Ran Nathan - Publications

Last update: 1 Feb 2022

Summary: As of February 1st 2022, published 159 peer-reviewed publications, including 4 edited special features, 134 journal articles, 11 book chapters and 10 proceeding papers. Of the 134 journal papers, 109 (81%) were published in highest-ranked journals (Q1, highest quartile within ISI subject category), including 1 paper in *Nature* (2020 ISI-5yr-IF: 54.6, ranked 1/73 in Multidisciplinary Sciences), 5 in *Science* (51.4, 2/73), 2 in *Nature Comm* (15.8, 4/73), 1 in *Sci Advances* (16.4, 5/73), 7 in *PNAS* (12.3, 8/73), 6 in *Trends Ecol Evol* (20.7, 1/166 in Ecology), 1 in *Annu Rev Ecol Evol* (16.4, 3/166) and 6 in *Ecol Letters* (11.7, 8/166). Total number of citations: ISI 12,729; Google Scholar 20,454. H-index: ISI 49, Google Scholar 59.

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. [Classified as "Must Read" by Faculty of 1000, 23 August 2009; see http://f1000.com/1157602]

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

154. **Nathan, R**., C. T. Monk, R. Arlinghaus, T. Adam, J. Alós, M. Assaf, H. Baktoft, C. E. Beardsworth, M. G. Bertram, A. I. Bijleveld, T. Brodin, J. L. Brooks, A. Campos-Candela, S. J. Cooke, K. Ø. Gjelland, P. R. Gupte, R. Harel, G. Hellström, F. Jeltsch, S. S. Killen, T. Klefoth, R. Langrock, R. J. Lennox, E. Lourie, J. R. Madden, Y. Orchan, I. S. Pauwels, M. Říha, M. Roeleke, U. E. Schlägel, D. Shohami, J. Signer, S. Toledo, O. Vilk, S. Westrelin, M. A. Whiteside, and I. Jarić. (2022). Big-data approaches lead to an increased understanding of the ecology of animal movement. Science 375:eabg1780.

153. Standfuß, I., C. Geiß, **R. Nathan**, S. Rotics, M. Scacco, G. Kerr, and H. Taubenböck. (2022). Time series enable the characterization of small-scale vegetation dynamics that influence fine-scale animal behavior – an example from white storks' foraging behavior. Remote Sensing in Ecology and Conservation 8:doi: 10.1002/rse1002.1251.

152. Gupte, P. R., C. E. Beardsworth, O. Spiegel, E. Lourie, S. Toledo, **R. Nathan**, and A. I. Bijleveld. (2022). A guide to pre-processing high-throughput animal tracking data. Journal of Animal Ecology 91:287-307.

151. Lourie, E., I. Schiffner, S. Toledo, and **R. Nathan**. (2021). Memory and conformity, but not competition, explain spatial partitioning between two neighboring fruit bat colonies. Frontiers in Ecology and Evolution 9:732514.

150. Choi, O. N., A. Corl, A. Wolfenden, A. Lublin, S. L. Ishaq, S. Turjeman, **R. Nathan**, W. M. Getz, R. C. Bowie, and P. L. Kamath. (2021). High-throughput sequencing for examining Salmonella prevalence and pathogen-microbiota relationships in barn swallows. Frontiers in Ecology and Evolution 9:683183.

149. Pekarsky, S., I. Schiffner, Y. Markin, and **R. Nathan**. (2021). Using movement ecology to evaluate the effectiveness of multiple human-wildlife conflict management practices. Biological Conservation 262:109306.

148. Liu, J., A. J. Lindstrom, Y. S. Chen, **R. Nathan**, and X. Gong. (2021) Congruence between ocean-dispersal modelling and phylogeography explains recent evolutionary history of Cycas species with buoyant seeds. New Phytologist 232:1863-1875.

147. Engel, A., Y. Reuben, I. Kolesnikov, D. Churilov, **R. Nathan**, and A. Genin. (2021) In situ three-dimensional video tracking of tagged individuals within site-attached social groups of coral-reef fish. Limnology and Oceanography: Methods 9:579-588.

146. Pekarsky, S., A. Corl, S. Turjeman, P. L. Kamath, W. M. Getz, R. C. K. Bowie, Y. Markin, and **R. Nathan**. (2021) Drivers of change and stability in the gut microbiota of an omnivorous avian migrant exposed to artificial food supplementation. Molecular Ecology 30:4723-4739.

145. Lennox, R., S. Westrelin, A. T. Souza, M. Šmejkal, M. Říha, M. Prchalová, **R. Nathan**, B. Koeck, S. Killen, I. Jarić, K. Gjelland, J. Hollins, G. Hellstrom, H. Hansen, S. J. Cooke, D. Boukal, J. L. Brooks, T. Brodin, H. Baktoft, T. Adam, and R. Arlinghaus. (2021). A role for lakes in revealing the nature of animal movement using high dimensional telemetry systems Movement Ecology 9:40.

144. Carlson, B. S., S. Rotics, **R. Nathan**, M. Wikelski, and W. Jetz. (2021). Individual environmental niches in mobile organisms. Nature Communications 12:4572.

143. Yu, H., J. Deng, **R. Nathan**, M. Kröschel, S. Pekarsky, G. Li, and M. Klaassen. (2021). An evaluation of machine learning classifiers for next-generation, continuous-ethogram smart trackers. Movement Ecology 9:15.

142. Beardsworth, C., M. Whiteside, L. Capstick, P. Laker, E. Langley, **R. Nathan**, Y. Orchan, S. Toledo, J. van Horik, and J. Madden. (2021). Spatial cognitive ability is associated with transitory movement speed but not straightness during the early stages of exploration. Royal Society Open Science 8:201758.

141. Turjeman, S., U. Eggers, S. Rotics, W. Fiedler, A. Centeno-Cuadros, M. Kaatz, D. Zurell, F. Jeltsch, M. Wikelski, and **R. Nathan**. (2021) Estimating nest-switching in free-ranging wild birds: an assessment of the most common methodologies, illustrated in the White Stork (*Ciconia ciconia*). Ibis 163:1110-1119.

140. Beardsworth, C. E., M. A. Whiteside, P. R. Laker, **R. Nathan**, Y. Orchan, S. Toledo, J. O. van Horik, and J. R. Madden. (2021) Is habitat selection in the wild shaped by individual-level cognitive biases in orientation strategy? Ecology Letters 24:751-760.

139. Turjeman, S., R. Chen, and **R. Nathan**. (2021). Absence of strict monogamy in the Eurasian jackdaw, *Coloeus monedula*. Israel Journal of Ecology and Evolution 67:107-111.

138. Rotics, S., S. Turjeman, M. Kaatz, D. Zurell, M. Wikelski, N. Sapir, W. Fiedler, U. Eggers, Y. S. Resheff, F. Jeltsch, and **R. Nathan**. (2021). Early-life behaviour predicts first-year survival in a long-distance avian migrant. Proceedings of the Royal Society B: Biological Sciences 288:20202670.

137. Mallon, J. M., M. A. Tucker, A. Beard, R. O. Bierregaard Jr., K. L. Bildstein, K. Böhning-Gaese, J. N. Brzorad, E. R. Buechley, J. Bustamante, C. Carrapato, J. A. Castillo-Guerrero, E. Clingham, M. Desholm, C. R. DeSorbo, R. Domenech, H. Douglas, O. Duriez, P. Enggist, N. Farwig, W. Fiedler, A. Gagliardo, C. García-Ripollés, J. A. Gil Gallús, M. E. Gilmour, R. Harel, A.-L. Harrison, L. Henry, T. E. Katzner, R. Kays, E. Kleyheeg, R. Limiñana, P. López-López, G. Lucia, A. Maccarone, E. Mallia, U. Mellone, E. K. Mojica, **R. Nathan**, S. H. Newman, S. Oppel, Y. Orchan, D. J. Prosser, H. Riley, S. Rösner, D. G. Schabo, H. Schulz, S. Shaffer, A. Shreading, J. P. Silva, J. Sim, H. Skov, O. Spiegel, M. J. Stuber, J. Y. Takekawa, V. Urios, J. Vidal-Mateo, K. Warner, B. D. Watts, N. Weber, S. Weber, M. Wikelski, R. Žydelis, T. Mueller, and W. F. Fagan. (2020). Diurnal timing of nonmigratory movement by birds: the importance of foraging spatial scales. Journal of Avian Biology 51:e02612.

136. Turjeman, S., A. Corl, A. Wolfenden, M. Tsalyuk, A. Lublin, O. Choi, P. L. Kamath, W. M. Getz, R. C. K. Bowie, and **R. Nathan**. Migration, pathogens, and the avian microbiome: a comparative study in sympatric migrants and residents. Molecular Ecology 29:4706-4720.

135. Fandos, G., S. Rotics, N. Sapir, W. Fiedler, M. Kaatz, M. Wikelski, **R. Nathan**, and D. Zurell. (2020). Seasonal niche tracking of climate emerges at the population level in a migratory bird. Proceedings of the Royal Society B: Biological Sciences 287:20201799.

134. Standfuβ, I., C. Geiβ, **R. Nathan**, S. Rotics, S. Dech, and H. Taubenböck. (2020). Stability characterization of the response of white storks' foraging behavior to vegetation dynamics retrieved from LANDSAT time series. Pages 4799-4802 *in* IGARSS 2020-2020 IEEE International Geoscience and Remote Sensing Symposium. IEEE.

133. Toledo, S., D. Shohami, I. Schiffner, E. Lourie, Y. Orchan, Y. Bartan, and **R. Nathan**. (2020). Cognitive map-based navigation in wild bats revealed by a new high-throughput wildlife tracking system. Science 369:188-193. [highlighted in the journal's cover photo, and by a Perspective article by Brock Fenton, *Science* 396:142]

132. Schlägel, U. E., V. Grimm, N. Blaum, P. Colangeli, M. Dammhahn, J. A. Eccard, S. L. Hausmann, A. Herde, H. Hofer, J. Joshi, S. Kramer-Schadt, M. Litwin, S. D. Lozada-Gobilard, M. E. H. Müller, T. Müller, **R. Nathan**, J. S. Petermann, K. Pirhofer-Walzl, V. Radchuk, M. C. Rillig, M. Roeleke, M. Schäfer, C. Scherer, G. Schiro, C. Scholz, L. Teckentrup, R. Tiedemann, W. Ullmann, C. C. Voigt, G. Weithoff, and F. Jeltsch.

Movement-mediated community assembly and coexistence. Biological Reviews 95:1073–1096.

131. Corl, A., M. Charter, G. Rozman, S. Toledo, S. Turjeman, P. L. Kamath, W. M. Getz, **R. Nathan**, and R. C. K. Bowie. (2020). Movement ecology and sex are linked to barn owl microbial community composition. Molecular Ecology 29:1358-1371.

130. Becciu, P., S. Rotics, N. Horvitz, M. Kaatz, W. Fiedler, D. Zurell, A. Flack, F. Jeltsch, M. Wikelski, **R. Nathan**, and N. Sapir. (2020). Causes and consequences of facultative sea crossing in a soaring migrant. Functional Ecology 34:840-852.

129. Nield, A., **R. Nathan**, P. Ladd, N. Enright, and G. Perry. (2020). The spatial complexity of seed movement: animal-generated seed dispersal patterns in fragmented landscapes revealed by animal movement models. Journal of Ecology 108:687-701.

128. Efrat, R., O. Hatzofe, and **R. Nathan**. (2019) Landscape-dependent time versus energy optimizations in pelicans migrating through a large ecological barrier. Functional Ecology 33:2161-2171.

127. Smith, A., H. Kujala, J. Lahoz-Monfort, L. Guja, E. Burns, **R. Nathan**, E. Alacs, P. Barton, S. Bau, D. Driscoll, P. Lentini, A. Mortelliti, R. Rowe, and Y. Buckley. (2019). Managing uncertainty in movement knowledge for environmental decisions. Conservation Letters 12:e12620.

126. Miao, Z., K. M. Gaynor, J. Wang, Z. Liu, O. Muellerklein, M. S. Norouzzadeh, A. McInturff, R. C. K. Bowie, **R. Nathan**, S. X. Yu, and W. M. Getz. (2019). Insights and approaches using deep learning to classify wildlife. Scientific Reports 9:8137.

125. Wang, X., L. Cao, A. D. Fox, R. Fuller, L. Griffin, C. Mitchell, Y. Zhao, O.-K. Moon, D. Cabot, Z. Xu, N. Batbayar, A. Kolzsch, H. van der Jeugd, J. Madson, L. Chen, and **R. Nathan**. (2019). Stochastic simulations reveal few green wave surfing populations among spring migrating herbivorous waterfowl. Nature Communications 10:2187.

124. Noonan, M. J., M. A. Tucker, C. H. Fleming, T. Akre, S. C. Albertz, A. H. Ali, J. Altmann, P. C. Antunes, J. L. Belant, D. Berens, D. Beyer, N. Blaum, K. Böhning-Gaese, L. C. Jr., R. C. d. Paula, J. Dekker, J. Drescher-Lehman, N. Farwig, C. Fichtel, C. Fischer, A. Ford, J. R. Goheen, R. Janssen, F. Jeltsch, M. Kauffman, P. Kappeler, F. Koch, S. LaPoint, A. C. Markham, E. P. Medici, R. G. Morato, **R. Nathan**, L. G. R. Oliveira-Santos, B. D. Patterson, A. Paviolo, E. E. Ramalho, S. Roesner, N. Selva, A. Sergiel, M. X. Silva, O. Spiegel, W. Ullmann, F. Zieba, T. Zwijacz-Kozica, W. F. Fagan, T. Mueller, and J. M. Calabrese. (2019). Which home range estimator should I use? An analysis of autocorrelation and bias in home range estimation. Ecological Monographs 89:e01344.

123. Tucker, M. A., O. Alexandrou, R. O. Bierregaard Jr., K. L. Bildstein, K. Böhning-Gaese, C. Bracis, J. N. Brzorad, E. R. Buechley, D. Cabot, J. M. Calabrese, C. Carrapato, A. Chiaradia, L. C. Davenport, S. C. Davidson, M. Desholm, C. R. DeSorbo, R. Domenech, P. Enggist, W. F. Fagan, N. Farwig, W. Fiedler, C. H. Fleming, A. Franke, J. M. Fryxell, C. García-Ripollés, D. Grémillet, L. R. Griffin, R. Harel, A. Kane, R. Kays, E. Kleyheeg, A. E.

Lacy, S. LaPoint, R. Limiñana, P. López-López, A. D. Maccarone, U. Mellone, E. K. Mojica, **R. Nathan**, S. H. Newman, M. J. Noonan, S. Oppel, M. Prostor, E. C. Rees, Y. Ropert-Coudert, S. Rösner, N. Sapir, D. Schabo, M. Schmidt, H. Schulz, M. Shariati, A. Shreading, J. Paulo Silva, H. Skov, O. Spiegel, J. Y. Takekawa, C. S. Teitelbaum, M. L. van Toor, V. Urios, J. Vidal-Mateo, Q. Wang, B. D. Watts, M. Wikelski, K. Wolter, R. Žydelis, and T. Mueller. (2019) Large birds travel farther in homogeneous environments. Global Ecology and Biogeography 28:576-587.

122. Efrat, R., R. Harel, O. Alexandrou, G. Catsadorakis, and **R. Nathan**. (2019). Seasonal differences in energy expenditure, flight characteristics and spatial utilization of Dalmatian Pelicans *Pelecanus crispus* in Greece. Ibis 161:415–427.

121. Rotics, S., M. Kaatz, S. Turjeman, D. Zurell, M. Wikelski, N. Sapir, U. Eggers, W. Fiedler, F. Jeltsch, and **R. Nathan**. (2018) Early arrival at breeding grounds: causes, costs and a trade-off with overwintering latitude. Journal of Animal Ecology 87:1627-1638.

120. Harel, R., and **R. Nathan**. (2018). The characteristic time scale of perceived information for decision-making: departure from thermal columns in soaring birds. Functional Ecology 32:2065-2072.

119. Zurell, D., H. von Wehrden, S. Rotics, M. Kaatz, H. Groß, L. Schlag, M. Schäfer, N. Sapir, S. Turjeman, M. Wikelski, **R. Nathan**, and F. Jeltsch. (2018). Home range size and resource use of breeding and non-breeding white storks along a land use gradient. Frontiers in Ecology and Evolution 6:79.

118. Toledo, S., Y. Orchan, D. Shohami, M. Charter, and **R. Nathan**. (2018). Physical-Layer Protocols for Lightweight Wildlife Tags with Internet-of-Things Transceivers. *in* 19th IEEE International Symp. World of Wireless, Mobile and Multimedia Networks (WOWMOM18) IEEE, Crete, Greece.

117. Tucker, M. A., K. Böhning-Gaese, W. F. Fagan, J. M. Fryxell, B. V. Moorter, S. C. Alberts, A. H. Ali, A. M. Allen, N. Attias, T. Avgar, H. Bartlam-Brooks, B. Buuveibaatar, J. L. Belant, A. Bertassoni, D. Beyer, L. Bidner, F. M. v. Beest, S. Blake, N. Blaum, C. Bracis, D. Brown, P. N. d. Bruyn, F. Cagnacci, J. M. Calabrese, C. Camilo-Alves, S. Chamaillé-Jammes, A. Chiaradia, S. C. Davidson, T. Dennis, S. DeStefano, D. Diefenbach, I. D. Hamilton, J. Fennessy, C. Fichtel, W. Fiedler, C. Fischer, I. Fischhoff, C. H. Fleming, A. T. Ford, S. A. Fritz, B. Gehr, J. R. Goheen, E. Gurarie, M. Hebblewhite, M. Heurich, A. J. M. Hewison, C. Hof, E. Hurme, L. A. Isbell, R. Janssen, F. Jeltsch, P. Kaczensky, A. Kane, P. Kappeler, M. Kauffman, R. Kays, D. Kimuyu, F. Koch, B. Kranstauber, S. LaPoint, P. Leimgruber, J. D. C. Linnell, P. López-López, A. C. Markham, J. Mattisson, E. P. Medici, U. Mellone, E. Merrill, G. d. M. Mourão, R. G. Morato, N. Morellet, T. Morrison, S. L. Díaz-Muñoz, A. Mysterud, D. Nandintsetseg, **R. Nathan**, A. Niamir, J. Odden, R. B. O'Hara, L. G. R. Oliveira-Santos, K. A. Olson, B. D. Patterson, R. C. d. Paula, L. Pedrotti, B. Reineking, M. Rimmler, T. L. Rogers, C. M. Rolandsen, C. S. Rosenberry, D. I. Rubenstein, K. Safi, S. Saïd, N. Sapir, H. Sawyer, N. M. Schmidt, N. Selva, A. Sergiel, E. Shiilegdamba, J. P. Silva, N. Singh, E. J. Solberg, O. Spiegel, O. Strand, S. Sundaresan, W. Ullmann, U. Voigt, J. Wall, D. Wattles, M. Wikelski, C. C. Wilmers, J. W. Wilson, G. Wittemyer, F. Zięba, T. Zwijacz-Kozica, and T. Mueller. (2018). Moving in the Anthropocene: global reductions

in terrestrial mammalian movements. Science 359:466-469. [highlighted in the journal's cover photo; Classified as "hot paper" (most cited papers of the last 2 years) in the Ecology category of ISI's Web of Science; >500 citations in Google Scholar]

116. Weegman, M., S. Bearhop, G. M. Hilton, A. J. Walsh, L. Griffin, Y. S. Resheff, **R. Nathan**, and A. D. Fox. 2017. Using accelerometry to compare costs of extended migration in an Arctic herbivore. Current Zoology 63:667–674. [highlighted in the journal's cover photo]

115. Centeno-Cuadros, A., P. Hulva, D. Romportl, S. Santoro, T. Stribna, D. Shohami, A. Evin, A. Tsoar, P. Benda, I. Horacek, and **R. Nathan**. (2017). Habitat use, but not gene flow, is influenced by human activities in two ecotypes of Egyptian fruit bat (*Rousettus aegyptiacus*). Molecular Ecology 26:6224-6237.

114. Rotics, S., S.M. Turjeman, M. Kaatz, Y. S. Resheff, D. Zurell, N. Sapir, U. Eggers, W. Fiedler, A. Flack, F. Jeltsch, M. Wikelski, and **R. Nathan.** (2017). Wintering in Europe instead of Africa enhances juvenile survival in a long-distance migrant. Animal Behaviour 126:79-88.

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100. Resheff, Y. S., S. Rotics, **R. Nathan**, and D. Weinshall. (2015). Matrix factorization approach to behavioral mode analysis from acceleration data. Pages 1-6 in: IEEE/ACM International Conference on Data Science and Advanced Analytics (DSAA), Paris, 2015.

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