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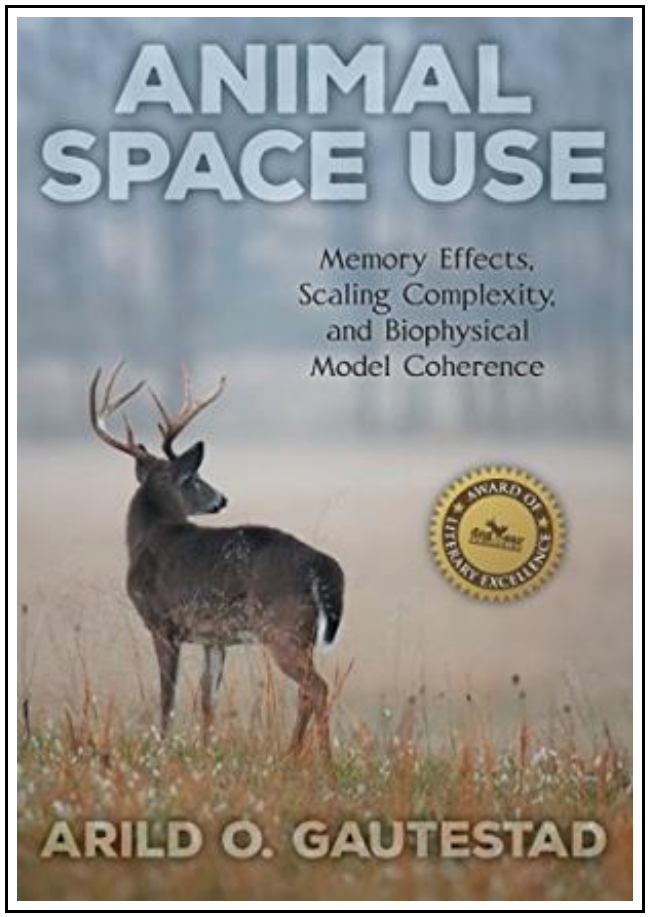

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ANIMAL SPACE USE: MEMORY EFFECTS, SCALING COMPLEXITY, AND BIOPHYSICAL MODEL COHERENCE

Dog Ear Publishing, United States, 2015. Paperback. Book Condition: New. 244 x 170 mm. Language: English . Brand New Book ***** Print on Demand *****.Animal space use is complex, both from the individual and the population perspective. Spatial memory leads to site fidelity, emergence of home ranges, and multi-scaled use of the environment, and attraction to conspecifics-another memory-dependent property-contributes to population survival by counteracting decline in local abundance from unconstrained dispersal. However, memory effects, multi-scaled space use, and intra-specific cohesion present deep theoretical challenges for biophysical modeling. Animal Space Use presents a range of system descriptors, model designs, and simulations; intrinsic properties from memory and scaling are illustrated in detail, and classical models are scrutinized with respect to compliance with real data. The presentations of concepts are geared towards a broad audience of researchers and students with interest in animal space use. A joint effort between biologists, physicists, and statisticians is now on track to provide a more coherent theory for ecological inference-with a potential for stronger predictive power of ecological models than from more classical approaches. In Animal Space Use, Dr. Arild Gautestad advocates that an extension of the biophysical frame of reference may be needed to understand systems that express intrinsic complexity from the combined effects of scaling and memory. Any scientist in the field of animal ecology should stay abreast of the rapidly developing theory and applications of complex biophysics. This bold, provocative book provides an overview, a critical evaluation of existing concepts, and a wide range of theoretical proposals to resolve present challenges. About the Author Dr. Arild O. Gautestad is a theoretical ecologist with particular interest in biophysical aspects of animal space use. For more than 25 years, he has studied individual movement and population kinetics by constructing mathematical models, performing computer simulations, and testing...

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