Ran Nathan - Publications

Last update: 1 July 2011

Editorship of peer-reviewed collective volumes

4. **Nathan, R.** (Ed.) (2008). Movement Ecology. Special Feature in Proceedings of the National Academy of Sciences 105:19050-19125.

3. Bullock, J. M., and **R. Nathan**. (Eds.) (2008). Plant dispersal across multiple scales: linking models and reality. Special Issue in Journal of Ecology 96:567-697.

2. **Nathan, R.** (Ed.) (2005). New perspectives on long-distance dispersal. Special Issue in Diversity & Distributions 11:125-181.

1. Cain, M. L, **R. Nathan**, and S. A. Levin. (Eds.) (2003). Long-distance dispersal. Special Feature in Ecology 84:1943-2020.

Peer-reviewed publications

73. Tsoar, A., **R. Nathan***, Y. Bartan, A. Vyssotski, G. Dell'Omo, and N. Ulanovsky*. (201X). Large-scale navigational map in a mammal. Proceedings of the National Academy of Sciences of the United States of America *accepted pending minor revision* (*equal contribution)

72. **Nathan, R.**, O. Spiegel, S. Fortmann-Roe, R. Harel, M. Wikelski, and W. M. Getz. (201X). Tri-axial acceleration data identify behavioral modes of free-ranging animals and facilitate the incorporation of biomechanical processes into movement ecology. Journal of Experimental Biology *invited contribution, accepted pending minor revision.*

71. **Nathan, R.**, E. K. Klein, J. J. Robledo-Arnuncio, and E. Revilla. (201X). Dispersal kernels: review. Pages xxx-xxx *in* J. Clobert, M. Baguette, T. G. Benton, and J. M. Bullock, editors. Dispersal and Spatial Evolutionary Ecology. Oxford University Press, Oxford *invited review chapter, accepted pending minor revision.*

70. Buchmann, C. M., F. M. Schurr, **R. Nathan**, and F. Jeltsch. (2011). Movement upscaled – the importance of individual foraging movement for community response to habitat loss. Ecography *in press*

69. Steinitz, O., D. Troupin, G. G. Vendramin, and **R. Nathan**. (2011). Genetic evidence for a Janzen-Connell recruitment pattern in reproductive offspring of *Pinus halepensis* trees. Molecular Ecology *in press* [highlighted in News & Views in this journal]

68. Sapir, N., N. Horvitz, M. Wikelski, R. Avissar, I. Mahrer, and **R. Nathan**. (2011). Migration by soaring or flapping: numerical atmospheric simulations reveal that turbulence kinetic energy dictates bee-eater flight mode. Proceedings of the Royal Society B-Biological Sciences *in press*

67. Sapir N, M. Wikelski, R. Avissar, and **R. Nathan**. (2011). Timing and flight mode of departure in migrating European bee-eaters in relation to multi-scale meteorological processes. Behavioral Ecology and Sociobiology 65:1353−1365.

66. **Nathan R**., G. G. Katul, G. Bohrer, A. Kuparinen, M. B. Soons, S. E. Thompson, A. Trakhtenbrot, and H. S. Horn. (2011). Mechanistic models of seed dispersal by wind. Theoretical Ecology 4:113–132.

65. **Nathan R**., N. Horvitz, Y. He, A. Kuparinen, F. M. Schurr, and G. G. Katul. (2011). Spread of North-American wind-dispersed trees in future environments. Ecology Letters 14:211-219.

64. Hedesntröm A., M. Bowlin, **R. Nathan**, B. Nolet, and M. Wikelski. (2011). Mechanistic principles of locomotion performance in migrating animals. Pages 35-51 in: Fryxell JM, Milner-Gulland EJ, Sinclair ARE (eds) Animal Migration: a synthesis. Oxford University Press, Oxford, UK.

63. Buchmann, C. M., F. M. Schurr, **R. Nathan**, and F. Jeltsch. (2011). An allometric model of home range formation explains the structuring of animal communities exploiting heterogeneous resources. Oikos 120:106-118.

62. Tsoar A., Shohami D., and **R. Nathan**. (2011) A movement ecology approach to study seed dispersal and plant invasion: an overview and application of seed dispersal by fruit bats. Pages 103-119 in: Richardson DM (ed) Fifty years of invasion ecology: the legacy of Charles Elton. Wiley-Blackwell, London.

61. Sapir N., Wikelski M., McCuem M. D., Pinshow B., and **R. Nathan**. (2010). Flight modes in migrating European Bee-eaters: heart rate may indicate low metabolic rate during soaring and gliding. PLoS One 5:e13956.

60. Spiegel, O., and **R. Nathan**. (2010). Incorporating density-dependence into the directed dispersal hypothesis. Ecology 91:1538–1548.

59. Schurr, F. M., O. Spiegel, O. Steinitz, A. Trakhtenbrot, A. Tsoar, and **R. Nathan**. (2009). Long-distance seed dispersal. Pages 204-237 *in* L. Østergaard, editor. Fruit Development and Seed Dispersal. Annual Plant Reviews 38, Wiley-Blackwell, Oxford.

58. Kuparinen, A., G. Katul, **R. Nathan**, and F. M. Schurr. (2009). Increases in air temperature can promote wind-driven dispersal and spread of plants. Proceedings of the Royal Society B-Biological Sciences 276:3081-3087.

57. **Nathan, R.**, J. M. Bullock, O. Ronce, and F. M. Schurr. (2009). Seed dispersal. *in* Encyclopedia of Life Sciences. John Wiley & Sons, Chichester.

56. Wright, S. J., A. Trakhtenbrot, G. Bohrer, M. Detto, G. G. Katul, N. Horvitz, H. C. Muller-Landau, F. A. Jones, and **R. Nathan**. (2008). Understanding strategies for seed dispersal by wind under contrasting atmospheric conditions. Proceedings of the National Academy of Sciences of the United States of America 105:19084-19089.

55. Holyoak, M., R. Casagrandi, **R. Nathan**, E. Revilla, and O. Spiegel. (2008). Trends and missing parts in the study of movement ecology. Proceedings of the National Academy of Sciences of the United States of America 105:19060-19065.

54. **Nathan, R.**, W. M. Getz, E. Revilla, M. Holyoak, R. Kadmon, D. Saltz, and P. E. Smouse. (2008). A movement ecology paradigm for unifying organismal movement research. Proceedings of the National Academy of Sciences of the United States of America 105:19052-19059. [Classified as "hot paper" (most cited papers of the last 2 years) in the Multidisciplinary category of ISI's Web of Science; Classified as "highly cited paper" (most cited papers of the last 10 years) in the Environment category of ISI's Web of Science; 101 citations in ISI, 1 July 2011]

53. **Nathan, R.** (2008). An emerging movement ecology paradigm. Proceedings of the National Academy of Sciences of the United States of America 105:19050-19051. [Highlighted in the journal's cover photo]

52. **Nathan, R.**, F. M. Schurr, O. Spiegel, O. Steinitz, A. Trakhtenbrot, and A. Tsoar. (2008). Mechanisms of long-distance seed dispersal. Trends in Ecology & Evolution 23:638-647.

51. Mari, L., R. Casagrandi, M. Gatto, T. Avgar, and **R. Nathan**. (2008). Movement strategies of seed predators as determinants of plant recruitment patterns. The American Naturalist 172:694-711.

50. Avgar, T., N. Horvitz, L. Broitman, and **R. Nathan**. (2008). How movement properties affect prey encounter rates of ambush versus active predators: A comment on Scharf et al. American Naturalist 172:593-595.

49. Bohrer, G., G. G. Katul, **R. Nathan, R.** L. Walko, and R. Avissar. (2008). Effects of canopy heterogeneity, seed abscission, and inertia on wind-driven dispersal kernels of tree seeds. Journal of Ecology 96:569-580.

48. Schurr, F. M., O. Steinitz, and **R. Nathan**. (2008). Plant fecundity and seed dispersal in spatially heterogeneous environments: models, mechanisms and estimation. Journal of Ecology 96:628-641. [Highlighted in the journal's cover photo]

47. Bullock, J. M., and **R. Nathan**. (2008). Plant dispersal across multiple scales: linking models and reality. Journal of Ecology 96:567-568.

46. Avgar, T., I. Giladi, and **R. Nathan**. (2008). Linking traits of foraging animals to spatial patterns of plants: social and solitary ants generate opposing patterns of surviving seeds. Ecology Letters 11:224-234. [Highlighted in the journal's cover photo]

45. Spiegel, O., and **R. Nathan**. (2007). Incorporating dispersal distance into the disperser effectiveness framework: frugivorous birds provide complementary dispersal to plants in a patchy environment. Ecology Letters 10:718–728.

44. **Nathan, R.** (2007). Total dispersal kernels and the evaluation of diversity and similarity in complex dispersal systems. Pages 252-276 *in* A. J. Dennis, E. W. Schupp, R. J. Green, and D. A. Westcott, editors. Seed Dispersal: Theory and its Application in a Changing World. CAB International, Wallingford, UK.

43. Bronstein, J. L., I. Izhaki, **R. Nathan**, J. J. Tewksbury, O. Spiegel, A. Lotan, and O. Altstein. (2007). Fleshy-fruited plants and frugivores in desert ecosystems. Pages 148-177 *in* A. J. Dennis, R. J. Green, E. W. Schupp, and D. A. Westcott, editors. Seed dispersal: theory and its application in a changing world. CAB International, Wallingford, UK.

42. Van der Veken, S., J. Rogister, K. Verheyen, M. Hermy, and **R. Nathan**. (2007). Over the (range) edge: a 45-year transplant experiment with the perennial forest herb *Hyacinthoides non-scripta*. Journal of Ecology 95:343-351.

41. González-Martínez, S. C., J. Burczyk, **R. Nathan**, N. Nanos, L. Gil, and R. Alia. (2006). Effective gene dispersal and female reproductive success in Mediterranean maritime pine (*Pinus pinaster* Aiton). Molecular Ecology 15:4577-4588.

40. Troupin, D., **R. Nathan**, and G. G. Vendramin. (2006). Analysis of spatial genetic structure in an expanding *Pinus halepensis* population reveals development of fine-scale genetic clustering over time. Molecular Ecology 15:3617–3630.

39. Buckley, Y. M., S. Anderson, C. P. Catterall, R. T. Corlett, T. Engel, C. R. Gosper, **R. Nathan**, D. M. Richardson, M. Setter, O. Spiegel, G. Vivian-Smith, F. A. Voigt, J. E. S. Weir, and D. A. Westcott. (2006). Management of plant invasions mediated by frugivore interactions. Journal of Applied Ecology 43:848-857.

38. **Nathan, R.** (2006). Long-distance dispersal of plants. Science 313:786-788. [Classified as "highly cited paper" (most cited papers of the last 10 years) in the Environment category of ISI's Web of Science; 150 citations in ISI, 1 July 2011]

37. Bohrer, G., **R. Nathan**, and S. Volis. (2005). Effects of long-distance dispersal for metapopulation survival and genetic structure at ecological time and spatial scales. Journal of Ecology 93:1029-1040. [Highlighted in the journal's cover photo]

36. Neilson, R. P., L. F. Pitelka, A. M. Solomon, **R. Nathan**, G. F. Midgley, J. M. V. Fragoso, H. Lischke, and K. Thompson. (2005). Forecasting regional to global plant migration in response to climate change. Bioscience 55:749-759.

35. Katul, G. G., A. Porporato, **R. Nathan**, M. Siqueira, M. B. Soons, D. Poggi, H. S. Horn, and S. A. Levin. (2005). Mechanistic analytical models for long-distance seed dispersal by wind. American Naturalist 166:368-381.

34. **Nathan, R.**, and G. G. Katul. (2005). Foliage shedding in deciduous forests lifts up long-distance seed dispersal by wind. Proceedings of the National Academy of Sciences of the United States of America 102:8251-8256.

33. Trakhtenbrot, A., **R. Nathan**, G. Perry, and D. M. Richardson. (2005). The importance of long-distance dispersal in biodiversity conservation. Diversity and Distributions 11:173-181. [Classified as "highly cited paper" (most cited papers of the last 10 years) in the Environment category of ISI's Web of Science; 103 citations in ISI, 1 July 2011]

32. **Nathan, R.**, N. Sapir, A. Trakhtenbrot, G. G. Katul, G. Bohrer, M. Otte, R. Avissar, M. B. Soons, H. S. Horn, M. Wikelski, and S. A. Levin. (2005). Long-distance biological transport processes through the air: Can nature's complexity be unfolded *in-silico*? Diversity and Distributions 11:131-137.

31. **Nathan, R.** (2005). Long-distance dispersal research: building a network of yellow brick roads. Diversity and Distributions 11:125-130. [Highlighted in the journal's cover photo]

30. **Nathan, R.** (2005). Transport phenomena research: journeying towards integration. Trends in Ecology & Evolution 20:65-66.

29. Svoray, T., and **R. Nathan**. (2005). Dynamic modelling of the effects of water, temperature and light on tree population spread. Pages 125-135 *in* P. M. Atkinson, G. M. Foody, S. E. Darby, and F. Wu, editors. GeoDynamics. CRC Press, Boca Raton, Florida, USA.

28. Soons, M. B., **R. Nathan**, and G. G. Katul. (2004). Human effects on long-distance wind dispersal and colonization by grassland plants. Ecology 85:3069-3079.

27. Soons, M. B., G. W. Heil, **R. Nathan**, and G. G. Katul. (2004). Determinants of long-distance seed dispersal by wind in grasslands. Ecology 85:3056–3068. [Classified as "highly cited paper" (most cited papers of the last 10 years) in the Environment category of ISI's Web of Science; 73 citations in ISI, 1 July 2011]

26. **Nathan, R.** (2004). Integrating multiple components of long-term tree population dynamics: pine expansion on Mt Pithulim. Pages 10 pp. *in* M. Arianoutsou, editor. MEDECOS X, Proceedings of the 10th International Conference on Mediterranean Climate Ecosystems, Rhodes, Greece.

25. **Nathan, R.**, and R. Casagrandi. (2004). A simple mechanistic model of seed dispersal, predation and plant establishment: Janzen-Connell and beyond. Journal of Ecology 92:733-746.

24. Goubitz, S., **R. Nathan, R.** Roitemberg, A. Shmida, and G. Ne'eman. (2004). Canopy seed bank structure in relation to: fire, tree size and density. Plant Ecology 173:191-201.

23. Ne'eman, G., S. Goubitz, and **R. Nathan**. (2004). Reproductive traits of *Pinus halepensis* in the light of fire - a critical review. Plant Ecology 171:69-79.

22. **Nathan, R.**, and G. Ne'eman. (2004). Spatiotemporal dynamics of recruitment in Aleppo pine (*Pinus halepensis* Miller). Plant Ecology 171:123-137.

21. Levin, S. A., H. C. Muller-Landau, **R. Nathan**, and J. Chave. (2003). The ecology and evolution of seed dispersal: a theoretical perspective. Annual Review of Ecology Evolution and Systematics 34:575-604. [Classified as "highly cited paper" (most cited papers of the last 10 years) in the Environment category of ISI's Web of Science; 158 citations in ISI, 1 July 2011]

20. **Nathan, R.**, G. Perry, J. T. Cronin, A. E. Strand, and M. L. Cain. (2003). Methods for estimating long-distance dispersal. Oikos 103:261-273. [Classified as "highly cited paper" (most cited papers of the last 10 years) in the Environment category of ISI's Web of Science; 143 citations in ISI, 1 July 2011]

19. Cain, M. L., **R. Nathan**, and S. A. Levin. (2003). Long-distance dispersal. Ecology 84:1943-1944.

18. Higgins, S. I., **R. Nathan**, and M. L. Cain. (2003). Are long-distance dispersal events in plants usually caused by nonstandard means of dispersal? Ecology 84:1945-1956. [Classified as "highly cited paper" (most cited papers of the last 10 years) in the Environment category of ISI's Web of Science; 137 citations in ISI, 1 July 2011]

17. Higgins, S. I., J. S. Clark, **R. Nathan**, T. Hovestadt, F. Schurr, J. M. V. Fragoso, M. R. Aguiar, E. Ribbens, and S. Lavorel. (2003). Forecasting plant migration rates: managing uncertainty for risk assessment. Journal of Ecology 91:341-347.

16. **Nathan, R.** (2003). Seeking the secrets of dispersal. Trends in Ecology & Evolution 18:275-276.

15. **Nathan, R.**, G. G. Katul, H. S. Horn, S. M. Thomas, R. Oren, R. Avissar, S. W. Pacala, and S. A. Levin. (2002). Mechanisms of long-distance dispersal of seeds by wind. Nature 418:409-413. [Classified as "highly cited paper" (most cited papers of the last 10 years) in the Environment category of ISI's Web of Science; 203 citations in ISI, 1 July 2011]

14. **Nathan, R.**, H. S. Horn, J. Chave, and S. A. Levin. (2002). Mechanistic models for tree seed dispersal by wind in dense forests and open landscapes. Pages 69-82 *in* D. J. Levey, W. R. Silva, and M. Galetti, editors. Seed dispersal and frugivory: ecology, evolution and conservation. CAB International, Wallingford, UK.

13. Shmida, A., O. Fragman, **R. Nathan**, Z. Shamir, and Y. Sapir. (2002). The Red Plants of Israel: a proposal of updated and revised list of plant species protected by the law. Ecologia Mediterranea 28:55-64.

12. Horn, H. S., **R. Nathan**, and S. R. Kaplan. (2001). Long-distance dispersal of tree seeds by wind. Ecological Research 16:877-885.

11. **Nathan, R.** (2001). The challenges of studying dispersal. Trends in Ecology & Evolution 16:481-483.

10. **Nathan, R.**, U. N. Safriel, and I. Noy-Meir. (2001). Field validation and sensitivity analysis of a mechanistic model for tree seed dispersal by wind. Ecology 82:374-388.

9. **Nathan, R.** (2001). Dispersal biogeography. Pages 127-152 *in* S. A. Levin, editor. Encyclopedia of Biodiversity. First Edition. Academic Press, San Diego. [Fully revised and updated in 2011 for the Second Edition of the Encyclopedia of Biodiversity to be published in 2012]

8. **Nathan, R.**, U. N. Safriel, I. Noy-Meir, and G. Schiller. (2000). Spatiotemporal variation in seed dispersal and recruitment near and far from *Pinus halepensis* trees. Ecology 81:2156-2169.

7. **Nathan, R.**, and H. C. Muller-Landau. (2000). Spatial patterns of seed dispersal, their determinants and consequences for recruitment. Trends in Ecology & Evolution 15:278-285. [Classified as "highly cited paper" (most cited papers of the last 10 years) in the Environment category of ISI's Web of Science; 499 citations in ISI, 1 July 2011]

6. **Nathan, R.**, and G. Ne'eman. (2000). Serotiny, seed dispersal and seed predation in *Pinus halepensis*. Pages 105-118 *in* G. Ne'eman and L. Trabaud, editors. Ecology, biogeography and management of *Pinus halepensis* and *P. brutia* forest ecosystems in the Mediterranean Basin. Backhuys, Leiden, The Netherlands.

5. **Nathan, R.**, U. N. Safriel, I. Noy-Meir, and G. Schiller. (1999). Seed release without fire in *Pinus halepensis*, a Mediterranean serotinous wind-dispersed tree. Journal of Ecology 87:659-669.

4. **Nathan, R.**, and Y. L. Werner. (1999). Reptiles and breeding birds on Mt. Hermon: patterns of altitudinal distribution and species richness. Israel Journal of Zoology 45:1-33.

3. **Nathan, R.**, A. Shmida, and O. Fragman. (1996). Peripherality and regional rarity are positively correlated: quantitative evidence from the Upper Galilee flora (North Israel). Pages 561-564 *in* Y. Steinberger, editor. Preservation of our world in the wake of change. Proceeding of the Sixth International Conference of the Israel Society for Ecology & Environmental Quality Sciences, Jerusalem, June 30 - July 4, 1996. Israel Society for Ecology & Environmental Quality Sciences, Jerusalem.

2. **Nathan, R.**, U. N. Safriel, I. Noy-Meir, and G. Schiller. (1996). Samara's aerodynamic properties in *Pinus halepensis* Mill., a colonizing tree species, remain constant despite considerable variation in morphology. Pages 553-556 *in* Y. Steinberger, editor. Preservation of our world in the wake of change. Israel Society for Ecology & Environmental Quality Sciences, Jerusalem.

1. **Nathan, R.**, U. N. Safriel, and H. Shirihai. (1996). Extinction and vulnerability to extinction at distribution peripheries: an analysis of the Israeli breeding avifauna. Israel Journal of Zoology 42:361-383.