OTHER ACTIVITIES

### TEACHING

### PUBLICATIONS

## Mapping physical and human processes using GIS and remote sensing



Source: Shmida, Polak, Fragman-Sapir & Levin (2011) The Red Book – Endangered Plants in Israel

Source: Levin & Duke (2012) Remote Sensing of Environment 119:1-10

Source: Levin, Harari-Kremer & Carmel (2011) Remote sensing of Israel's natural habitats

Source: Levin & Helmowitz (2012) Remote Sensing of Environment 126: 12-26

### RESEARCH INTERESTS

I study geographical and environmental patterns and processes of land cover changes in the face of human and climate induced changes using remote sensing and Geographic Information Systems (GIS) tools. I combine field work, remote sensing of satellite images, spatial analysis of GIS layers, statistical analyses and modeling. My current research focuses on aeolian processes, biodiversity and conservation planning over spatial scales from local to global. I also have a great interest (since childhood) in maps, and exploring new methods to analyze spatial information, from historical maps, GIS layers, aerial photographs and satellite images.

In addition I have a great affinity to South America in general and Brazil in particular. Here are two of my favorite Brazilian songs:

[The girl from ipanema, by Antonio Carlos Jobim](#)

[Voce diz que amar e crime, by Dorival Caymmi](#)



Arcuate vegetated dune ridges, Lencois Maranhenses, Brazil

## POSITIONS IN ACADEMIC AND RESEARCH INSTITUTIONS

2013 Associate Professor  
The Department of Geography  
The Hebrew University of Jerusalem  
Mount Scopus, Jerusalem 91905  
Israel

2008 Senior Lecturer  
The Department of Geography  
The Hebrew University of Jerusalem  
Mount Scopus, Jerusalem 91905  
Israel

Summer 2013 - summer 2014 (Sabbatical year) Visiting academic at the School of Geography, Planning and Environmental Management at the University of Queensland, St. Lucia, Brisbane, Australia

Summer 2012 Visiting academic at the Centre for Spatial Environmental Research (CSER) in the School of Geography, Planning and Environmental Management at the University of Queensland, St. Lucia, Brisbane, Australia. Host: Prof. Clive McAlpine.

Summer 2011 Visiting academic at the Centre for Spatial Environmental Research (CSER) in the School of Geography, Planning and Environmental Management at the University of Queensland, St. Lucia, Brisbane, Australia. Host: Prof. Clive McAlpine.

Summer 2010 Visiting academic at the Centre for Spatial Environmental Research (CSER) in the School of Geography, Planning and Environmental Management at the University of Queensland, St. Lucia, Brisbane, Australia. Host: Prof. Clive McAlpine.

Summer 2009 Visiting fellow at Centre for Remote Sensing and Spatial Information Science (CRSSIS) in the School of Geography, Planning and Environmental Management at the University of Queensland, Australia. Host: Prof. Stuart Phinn.

Summer 2008 Visiting fellow at Centre for Remote Sensing and Spatial Information Science (CRSSIS) in the School of Geography, Planning and Architecture at the University of Queensland, Australia. Host: Prof. Stuart Phinn.

2007 Rothschild post-doctoral fellow at Centre for Remote Sensing and Spatial Information Science (CRSSIS) in the School of Geography, Planning and Architecture at the University of Queensland, Australia. Host: Prof. Stuart Phinn.

2005-2006 Kreitman Post-doctoral fellow at the Department of Geography and Environmental Development in Ben-Gurion University of the Negev in Beer Sheva, Israel. Research subject: "The palaeoclimate and environmental implications of the aeolian sand encroachments into the coast of Ceara State, NE Brazil." Host: Prof. Haim Tsoar.

2002-2004 GIS research with Prof. Avi Shmida, at Rotem – Israel Plant Information Center, The Hebrew University of Jerusalem, Israel

1997-1998 Research assistant at the Remote Sensing Laboratory, Department of Geography and Human Environment, Tel-Aviv University, Israel

1995-2002 Head of Geographic Information System (GIS) Unit of the Society for the Protection of Nature in Israel (SPNI)



Interdune lake, NE Brazil

## HIGHER EDUCATION

- 2005 - Ph.D. Tel-Aviv University  
Department of Geography and Human Environment  
Dissertation: "[Monitoring, Explaining and Predicting the Stabilization Process of Coastal Dunes in Israel Using Remote Sensing and Geographic Information Systems \(GIS\) Methods: The Case of Ashdod and Nizzanim](#)"  
Advisors: Prof. Eyal Ben-Dor and Dr. Giora Kidron
- 2002 - M.A. Tel-Aviv University  
Department of Geography and Human Environment (*summa cum laude*)  
Thesis: "[Quantitative Mapping of the Soil Rubification Process on the Coastal Sand Dunes of Israel Using an Airborne CASI Hyperspectral Sensor: The Sand Dunes of Ashdod as a Case Study](#)".  
Advisor: Prof. Eyal Ben-Dor
- 1996 - B.A. Tel-Aviv University  
Geography



A sand blow on Fraser Island, Queensland, Australia

## PRIZES

- 2010 – Faculty of Social Sciences Dean's Prize for a Young Researcher
- 2009 – Visiting fellow at the University of Siena, Italy
- 2008 – Alon Fellowship for Outstanding Young Researchers.
- 2007/8 – Won the Porter post-doctoral fellowship of the Porter School of Environmental Studies, Tel Aviv University
- 2006/7 – Won the American Fulbright post-doctoral fellowship.
- 2006/7 – Rothschild post-doctoral fellowship.
- 2005-2007 – Kreitman post-doctoral fellowship, Ben Gurion University of the Negev.
- 2005 – Travel grant to the 19th annual meeting of the Society for Conservation Biology, held in Brasilia, Brazil, in July 2005.
- 2004 – Aranne scholarship of the School of History, Tel Aviv University.
- 2004 – Nina Efrat and Daniel Rotenberg scholarship, Faculty of Humanities, Tel Aviv University.
- 2003 – Ziva and Hanoach Finkelstein scholarship.
- 1996 – Tel Aviv University Rector's Prize for excellence in studies.
- 1995 – Tel Aviv University Rector's Prize for excellence in studies.
- 1994 – Faculty of Humanities Dean's Prize for excellence in studies.



Wungul sand blow, Fraser Island, Australia

## RESEARCH GRANTS

2013 - Marine conservation planning within the exclusive economic zone of Israel (over a year and a half; Noam Levin, Salit Kark)

2012 - The National Library of Israel, for hosting a workshop in January 2013: "Historical Geographic Information Systems (HGIS) for reconstructing the past". 6,930\$.

2011 – Ganey Ramat ha Nativ, for the following study: " Overcoming conflicting conservation objectives in a protected area using a systematic planning zoning process: a case study from the eastern Mediterranean". 8,000\$.

2011 - Ministry of Science and Technology, for the following study: " Development of National Remote Sensing Infrastructure to Study the Environment using Hyperspectral Technology in the Thermal Region". 600,000\$ (over three years; Eyal Ben-Dor, Noam Levin, Arnon Karnieli, Ilan Koren, Amir Gil).

2010 – Ministry of National Infrastructures, for the following study: "Metal contamination in wetland deposits at the coast of Israel" 27,000\$ (Revital Bookman, Nadya Deutsch, Noam Levin).

2010 – Environment and Health Fund, for the following study: "Childhood and adolescent environmental exposures and the incidence of cancer in adulthood—a national resource". 300,000\$ (over three years; Jeremy Kark, Joel Schwartz, Noam Levin, Yinon Rudich, Omer Ankol, Michael Huerta, Ilan Levy).

2010 – Israel Nature and Parks Authority, for the following study: "Remote sensing of Israel's natural habitats". 40,000\$.

2009 – Ring Foundation for Environmental Studies, for the following study: "Wild flower patches as possible indicators for climate fluctuations in Israel – a remote sensing approach". 30,000\$.

2009 – The Floersheimer Institute for Policy Studies (<http://www.fips.org.il>), for the following study: "Spatial inequalities of infrastructure: night lights of built-up areas in Israel" 4,000\$.

2008 - The Louis Frieberg Center for East Asian Studies (<http://www.eacenter.huji.ac.il>), for the following research: " Incorporating topography into landscape continuity analysis: Hong Kong Island as a Case study" 8,000 \$

2003 – The Fund for Promoting Landscape and Environment Values in the Agricultural Areas of Israel (<http://www.lsea.org.il/site/homepage.asp>), for the following research: "Using remote sensing as a tool for monitoring and analyzing temporal and spatial trends in plasticulture (covered agriculture) in Israel", (PIs: Levin N., Lugassi R., Ramon U. and Ben-Dor E.) 15,000 \$

2003 - Volkswagen Foundation (Volkswagen-Stiftung) (<http://www.volkswagen-stiftung.de/>), for the following research: "The palaeoclimate and environmental implications of the aeolian sand encroachments into the coast of Ceará State, NE Brazil", (with Herrmann H.J., Maia L.P., Claudino-Sales V., Tsoar H. and Levin N.) 100,000 Euro



Knifeblade sand blow, Fraser Island, Australia

## OTHER ACTIVITIES

Reviewer of manuscripts for:

*Biodiversity and Conservation, Boreal Environment Research, Bulletin of the Geological Society of Greece, Canadian Journal of Remote Sensing, Community Ecology, Diversity and Distributions, Earth Surface Processes and Landforms, Folia Geobotanica., Geomorphology, Global Ecology and Biogeography, Global and Planetary Change, International Journal of Remote Sensing, Israel Journal of Earth Sciences, Israel Journal of Ecology and Evolution, Journal of Arid Environments, Journal of Environmental Management, Journal of Hydrology, Journal of Spatial Science, Landscape and Urban Planning, PLoS ONE, Proceedings of the Modelling and Simulation Society of Australia and New Zealand, Proceedings of the National Academy of Sciences, Remote Sensing, Remote Sensing of Environment, Urban Remote Sensing: Monitoring, Synthesis and Modeling in the Urban Environment (Publisher: John Wiley), Web Ecology*



Sand ripples between *Artemisia monosperma* bushes, Nizzanim Dunes, Israel

## TEACHING

Advanced Research Applications in Remote Sensing (40770, Bachelor's + Master's)

GIS Applications for Conservation Planning (40220, Bachelor's + Master's)

Introduction to Cartography (40107, Bachelor's)

Introduction to Environmental Geography (40111, Bachelor's)

Introduction to Remote Sensing & Image Processing (40332, Bachelor's)

The Physical Environment: Past, Present, Future (40888, Yearly, Bachelor's)

Geomorphology & Environment along Israel's Coastal Plain (40110, Bachelor's)

Scholastic Competence in Physical Geography (40420, Bachelor's)



Transverse dunes and arcuate vegetated dune ridges, Lencois Maranhenses, Brazil

## PUBLICATIONS

Google Scholar citations: <http://scholar.google.co.il/citations?user=r4V5hhoAAAJ&hl=en>

### PAPERS IN PEER-REVIEWED JOURNALS

Levin N. and Saaroni H. (1999), "Fire weather in Israel - Synoptic climatological analysis", *Geo Journal*, Vol. 47, No. 4, 523-538.

Ben-Dor E. and Levin N. , (2000), "Determination of surface reflectance from raw hyperspectral data without simultaneous ground data measurements: a case study of the GER 63-channel sensor data acquired over Naan, Israel", *International Journal of Remote Sensing*, 21:10, pp. 2053-2074.

Ben-Dor E., Levin N. and Saaroni H. (2001), "A spectral based recognition of the urban environment using the visible and near-infrared spectral region (0.4-1.1  $\mu\text{m}$ ). A case study over Tel-Aviv, Israel", *International Journal of Remote Sensing*, 22:11, pp. 2193-2218.

Levin N., Ben-Dor E. and Kidron G.J. (2003), "The influence of human factors on the temporal changes in the stabilization rate of the Ashdod-Nizzanim dunes", *Horizons in Geography*, 57-58, pp. 224-241 (in Hebrew; abstract in English in p. viii).

Levin N., Ben-Dor E. and Karnieli A. (2004), "Topographic Information of Sand Dunes as Extracted from Shading Effects Using Landsat Images", *Remote Sensing of Environment*, 90, pp. 190-209.

Levin N. and Ben-Dor E. (2004), "Monitoring sand dune stabilization along the coastal dunes of Ashdod-Nizzanim, Israel, 1945-1999", *Journal of Arid Environments*, 58, pp. 335-355.

Levin N., Ben-Dor E. and Singer A. (2005), "A digital camera as a tool to measure colour indices and related properties of sandy soils in semi-arid environments", *International Journal of Remote Sensing*, 26 (24), pp. 5475-5492.

- Ben-Dor E., Levin N., Singer A., Karnieli A., Braun O. and Kidron G. (2006), "Quantitative Mapping of the Soil Rubification Process on Sand Dunes Using an Airborne CASI Hyperspectral Sensor", *Geoderma*, 131, pp. 1-21.
- Levin N. (2006), "The Palestine Exploration Fund map (1871-1877) of the Holy Land as a tool for analyzing landscape changes: the coastal dunes of Israel as a case study", *The Cartographic Journal*, 43 (1), pp. 45-67.
- Levin N., Kidron G.J. and Ben-Dor E. (2006), "The spatial and temporal variability of sand erosion across a stabilizing coastal dune field", *Sedimentology*, 53, pp. 697-715.
- Holzapfel C., Levin N., Hatzofe O. and Kark S., (2006), "Colonisation of the Middle East by the invasive Common Myna *Acridotheres tristis* L., with special reference to Israel", *Sandgrouse*, 28 (1), pp. 44-51.
- Levin N., Lahav H., Ramon U., Heller A., Nizry G., Tsoar A., and Sagi Y. (2007), "Landscape continuity analysis: A new approach to conservation planning in Israel", *Landscape and Urban Planning*, 79, pp. 53-64.
- Kark S., Allnutt T.F., Levin N., Manne L.L. and Williams P.H., (2007), "The role of transitional areas as avian biodiversity centers", *Global Ecology and Biogeography*, 16, pp. 187-196.
- Levin N., Tsoar H., Maia L.P., Claudino-Sales V. and Herrmann H. (2007) "Dune whitening and inter-dune fresh water ponds in NE Brazil", *Catena*, 70, pp. 1-15.
- Levin, N., Lugassi, R., Ramon U., Braun O. and Ben-Dor E. (2007) "Remote sensing as a tool for monitoring plasticulture in agricultural landscapes", *International Journal of Remote Sensing*, 28 (1), pp. 183-202.
- Levin N., Kidron G.J. and Ben-Dor E., (2007) "Surface properties of stabilizing coastal dunes – combining spectral and field analyses", *Sedimentology*, 54, 771-788. doi: 10.1111/j.1365-3091.2007.00859.x.
- Levin N., Shmida A., Levanoni O., Tamari H. and Kark S., (2007) "Predicting mountain plant richness and rarity from space using satellite-derived vegetation indices", *Diversity and Distributions*, 13, 692-703. doi: 10.1111/j.1472-4642.2007.00372.x
- Levin N. and Shmida A., (2007) "Determining conservation hotspots across biogeographic regions using rainfall belts: Israel as a case study", *Israel Journal of Ecology & Evolution*, 53, 33-58.
- Bino G., Levin N., Darawshi S., van der Hal N., Reich-Solomon A. and Kark S., (2008) "Landsat derived NDVI and spectral unmixing accurately predict bird species richness patterns in an urban landscape", *International Journal of Remote Sensing*, 29, 3675-3700. DOI: 10.1080/01431160701772534.
- Levin N., Kidron G.J. and Ben-Dor E. (2008) "A field quantification of the adaptations of costal dune plants to erosion and deposition of sand", *Sedimentology*, 55, 751-772. doi: 10.1111/j.1365-3091.2007.00920.x
- Levin N., Ben-Dor E., Kidron G.J. and Yaakov Y., (2008) "Prediction of surface roughness ( $z_0$ ) over a stabilizing coastal dune field based on vegetation and topography", *Earth Surface Processes and Landforms*, 33, 1520-1541. Published article online. doi: 10.1002/esp.1621.
- Kark S., Levin N. and Phinn, S. (2008) "Global environmental priorities: making sense of remote sensing", *Trends in Ecology and Evolution*, 23, 181-182. doi:10.1016/j.tree.2008.01.001.
- Levin, N., McAlpine, C., Phinn, S., Price, P., Pullar, D., Law, B., and Kavanagh, R.P., (2009) "Mapping forest patches and scattered trees from SPOT images and testing their ecological importance for woodland birds in a fragmented agricultural landscape". *International Journal of Remote Sensing*, 30 (12), 3147-3169, doi: 10.1080/01431160802558782.
- Van Rensburg, B., Levin, N., and Kark, S. (2009) "Spatial congruence between ecotones and range restricted species: implications for conservation biogeography at the national scale". *Diversity and Distributions*, 15, 379-389.
- Levin N., Haim Tsoar, Hans Jürgen Herrmann, Vanda Claudino-Sales and Luis Parente Maia (2009) "Modeling the formation of arcuate vegetated dune ridges behind barchan dunes in NE Brazil", *Sedimentology*, 56, 1623-1641 doi: 10.1111/j.1365-3091.2009.01048.x .
- Levin N., Tsoar H., Maia L.P., Claudino-Sales V. and Herrmann H.J., (2008) "Lagoas costeiras interdunares e branqueamento de dunas no Nordeste do Brasil", *Mercator*, 14, 143-166.
- Tsoar H., Levin N., Porat N., Maia L.P., Herrmann H.J., Tatum S.H., Claudino-Sales V.C. (2009) " The effect of climate change on the mobility and stability of coastal sand dunes in Ceará State (NE Brazil). *Quaternary Research*, 71, 217-226.
- Levin, N., Elron, E., and Gasith, A. (2009) "Decline of wetland ecosystems in the coastal plain of Israel during the 20th century: implications for wetland conservation and management". *Landscape and Urban Planning*, 92, 220-232, doi:10.1016/j.landurbplan.2009.05.009.
- Kark, S., Levin, N., Grantham, H. and Possingham, H. (2009) "Between-country collaboration and consideration of costs increase conservation planning efficiency in the Mediterranean Basin", *Proceedings of the National Academy of Sciences of the United States of America*, 106, 15360-15365.
- Levin, N., Kark, R. and Galili E., (2010) "Historical maps and GIS: mapping of southern Palestine 1799-1948, issues of scale and accuracy and possible applications", *Journal of Historical Geography*, 36, 1-18. doi: 10.1016/j.jhg.2009.04.001.

- Clavero, M., Hermoso, V., Levin, N., and Kark, S. (2010), "Geographical linkages between threats and imperilment in freshwater fish in the Mediterranean Basin", *Diversity and Distributions*, 16, 744-754.
- Rocchini, D., Balkenhol, N., Carter, G.A., Foody, G.M., Gillespie, T.W., He, K.S., Kark, S., Levin, N., Lucas, K., Luoto, M., Nagendra, H., Oldeland, J., Ricotta, C., Southworth, J., Neteler, M. (2010), "Remotely sensed spectral heterogeneity as a proxy of species diversity: Recent advances and open challenges", *Ecological Informatics*, 5, 318-329.
- Levanoni, A., Levin, N., Pe'er, G., Turbé, A., Kark, S. (2011), "Can we predict butterfly diversity along an elevation gradient from space?", *Ecography*, 34, 372-383. DOI: 10.1111/j.1600-0587.2010.06460.x
- Levin, N. (2011), "Climate-driven changes in tropical cyclone intensity shape dune activity on Earth's largest sand island", *Geomorphology*, 125, 239-252.
- Levin, N., Levental, S. and Morag, H. (2012), "The effect of wildfires on vegetation cover and dune activity in Australia's desert dunes: a multi-sensor analysis", *International Journal of Wildland Fire*, 21, 459-475. <http://dx.doi.org/10.1071/WF10150>
- Hugenholtz, C.H., Levin, N., Barchyn, T.E. and Baddock, M.C. (2012), "Remote sensing and spatial analysis of aeolian sand dunes: a review and outlook". *Earth-Science Reviews*, 111, 319-334.
- Levin, N. and Duke, Y. (2012), "High spatial resolution night-time light images for demographic and socio-economic studies". *Remote Sensing of Environment*, 119, 1-10.
- Levin, N., Legge, S., Price, B., Bowen, M., Litvack, E., Maron, M., McAlpine, C. (2012), "MODIS time series as a tool for monitoring fires and their effects on savanna bird diversity", *International Journal of Wildland Fire*, 21, 680-694. <http://dx.doi.org/10.1071/WF11031>
- Portman, M., Nathan, D., Levin, N. (2012), "From the Levant to Gibraltar: A Regional Perspective for Marine Conservation in the Mediterranean Sea", *Ambio*, 41, 670-681 doi: 10.1007/s13280-012-0298-x.
- Van Rensburg, B., Hugo, S., Levin, N., and Kark, S (2013), "Are environmental transitions more prone to biological invasions?", *Diversity and Distributions*, 19, 341-351.
- Giakoumi, S., Mazor, T., Frascchetti, S., Kark, S., Portman, M., Coll, M., Steenbeek, J., Possingham, H., Workshop Participants (2012), "Advancing marine conservation planning in the Mediterranean Sea", *Reviews in Fish Biology and Fisheries*, 22, 943-949.
- Kark, S., Levin, N., Shanas, U. (2012). The top research questions for nature conservation and biodiversity policy and horizon scanning. *Ecology and Environment*, 3, 132-133 (in Hebrew: וְאֵיזוֹ אֵיךְ-וְכִצְּוֹאָאִי לִיָּעוֹדֵאִי וְיָעוֹד אֵעָוֹ אֵיזָאֵי אֵעָאֵאֵ אֵיָּעוֹ-עֵי).
- Levin, N., Heimowitz, A. (2012). Mapping spatial and temporal patterns of Mediterranean wildfires from MODIS. *Remote Sensing of Environment*, 126, 12-26, doi: 10.1016/j.rse.2012.08.003.
- Levin, N., Watson, J.E.M., Joseph, L.N., Grantham, H.S., Hadar, L., Apel, N., Perevolotsky, a., DeMalach, N., Possingham, H.P., Kark, K. (2013). A framework for systematic conservation planning and management of Mediterranean landscapes. *Biological Conservation*, 158, 371-383.
- Mazor, T., Levin, N., Possingham, H.P., Levy, Y., Rocchini, D., Richardson, A.J., Kark, S. (2013). Can satellite-based night lights be used for conservation? The case of nesting sea turtles in the Mediterranean. *Biological Conservation*, 159, 63-72. DOI: <http://dx.doi.org/10.1016/j.biocon.2012.11.004>
- Micheli, F., Levin, N., Giakoumi, S., Katsanevakis, S., Abdulla, A., Coll, M., Frascchetti, S., Kark, S., Koutsoubas, D., Mackelworth, P., Maiorano, L., Possingham, H.P. (2013). Setting priorities for regional conservation planning in the Mediterranean Sea. *PLoS ONE* 8(4): e59038. doi:10.1371/journal.pone.0059038
- Levin, N., Tulloch, A., Gordon, A., Mazor, T., Bunnefeld, T., Kark, S. (2013) Incorporating socio-economic and political drivers of international collaboration into marine conservation planning. *BioScience*, 63, 547-563.
- Frantzman, S.J., Levin, N. Kark, R. (2014) Counting nomads: British census attempts and tent counts of the Negev Bedouin 1917-1948. *Population, Space and Place*, 20, 552-568 DOI: 10.1002/psp.1795.
- Yizhaq, H., Ashkenazya, Y., Levin, N., Tsoar, H. (2013) Spatiotemporal model for the progression of transgressive dunes. *Physica A*, 392, 4502-4515.
- Kirca, S., Altincekic, H., Levin, N. (2013) Landscape Continuity Analysis as a Tool for Landscape Planning: a Case Study in Istanbul. *Landscape Research*, doi: 10.1080/01426397.2013.824561
- Levin, N., Singer, M., Lai, P.C. (2013) Incorporating Topography into Landscape Continuity Analysis – Hong Kong Island as a Case Study. *Land*, 2(4), 550-572; doi:10.3390/land2040550.
- Levin, N., Johansen, K., Hacker, J.M., Phinn, S. (2014) A new source for high spatial resolution night time images - the EROS-B commercial satellite. *Remote Sensing of Environment*, 149, 1-12. doi: 10.1016/j.rse.2014.03.019
- Levin, N., Coll, M., Frascchetti, S., Gal, G., Giakoumi, S., Göke, C., Heymans, J.J., Katsanevakis, S., Mazor, T., Öztürk, B., Rilov, G., Gajewski, J., Steenbeek, J., Kark, S. (2014) Review of biodiversity data requirements for systematic conservation planning in the Mediterranean Sea. *Marine Ecology Progress Series*, 508, 261-281. doi: 10.3354/meps10857
- Levin, N., Neil, D., Syktus, J. (2014). Spatial variability of wind regime at Moreton Island, Australia, as reflected in coastal dune form, observing stations and reanalyses. *Aeolian Research*, 15, 289-300. doi: 10.1016/j.aeolia.2014.06.006
- Katsanevakis, S., Levin, N., Coll, M., Giakoumi, S., Shkedi, D., Mackelworth, P., Levy, R., Velegrakis, A., Koutsoubas, D., Caric, H., Brokovich, E., Ozturk, B., Kark, S. (2015). Marine conservation challenges in an era of economic crisis and geopolitical instability: The case of the Mediterranean Sea. *Marine Policy*, 51, 31-39. <http://dx.doi.org/10.1016/j.marpol.2014.07.013>
- Kark, S., Tulloch, A., Gordon, A., Mazor, T., Bunnefeld, N., Levin, N. (2015). Cross-boundary collaboration: key to the conservation puzzle. *Current Opinion in Environmental Sustainability*, 12, 12-24.
- Schaffer, G., Levin, N. (2014). Mapping human induced landscape changes in Israel between the end of the 19th century and the beginning of the 21st century. *Journal of Landscape Ecology*, 7 (1), 110-146.
- Zohar, I., Bookman, R., Teutsch, N., Levin, N., de Stigter, H. (2014). The contamination history of lead and other trace metals reconstructed from an urban winter pond in the Eastern Mediterranean coast (Israel). *Environmental Science & Technology*, 48, 13592–13600. Doi: 10.1021/es500530x
- Goldman, R., Biton, E., Brokovich, E., Kark, S., Levin, N. (2015). Oil spill contamination probability in the southeastern Levantine basin. *Marine Pollution Bulletin*, 91, 347-356. doi:10.1016/j.marpolbul.2014.10.050.

- Bruton, M.J., Maron, M., Levin, N., McAlpine, C. (2015) "Testing the relevance of binary, mosaic and continuous landscape conceptualisations to reptiles in regenerating dryland landscapes". *Landscape Ecology*, 30, 715-728.
- Schaffer, G., Peer, M., Levin, N. (in press) "Quantifying the completeness of and correspondence between two historical maps: a case study from 19th century Palestine". *Cartography and Geographic Information Science*, accepted February 9<sup>th</sup>, 2015. <http://dx.doi.org/10.1080/15230406.2015.1029519>
- Levin, N., Mazor, T., Brokovich, E., Jablon, P.-E., Kark, S. (in press) "Sensitivity analysis of conservation targets in systematic conservation planning". *Ecological Applications*, accepted February 17<sup>th</sup>, 2015.
- Levy, I., Levin, N., Yuval, Schwartz, J.D., Kark, J.D. (2015) "Back-extrapolating a land use regression model for estimating past exposures to traffic-related air pollution". *Environmental Science & Technology*, 49, 3603-3610 doi: 10.1021/es505707e.
- Levin, N., Kark, S., Crandall, D.J. (in press) "Where have all the people gone? Enhancing global conservation using night lights and social media". *Ecological Applications*, accepted March 24<sup>th</sup>, 2015.
- Weil, G., Levin, N. (2015) "Can siting algorithms assist in prioritizing for conservation in a densely populated and land use allocated country? Israel as a case study". *Israel Journal of Ecology & Evolution*, 61(1), 50-60. Doi:10.1080/15659801.2015.1035858
- Kark, S., Brokovich, E., Mazor, T., Levin, N. (accepted) "Emerging conservation challenges and prospects of offshore oil and natural gas production". *Conservation Biology*, accepted April 2015.

#### **BOOKS and BOOK CHAPTERS**

- Levin N. (1999), *Fundamentals of Remote Sensing*, a book compiled using Internet resources, articles and personal knowledge. 225p.
- Lahav H., Levin N., Sagi Y. and Katz S. (1999), *Sustainable Development of Ramat HaNadiv and its Environs: Nature, Landscape and Landuse Resources*, SPNI – Open Landscape Institute (in Hebrew).
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