

Chapter 1

Thirty Years of the United States Regional Association of the International Association for Landscape Ecology: The Evolution of Its Organization and Science

Gary W. Barrett, Jianguo Wu and Terry L. Barrett

Introduction

This book accounts the early history of the United States Regional Association of the International Association for Landscape Ecology (USIALE). In Chap. 1, we describe the revision in mission of USIALE that was influenced by officers during the first 30 years since its conception, recipients of society awards, timelines of annual symposia, and hosts for these annual events.

Chapter 2, prepared by Richard T. T. Forman, traces the USIALE evolution from and early relationship to the International Association for Landscape Ecology (IALE). This chapter describes early meeting sites of IALE, and individual leadership that emanated from the United States during these formative years.

Chapter 3, prepared by Gary W. Barrett, outlines his role as ecology program director with the National Science Foundation during the early 1980s, when he recommended funding for the Allerton Park Workshop held in Piatt County, Illinois from 25 to 27 April 1983. This workshop became the catalyst and a milestone in the establishment of landscape ecology in North America (Risser 1995; Wiens 2008; Risser and Iverson 2013; Wu 2013a).

Monica G. Turner, in Chap. 4, describes the first meeting of USIALE held at the University of Georgia from 15 to 16 January 1986. The late Frank B. Golley

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interacted with Turner in hosting this initial symposium entitled “The Role of Landscape Heterogeneity in the Spread of Disturbance.” The USIALE 25th anniversary symposium returned to the University of Georgia from 5 to 9 April 2010 with Gary W. Barrett and Terry L. Barrett as co-program chairs and cohosts. The theme of this 25th symposium was “Is What Humans Do Natural?”

The first volume of the journal *Landscape Ecology* was published in 1987 with Frank B. Golley serving as founding editor-in-chief. In Chap. 5, the current editor-in-chief of *Landscape Ecology*, Jianguo (Jingle) Wu, provides a historical perspective of the evolution of this quintessential transdisciplinary journal.

Chapter 6 provides a glimpse of the numerous challenges faced by several past presidents of USIALE; they also describe benchmark events, policy changes, and administrative directions during their tenure as president. Chapter 7, prepared by Gary W. Barrett and Herman (Hank) Shugart, presents an overview of landscape-level research developments during the past 30 years; they briefly address how landscape-level ecological changes, instrumentation refinement, and large-scale perturbations have changed the field of landscape ecology. They relate these changes to significant theories, principles, and approaches that have emerged in landscape ecology during the past three decades (i.e., since the Allerton Park workshop).

Terry L. Barrett and Gary W. Barrett, in Chap. 8, consider fields of study relevant to landscape ecology, organizational models, and changing parameters of landscape study. John A. Wiens and Richard J. Hobbs in Chap. 9 provided a holistic perspective contrasting the evolution of landscape ecology between two continents—namely, North America and Australia.

Robert V. O’Neill, in Chap. 10, describes how scientists from Oak Ridge National Laboratory (ORNL) have made major contributions to the development and evolution of landscape ecology during these past three decades. O’Neill discusses the leadership, research environment, close collaboration, and interdisciplinary approaches that made ORNL a “hotbed” of advanced theories, integrative research, and holistic approaches in the field of landscape ecology. ORNL perhaps has been one of the leading centers for landscape ecology in training, productivity, and interdisciplinary research; O’Neill describes the history and reasons for this success.

In Chap. 11, the coeditors of this volume discuss a future of USIALE, including collaborative possibilities, research foci, and a broaden universe of landscape.

Mission and Actions of USIALE

Permit us to now note the purpose of USIALE. The purpose of the Regional Association of the IALE shall be to foster landscape ecology in the United States; provide a link among persons concerned with landscape ecology in the United States and IALE, and other Regional associations of IALE; and promote interdisciplinary research and communication among scientists, planners, and other professionals concerned with landscape ecology in the United States and colleagues in other countries under the aegis of IALE.

Table 1.1 USIALE Presidents and terms of service

Name of the president	Term of service
David M. Sharpe	1986–1988
Gary W. Barrett	1988–1990
Joan I. Nassauer	1990–1992
Thomas R. Crow	1992–1994
Monica G. Turner	1994–1996
Louis R. Iverson	1996–1998
Jack Ahern	1998–2000
Virginia Dale	2000–2002
Eric J. Gustafson	2002–2004
Peter August	2004–2006
Robert H. Gardner	2006–2008
Jianguo Liu	2008–2010
Dean L. Urban	2010–2012
Kurt Ritters	2012–2014

The president of USIALE is responsible for the leadership to carry out this mission. Above are the 14 presidents of USIALE who have served this leadership position with distinction (Table 1.1).

Perhaps the next most challenging leadership task is hosting the annual symposia, including selecting the theme for this annual event. Below is the record of USIALE symposia, the location of each symposium, and the local host responsibilities for this special event (Table 1.2).

USIALE presents two annual awards for those individuals who have served with distinction in the field of landscape ecology. The prestigious awards are the Distinguished Landscape Ecologist (Fig. 1.1), and Distinguished Landscape Practitioner (Fig. 1.2). These awards represent the highest USIALE honor bestowed on these recipients. The recipients of these awards are listed in Tables 1.3a and b, respectively.

Other USIALE special awards include the Distinguished Service Award and Outstanding Paper in *Landscape Ecology*, which may be accessed in the *USIALE Executive Committee Handbook*.

We would remiss if we did not recognize the outstanding services contributed to USIALE by Forest Stearns (1995 Distinguished Service Citation), Richard T. T. Forman (1997 Outstanding Book Published in Landscape Ecology) for *Land Mosaic*, Cambridge Press, 1995, Frank B. Golley (1998 Outstanding Service Award), Eugene P. Odum (1998 Distinguished Service Award), Jerry F. Franklin (2001 Leadership Action Award) David J. Mladenoff (2005 Distinguished Service Award), Garik Gutman, William Taylor, Jianguo Liu (2006 Distinguished Service Award), Monica Turner (2010 Distinguished Service Award), and Jianguo Wu (2012 Distinguished Service Award).

Table 1.2. Timeline of USIALE Symposia from 1986 through 2013

Year	Location	Host	Theme of symposium	Program chair
1986	University of Georgia Athens GA	Monica G. Turner	<i>The Role of Landscape Heterogeneity in the Spread of Disturbance</i>	Frank B. Golley
1987	University of Virginia Charlottesville VA	William E. Odum	<i>The Influence of Land-Use Pattern on Landscape Function: Ecological Theory and Management Implications</i>	Monica G. Turner
1988	University of New Mexico Albuquerque NM	Bruce T. Milne	<i>Observations Across Scales: The Structure, Function, and Management of Landscapes</i>	Monica G. Turner
1989	Colorado State University Fort Collins CO	Ingrid C. Burke	<i>Linking Landscape Structure to Ecosystem Processes</i>	James F. Thorne
1990	Miami University Oxford OH	John L. Vankat, Gary W. Barrett	<i>The Role of Landscape Ecology in Public Policy-Making and Land-Use Management</i>	James F. Thorne
1991	Carleton University Ottawa ON	Gray Merriam	<i>Farming Landscape and Natural Values Combined with third IALE World Congress</i>	Louis R. Iverson
1992	Oregon State University Corvallis OR	Robert Lackey, Michael Cairns	<i>Regional Landscape Change: Impacts of Climate and Land Use</i>	Louis R. Iverson
1993	Oak Ridge TN	Monica G. Turner	<i>Pattern and Process in Landscape Ecology</i>	Margaret M. Moore
1994	University of Arizona Tucson AZ	Guy R. McPherson	<i>Spatial and Temporal Models for Analyzing Pattern and Process in Landscapes</i>	Margaret M. Moore, Jeffrey C. Klopatek
1995	University of Minnesota Minneapolis MN	Joan I. Nassauer, Lucinda Johnson	<i>Working in a World Dominated by Humans</i>	Jeffrey C. Klopatek, Dean L. Urban
1996	Galveston TX	Robert G. Coulson, Robert Giordano	<i>Integration of Cultural and Natural Ecosystems Across Landscapes: Applications of the Science</i>	Dean L. Urban, Kevin Gutzwiller
1997	Duke University Durham NC	Dean L. Urban	<i>The Pace and Pattern of Landscape Change</i>	Kevin Gutzwiller, John A. Wiens
1998	Michigan State University East Lansing MI	Jianguo Liu, William Taylor	<i>The Role of Landscape Ecology in Natural Resource Management</i>	John A. Wiens, Fred Sklar
1999	Snowmass CO	John A. Wiens	<i>Landscape Ecology: The Science and the Action Combined with Fifth IALE World Congress</i>	Fred Sklar

Table 1.2 (continued)

Year	Location	Host	Theme of symposium	Program chair
2000	Fort Lauderdale FL	Fred Sklar, Yegang Wu	<i>Integration of Societal and Landscape Heterogeneity: Problems and Solutions</i>	Fred Sklar
2001	Arizona State University Tempe AZ	Jianguo (Jingle) Wu	<i>Pattern, Process, Scale, and Hierarchy: Interactions in Human-Dominated and Natural Landscapes</i>	Laura Musacchio
2002	University of Nebraska Lincoln NE	Jim Merchant, Geoff Henebry	<i>Landscapes in Transition: Cultural Drivers and Natural Constraints</i>	Geoff Henebry
2003	Banff AB	Marie-Josée Fortin, Bruce T. Milne	<i>Beyond Borders: Linking Landscapes</i>	Bruce T. Milne
2004	Las Vegas NV	Nita Tallent-Halsell, K. Bruce Jones	<i>Transdisciplinary Challenges in Landscape Ecology</i>	K. Bruce Jones
2005	SUNY-ESF Syracuse NY	Jim Palmer	<i>Landscape Ecology: At the Intersection</i>	George Hess
2006	San Diego CA	Janet Franklin	<i>Linking Landscapes and Seascapes: Conservation and Ecosystem Management at the Land-Sea Interface</i>	Sarah C. Goslee
2007	University of Arizona Tucson AZ	Don McKenzie, Robert Keane, John Dibari	<i>Disturbances Across Gradients: From Desert Stears to Mountain Islands</i>	Robert Keane
2008	University of Wisconsin Madison WI	Monica Turner, Phil Townsend	<i>Landscape Pattern and Ecosystem Processes</i>	Sarah C. Goslee
2009	Snowbird UT	John Bissonette, Tom Edwards	<i>Coupling Humans and Complex Ecological Landscapes</i>	Tom Edwards
2010	University of Georgia Athens GA	Gary W. Barrett, Terry L. Barrett	<i>Is What Humans Do Natural?</i>	Terry L. Barrett, Gary W. Barrett
2011	Portland OR	Anita Morzillo, Rob Scheller	<i>Sustainability in Dynamic Landscapes</i>	Rebecca Kennedy
2012	Newport RI	Pete August, Ann Kuhn-Himes	<i>Informing Decisions in a Changing World</i>	Jeff Hollister
2013	Austin TX	Wendy S. Gordon, Timothy H. Keitt	<i>Landscape Dynamics Along Environmental Gradients</i>	Timothy H. Keitt, Kenneth R. Young



Frank B. Golley
1990-1991



Richard T. T. Forman
1992



Robert H. Gardner
1994



Robert V. O'Neill
1995



John A. Wiens
1996



Gray Merriam
1997



Monica G. Turner
1998



Paul G. Risser
2000



Gary W. Barrett
2001



Louis R. Iverson
2002



Simon A. Levin
2003



Thomas R. Crow
2004



H. Ronald Pulliam
2005



Bruce T. Milne
2006



Eric J. Gustafson
2007



Herman H. Shugart
2009

Fig. 1.1 Portraits of USIALE Distinguished Landscape Ecologists from 1990 to 2013. (Images Courtesy of Jianguo Wu)



Fig. 1.1 (continued)



Fig. 1.2 Wes H. Jackson, The Land Institute, Salina, Kansas, 2010 Distinguished Landscape Ecology Practitioner Award recipient (*middle*) shown with friend Robert French (*left*) and invited speaker for the 2010 Awards Dinner Address, Herman H. Shugart (*right*), Athens, Georgia. (Photography by Wingate Downs Photo Courtesy of Terry Barrett)

Table 1.3a USIALE
Distinguished Landscape
Ecologists

Year of award	Name of recipient
1990	Frank B. Golley
1991	Frank B. Golley ^a
1992	Richard T. T. Forman
1993	No award given
1994	Robert H. Gardner
1995	Robert V. O'Neill
1996	John A. Wiens
1997	Gray Merriam
1998	Monica G. Turner
1999	No awards to avoid conflict with World Congress, Snowmass, UT
2000	Paul G. Risser
2001	Gary W. Barrett
2002	Louis R. Iverson
2003	Simon A. Levin
2004	Thomas Crow
2005	H. Ronald Pulliam
2006	Bruce T. Milne
2007	Eric J. Gustafson
2008	No award
2009	Herman H. Shugart
2010	Joan I. Nassauer
2010	Jianguo Wu
2011	Lenore Fahrig
2012	David J. Mladenoff
2013	Virginia Dale
2013	Marie-Josée Fortin

^a Second award given due to oversight that this honor had been awarded the previous year

Some Important Works in Landscape Ecology

Numerous benchmark books in the field of landscape ecology deserve mention when one attempts to appreciate early history of this emerging field of study. Indeed, the perspective of landscape ecology is embodied in Aldo Leopold's *A Sand County Almanac: And Sketches Here and There* (Leopold 1949). Ian McHarg (1969) in his book *Design with Nature* outlined the benefits of designing with nature—a precursor of an overlay and a modeling approach to integrating built systems with ecological systems. The edited books entitled, *Pine Barrens: Ecosystem and Landscape*, by Richard Forman (1979), and *Forest Island Dynamics in Man-Dominated Landscapes*, by Robert Burgess and David Sharpe (1981) set the stage for an appreciation of how landscape pattern, and elements (patches, corridors, and matrices) change through time. The now classic book, *Landscape Ecology*, by Richard

Table 1.3b USIALE Distinguished Landscape Ecology Practitioners

Year of award	Name of the recipient
1991	Andropogon Associates
1992	Reed Noss and Tom Atzet, Siskiyou National Forest
1993	No award
1994	Nancy Diaz, Mount Hood National Forest
1995	Mary Jean Huston, The Nature Conservancy-Baraboo Hills Reserve Project
1996	Carl Steinitz, Harvard Graduate School of Design
1997	Michael Hough
1998	No award
1999	No award to avoid conflict with World Congress, Snowbird UT
2000	Larry Harris, University of Florida
2001	The Nature Conservancy
2002	Great Plains Restoration Council for the Buffalo Commons
2003	USGS GAP*
2004	Frederick Steiner, University of Texas at Austin
2005	David Hulse, University of Oregon
2006	No award
2007	No award
2008	No award
2009	Kevin McGarrigal
2010	Wes H. Jackson, The Land Institute, Salina KS
2011	No award
2012	Inventory and Monitoring (I&M) Program, United States National Park Service
2013	K. Bruce Jones

*United States Geological Survey Gap Analysis Program

Forman and Michael Godron (1986) signified the establishment of landscape ecology in North America.

Numerous other books deserve mention regarding an appreciation of the early history of landscape ecology. These include Naveh and Lieberman (1984) focusing on linking landscape theory with application; Turner (1987) reviewing landscape heterogeneity and disturbance; Turner and Gardner (1991) discussing a suite of quantitative methods in landscape ecology; Hanson and di Castri (1992) discussing the relationship of landscape boundaries to biotic diversity and ecological flows; Forman (1995) describing the ecology of landscape regions; Barrett and Peles (1999) reviewing investigations focused on how a model taxonomic group, namely, small mammals, contribute understanding of population dynamics at greater temporal and spatial scales; Klopatek and Gardner (1999) outlining application of landscape ecology methodologies to management issues; Turner et al. (2001) integrating landscape theory to practice and application; Wu and Hobbs (2007) summarizing key topics in this emerging field of study; and Collinge (2009) discussing the ecology of fragmental landscapes. Several books on landscape ecology have served as an underpinning for such topics as forest landscape modeling (Mlade-

noff and Baker 1999), biological conservation (Gutzwiller 2002), natural resource management (Liu and Taylor 2002), and landscape sustainability (Roe and Benson 2007), and landscape fragmentation (Collinge 2009). From these books and countless publications, one can readily understand how landscape ecology evolved as an emerging field of study that linked basic and applied science—a challenge eluding numerous other fields of study.

The study of causes and consequences of spatial patterns in the landscape was early recognized as a cornerstone of the emerging science of landscape ecology. To comprehend landscape patterns and process, theory and application must be integrated onto a holistic research approach and design. Integrating approaches and concepts include hierarchy theory, ecosystem and landscape services, sustainability, net energy, problem-solving algorithms, cost-benefit analyses, and cybernetic regulatory mechanisms (Barrett 1985; Urban et al. 1987; Ahl and Allen 1996; Daily 1997; Wu 2006; 2013b; Barrett et al. 2009; Risser and Iverson 2013). Landscape ecology provides a scientific basis for the fields that require an understanding of research design, planning, management, protection, conservation, and restoration. Landscape changes during the course of history, not only because of ongoing natural process such as ecological succession, but also because economic, political, and social processes wed these natural systems and environments. Landscape ecology emphasizes these changing relationships, and by focusing on these relationships evolved as an emerging level of organization (see Chap. 7 for details). One develops deeper appreciation for process and phenomena occurring at the levels of organism, population, community, and ecosystem when one more fully understands landscape-level pattern and process (Odum and Barrett 2005).

The chapters that follow provide historical reference for the origin of landscape ecology in the United States; relationship of USIALE with the IALE; and emergence of landscape ecology as dynamic, transdisciplinary, integrative science poised to address questions and changing needs during the twenty-first century.

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Chapter 2

Launching Landscape Ecology in America and Learning from Europe

Richard T. T. Forman

Introduction

When asked to write a history, I have always responded that there is simply too much to do for the present and the future. In this case, I realized that some of the important people were no longer active, and that my accumulated old letters, reports, and published materials would be unintelligible or sterile to outside eyes, or simply discarded.

I am not a historian, using rules for evaluating evidence (Forman and Russell 1983). Thus, I simply present the information in a timeline as objectively and accurately as possible. Inevitably authors are filters, and omissions exist for which I apologize. I wish that this could have been written jointly with Frank Golley (who died in 2006), a key American leader during the period of interest. Gray Merriam (Canada) and his work played a major role during a key phase, and Paul Opdam (the Netherlands) has been a leading figure through most of the period. I hope that each will write a history.

Four periods relative to launching landscape ecology in America are recognized in the following timeline:

- Early landscape ecology approaches in Europe: 1938–1972
- Landscape ecology discovered in America: 1972–1980
- Americans discover Europe, “synergizing” landscape ecology: 1981–1982
- Coalescence of the field internationally and in America: 1983–1987

The timeline for this “emergence phase” of landscape ecology in North America runs from circa 1972 to 1987. After 1986–1987, the field takes off in a “rapid growth phase.”

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