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## Gordon Orians



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### Introduction

Gordon Howard Orians (born July 10, 1932) is Professor Emeritus at the University of Washington and a noted ornithologist and ecologist. He completed his PhD in Zoology in 1960 at the University of California at Berkeley and has been at the University of Washington ever since. His doctoral dissertation on social systems of marsh-nesting blackbirds was instrumental in establishing the emerging discipline of behavioral ecology. An investigator in the fields of ecology, evolutionary biology, and animal behavior, he is the author of numerous scientific journal articles and books and the recipient of many national and international awards.

### American Blackbirds

As a vertebrate zoologist at the University of Washington, he focused his attention on American blackbirds of the family Icteridae due to his interest in the various types of avian social organization – territorial, colonial, polygamous, and brood parasitism. His work in this area

produced theoretical papers as well as tests using experimental manipulations and comparative analyses of interspecific patterns. Many students will recognize Orians as the coauthor of a widely used introductory biology text (Purves et al. 1992). His scientific books include monographs on blackbirds and an edited volume on biodiversity in tropical forests.

### Community Ecology

It is well-known but still surprising that in most environments herbivores consume a relatively small proportion of the biomass of green plants. Orians pointed to the possible role of chemical defenses of plants against grazing as an explanation for this intriguing pattern in community ecology. He conducted research on the types of defensive chemicals synthesized by different kinds of plants, how their production may be stimulated by herbivore attacks, and how herbivores neutralize toxic chemicals produced by plants. Plant-defensive chemistry, he concluded, is part of the explanation for why the world is so green.

### Savanna Hypothesis

According to the savanna hypothesis, our current habitat preferences were shaped by selection pressures in our ancestral past (Orians 1980, 1986). In

a broad sense, the savanna hypothesis addresses the issue of how we select places to live and why we find some landscapes more beautiful than others. The theory argues that selection favored preferences, motivations, and decision rules that attract us to resource rich environments while avoiding environments populated with survival threats and lacking resources. The African savanna, widely believed to be the site in which humans originated, fulfills these requirements.

The details of the savanna hypothesis include three stages of habitat selection: *selection*, *information gathering*, and *exploitation* (Orians and Heerwagen 1992). The primary decision faced in stage 1 is whether to canvass or flee a landscape upon initial encounter. Assuming the experience in first stage is decent, individuals begin exploring the environment for resources and possible hazards. Stage 2, *information gathering*, involves mentally mapping the area for hidden places to harbor oneself, family, and allies. The decision of whether to stay or leave is at the heart of stage 3, *exploitation*. This final stage involves elaborate mental calculations that help to determine if one should stay long enough to enjoy the full bounty of resources available in the habitat.

### **Snakes, Sunrises, and Shakespeare: How Evolution Shapes Our Loves and Fears**

In his book, *Snakes, Sunrises, and Shakespeare: How Evolution Shapes Our Loves and Fears*, Gordon Orians explores the role of evolution in human responses to the environment, arguing that many of our aesthetic preferences – from landscape beauty to food and entertainment – are the lingering result of natural selection.

Orians reveals how our lives today are shaped by decisions our ancestors made generations ago on African savannas. During this time humans selected places to live, sought food and safety, and socialized in small hunter-gatherer groups. Through this process specific likes and dislikes became wired in our brains, as the appropriate responses to the environment meant the difference between survival and death. He explains in rich detail why we prefer parks and gardens with

tropical savanna elements, why we have developed discerning palates for wine, and why we find some odors unbearable.

### **Awards and Service to the Profession**

In addition to his research in behavioral ecology, he devoted great effort to the interface between science and public policy. From the beginning of his career, Orians has taken an active interest in environmental problems, often taking positions within organizations that aid in the preservation of biodiversity. He was the director of the University of Washington's Institute for Environmental Studies for 11 years, served two terms on the board of directors of the World Wildlife Fund-US, and was the president of the Organization for Tropical Studies for 8 years. Orians has served his profession as a member of the US National Academy of Sciences and the American Academy of Arts and Sciences and is the past chairman of the Board on Environmental Studies and Toxicology of the National Research Council. In 1999, the Cooper Ornithological Society presented him with the Loye and Alden Miller Research Award for lifetime achievement in ornithological research.

### **Conclusions**

For more than five decades, Gordon Orians has been an influential figure in the field of biology – especially on the topics of territoriality, habitat selection, mating systems, and population studies. Modern behavioral ecology owes a debt to his pioneering research.

### **Cross-References**

- ▶ [Ancestral Threats vs. Modern Threats](#)
- ▶ [Landscape Preferences: Climate and Weather](#)
- ▶ [Natural vs. Artificial Environments](#)
- ▶ [Savanna Hypothesis and Landscape Preferences, The](#)

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