

# Introduction to Special Section on Fire Human Ecology

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Human Ecology, as an interdisciplinary field of study, deals primarily with how human groups adapt to their environment and adapt their environment to their living wants and needs. As such, human ecology tends to be an autecological (single species focused) rather than a synecological (multi-species, or biological community focused) transdiscipline (Odum 1971). Nevertheless, it remains an extremely complex, difficult field of study for many reasons, not the least because the researcher is a member of the study population.

One means of bringing the study of human ~ environment interaction into manageable terms is to view humankind from the perspective of some single limiting or overriding factor. The study of human groups in relation to the flow of energy is one way of viewing human ecology from an overriding factor perspective. Another point of view, examining human ecology from an ecological limiting factor perspective, is to examine how people adapt, or fail to adapt, to fire as a predictably recurring factor in their living environment of choice. Indeed, a subfield of ecology that has gained recognition over the past several decades is “fire ecology,” examining fire regimes of various wildland ecosystems and how different plant and animal species and communities have adapted to this recurring, potentially destructive phenomenon.

Demographic patterns in the United States over the past century have shown an increasing tendency for people to occupy fringe areas as living space; to abandon urban core areas and move first to the suburbs, then more recently to the edge of the surrounding agricultural or wildland space. During the 20th century, the dominant human response to fire in the wildland forests, grasslands, or shrublands was to suppress all fires. Indeed, the U.S. Forest Service, in the 1930s, developed policies to restrict all forest fires to 10 acres or less, if possible, and later, to contain all wildfires by 10:00 a.m. the day following discovery of the fire: the “10:00 a.m. Rule” (see Pyne 1997).

Although there was an inherent logic for resource management agencies to not let the resources they were responsible for burn up, natural cycles of fire in wildland environments were not to be denied forever. The long term effect has been a heavy buildup of biomass accumulation in many wildlands which equates to much higher fuel loadings for wildland fire. This phenomenon, combined with the increasing incursion of human residence into the wildland interface<sup>2</sup>

areas of the country, has resulted in increasing fire hazard for people and their properties. How people adapt to this environment, its fire regime, and cope with the increasing danger of high intensity fire is the subject of fire human ecology.

In this special section of *Human Ecology Review*, we examine the relationship between people and fire in wildland environments from several perspectives. Cynthia Fowler and Evelyn Konopik examine how people in a succession of cultures in the southeastern U.S., from pre-Columbian through post-European settlement, have lived with fire and used it to their advantage. As the authors state, they view this interaction from two perspectives: looking at “fire through people’s eyes” and “people through fire’s eyes.”

Brad Weisshaupt, Matt Carroll and their colleagues met with contemporary homeowners in the northwest U.S. to examine their perceptions of fire risk in their chosen living environment, as well as their perceptions of who bears the responsibility for their safety. Although, as they quote Beebe and Omi (1993), “. . . people have a remarkable ability to live in hazardous places with relative equanimity—either by denying that a hazard is likely to occur or by discounting its potential impact,” they conclude that residents of the wildland interface agree that they should take responsibility for the consequences of their own decisions to live in that environment.

Pam Jakes and her colleagues report on a series of case studies of communities taking action to adapt themselves to the wildland environment and the fire regimes inherent there. They examine the various elements in this adaptation: the importance of people understanding the ecological conditions of the landscape they occupy; the role of several levels of government in aiding the adaptation process and providing fire protection; the human capital developed through the experience of living in the interface; and the social capital of communities and community leaders to mobilize needed resources. A Human Ecology principle illustrated in this article is that human adaptation to environment is not simply a matter of individual adaptation, but must be adaptation at several scales—personal, community and institutional.

Jonathan Taylor and his colleagues examined the process of communication during wildland fire to see if there were disconnects between those attempting to disseminate information and those seeking information as their communities were affected by wildland fire. Disconnects can occur in tim-

ing, content, or selected communication media. They conclude that wildland interface residents are desperate for “real-time” place-specific information, which is not necessarily forthcoming from the official or the media information channels accessible to them.

Alan Bright and his fellow researchers searched for characteristics of affected people that might explain differences in public acceptance of different fire-prevention or control treatments as well as perceptions of who is responsible for protection against wildland fire. They determine that human tendencies toward being individualistic vs. non-individualistic explain much of those differences.

Jerry Vaske and his colleagues surveyed Coloradoans to examine social trust and attitudes toward different wildland fire management approaches. Their results support previous research conclusions that social trust and sharing of values with management agencies correlate strongly with public approval of prescribed burning and mechanical treatments as fire mitigation actions.

Finally, Ron Hodgson examines the relationship between emotions and people’s attempts to make sense of a natural disaster situation such as a wildland fire. People work to construct “stories” to make plausible sense explaining what is happening to them and their environment. This sensemaking can be helpful in people’s decisions about how to act in a fire situation, and how to adapt to rapidly changing conditions. However, sensemaking stories are not always adaptive in such situations, sometimes moving to fix blame on some person or entity for what has happened. For fire managers, being engaged in community sensemaking can be beneficial to both the communities and to the fire managers’ efforts, a conclu-

sion shared with Taylor et al.’s study, in which Dr. Hodgson participated.

A theme through all of these articles, with the exception of the historical review, is the need for close attention to the interaction between residents of the wildland interface and the various levels and fire-functions of government in these areas. The approaches to studying this human ~ environment interaction are eclectic: varying from historical literature review to theoretical examination; from exploratory, applied research to empirical hypothesis testing. But each makes some substantial contribution to understanding one element in humans’ adaptation to their environments of choice: recognizing and responding to fire as a human ecological limiting factor.

## Endnotes

1. Author to whom correspondence should be directed: Jonathan G. Taylor, E-mail: thebears@frii.com
2. The term “Wildland Urban Interface,” or WUI, is most commonly used when speaking of this zone. However, residents of these areas do not perceive themselves as living in an “urban” environment, so we refer to this zone here simply as the wildland interface.

## References

- Beebe, G.S., and P.N. Omi. 1993. Wildland burning: The perception of risk. *Journal of Forestry* 91, 9, 19-24.
- Odum, E.P. 1971. *Fundamentals of Ecology*. Philadelphia: Saunders.
- Pyne, S.J. 1997. *Fire in America: A Cultural History of Wildland and Rural Fire*. Seattle: University of Washington Press.