

A 27-year perspective on landscape ecology from the US-IALE annual meeting

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Among the three of us, we have attended every annual meeting of the U.S. Chapter of the International Association of Landscape Ecology (US-IALE), and at least 20 meetings each. There have been several reviews of published research from the journal *Landscape Ecology* that have suggested a need for or documented a trend of moving away from purely descriptive studies quantifying pattern towards more technologically and analytically rigorous examinations of processes occurring over a wider range of spatiotemporal scales to guide design and management activities (Wiens 1992; Hobbs 1997; Andersen 2008; Wu 2013). Annual conferences can provide a different perspective on a field. To provide a unique temporal perspective on how themes of landscape ecology research in the U.S. have ebbed and waned, we examined and classified each oral presentation or

poster title from the abstract books prepared for each meeting, beginning with the first conference in 1986. The 1991 and 1999 World Congresses were included because they also served as the US-IALE meetings in those years; all other Congresses during the time frame were held in addition to US-IALE meetings and so were excluded from analysis (Table 1).

We categorized talks and posters based on 17 non-mutually exclusive categories:

- Climate change
- Connectivity—including movement, percolation
- Conservation
- Design/planning
- Diseases/pests/invasive species
- Disturbance
- Fire
- Fragmentation
- Historical patterns
- Landscape genetics
- Methodological
- Metrics/indices
- Natural resource management
- Pattern description
- Scale
- Urban
- Other

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Based on its title, each presentation ($N = 5947$) was assigned to these categories; most presentations belonged to 1–3 categories (maximum turned out to be five). These categories are not exhaustive, of

Table 1 Summary of US-IALE annual meeting dates, locations, themes, and number of presentations

Date	Location	Theme	Number of talks	Number of posters	Local host(s)/prog. chair(s)	US-IALE chair
15–17 January 1986	Athens, GA	The Role of Landscape Heterogeneity in the Spread of Disturbance	30	8	Monica Turner/Frank Golley	None
9–11 March 1987	Charlottesville, VA	The Influence of Land Use Pattern on Landscape Function	49	9	William Odum/Monica Turner	David Sharpe
16–19 March 1998	Albuquerque, NM	Observations Across Scales: the Structure, Function, and Management of Landscapes	70	15	Bruce Milne/Monica Turner	David Sharpe
15–18 March 1989	Ft. Collins, CO	Linking Landscape Structure to Ecosystem Processes	66	19	Ingrid Burke/Monica Turner	Gary Barrett
21–24 March 1990	Oxford, OH	The Role of Landscape Ecology in Public Policy-Making and Land-Use Management	73	20	Gary Barrett John Vankat/James Thorne	Gary Barrett
25–25 July 1991	Ottawa, Ontario	Combined with IALE World Congress	212	53	Gray Merriam	Joan Nassauer (US-IALE)
8–11 April 1992	Corvallis, OR	Regional Landscape Change: Impacts of Climate and Land Use	116	76	Robert Lackey Michael Cairns/Louis Iverson	Joan Nassauer
24–27 March 1993	Oak Ridge, TN	Pattern and Process in Landscape Ecology	80	62	Monica Turner/Louis Iverson	Thomas Crow
23–26 March 1994	Tucson, AZ	Spatial and Temporal Models for Analyzing Pattern and Process in Landscapes	75	67	Guy McPherson/Margaret Moore	Thomas Crow
22–26 April 1995	Minneapolis, MN	Working in a World Dominated by Humans	83	62	Joan Nassauer/Margaret Moore	Monica Turner
26–30 March 1996	Galveston, TX	Integration of Cultural and Natural Ecosystems across Landscapes: Application of the Science	90	53	Bob Coulson/Jeffrey Klopatek	Monica Turner
16–19 March 1997	Durham, NC	The Pace and Pattern of Landscape Change	96	67	Dean Urban	Louis Iverson
17–21 March 1998	East Lansing, MI	Applications of Landscape Ecology in Natural Resource Management	127	119	Jack Liu William Taylor/Kevin Gutzwiller	Louis Iverson
29 July–3 August 1999	Snowmass village, Colorado	Landscape Ecology: The Science and the Action	375	144	John Wiens	Jack Ahern (US-IALE)
15–19 April 2000	Ft. Lauderdale, FL	Integration of Societal and Landscape Heterogeneity: Problems and Solutions	160	47	Fred Sklar Yegang Wu/Fred Sklar	Jack Ahern
25–29 April 2001	Tempe, AZ	Pattern, Process, Scale, and Hierarchy: Interactions in Human-Dominated and Natural Landscapes	199	76	Jingle Wu Laura Musacchio	Virginia Dale
23–27 April 2002	Lincoln, NE	Landscapes in Transition: Cultural Drivers and Natural Constraints	168	100	Jim Merchant/Geoff Henebry	Virginia Dale
2–6 April 2003	Banff, Alberta	Beyond Borders: Linking Landscapes	143	83	Marie-Josée Fortin/Bruce Milne	Eric Gustafson
30 March–2 April 2004	Las Vegas, NV	Transdisciplinary Challenges in Landscape Ecology	199	72	Nita Tallent-Halse/Bruce Jones	Eric Gustafson

Table 1 continued

Date	Location	Theme	Number of talks	Number of posters	Local host(s)/prog. chair(s)	US-IALE chair
12–16 March 2005	Syracuse, NY	No theme given	129	38	Jim Palmer/George Hess	Peter August
28 March–1 April 2006	San Diego, CA	Landscape Ecology at the Land-Sea Interface	185	43	Janet Franklin/Sarah Goslee	Peter August
9–13 April 2007	Tucson, AZ	No theme given	166	44	Don McKenzie Robert Keane/ Robert Keane	Robert Gardner
6–10 April 2008	Madison, WI	Landscape Patterns and Ecosystem Processes	214	88	Monica Turner Phillip Townsend/ Sarah Goslee	Robert Gardner
12–16 April 2009	Snowbird, UT	Coupling Humans and Complex Ecological Landscapes	255	59	John Bissonette/Tom Edwards	Jack Liu
5–9 April 2010	Athens, GA	Is What Humans Do Natural?	231	51	Gary and Terry Barrett	Jack Liu
3–7 April 2011	Portland, OR	Sustainability in Dynamic Landscapes	294	66	Anita Morzillo Rob Scheller/ Rebecca Kennedy	Dean Urban
8–12 April 2012	Providence, RI	Informing Decisions in a Changing World	207	52	Peter August Ann Kuhn-Hines/Jeff Hollister	Dean Urban
14–18 April 2013	Austin, TX	Landscape Dynamics along Environmental Gradients	211	51	Wendy Gordon/Tim Keitt Kenneth Young	Kurt Ritters

course, but they do include the central themes of the pattern/process/design triumvirate of landscape ecology (e.g. scale, fragmentation, connectivity), as well as some emerging areas of interest (e.g. climate change, urbanization, landscape genetics). Some topics are also somewhat redundant (e.g. fire is a type of disturbance, but presentations on fire were only categorized as fire). For purposes of this summary, we did not include last-minute changes to the program, workshops, and plenary talks, nor did we include introductions and summaries of symposia.

The number of presentations in any given year ranged from 38 (1986, the first meeting that also led to the formation of US-IALE) to 519 (1999, when the annual meeting coincided with the World Congress), so we report the proportion of presentations on each topic in an effort to normalize among years (Fig. 1). Spikes in certain topics in some years may reflect these differences in attendance as well as the inclusion of special sessions or symposia on a given subject (e.g. disturbance in 1986, landscape genetics in 2013).

Like the reviews of published research within the discipline (Wiens 1992; Hobbs 1997; Andersen 2008; Wu 2013), we found foci on land cover change, scale and scaling relationships, and applying landscape ecological principles to conservation, management, planning, and design. Overall, landscape ecology is still largely driven by a focus on pattern (not surprising, given that spatial heterogeneity is central to the discipline, and describing pattern is a necessary first step in much landscape ecological research) and on the development of methods to quantify the relationships between pattern and process (Fig. 2). Some topics, such as fire and connectivity, have been represented consistently over the years; other topics, such as climate change, landscape epidemiology, and invasive species, have surged in recent years (Figs. 1, 2). There are many topics included in the “Other” category that are now, or were for a period, research foci in landscape ecology in their own right (e.g. soundscapes, species distribution modeling), providing evidence of the dynamic ability of the field to address new challenges (see also Wu 2013). An area of concern is the relative decline in the proportion of presentations devoted to landscape design, landscape architecture, or planning (Figs. 1, 2), evidence of a need for resurgence of the valuable mixing of ecological and planning/design disciplines at the annual meetings.

Fig. 1 Frequency plot of the 17 presentation categories by year, 1986–2013. Categories are arranged along the Z-axis according to their overall abundance, from least to most common topics (front to back)

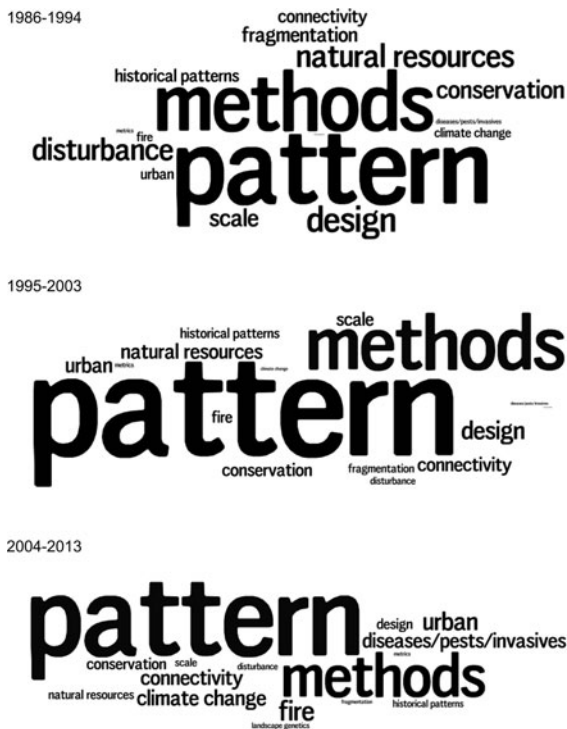
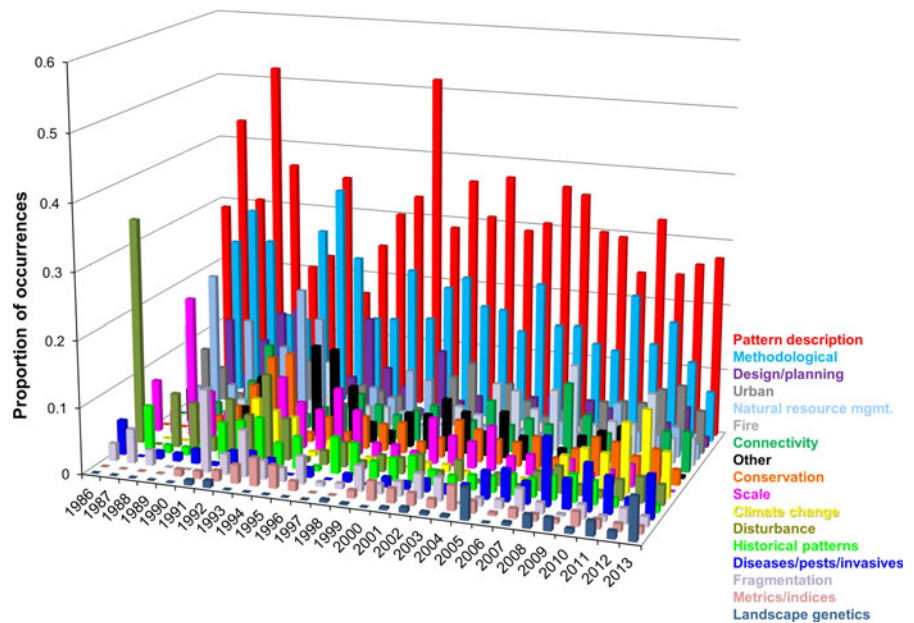


Fig. 2 Word clouds (www.wordle.net) of 16 presentation categories (excluding “Other”) examined for three equal time periods (1986–1994, 1995–2003, 2004–2013). Size of each word is scaled by frequency of occurrence

As three landscape ecologists who have built long-lasting professional relationships with the people we have met at the annual meetings, we can also attest to

the value of regular attendance that goes beyond the presentations. For students and early professionals, this aspect is of particular value. Beyond the usual networking opportunities that any scientific conference delivers, the US-IALE annual meeting provides a wealth of activities for students (including the student-mentor luncheon, the “We’ll Pick up the Tab” meet and greet that introduces students to non-student/more senior attendees, the student social, and presentation awards), early-career scientists (participation is neither student-dominated nor senior scientist-dominated), and more seasoned participants (workshops). Consistent participation in a meeting has given us a perspective of landscape ecology that cannot be gained in any other way, so we urge you all to do the same with the US-IALE annual meeting. We hope you can make it to Anchorage in 2014 and Portland in 2015!

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