Leafy Legacies: The Ecofactual Value of Surface Vegetation and a Critique of its Documentation

Author(s) / Editor(s): John S Harris
Published: Presented at Society for Historical Archaeology, Fort Worth, TX. 2017
Document Type: conference
Stable URL: https://core.tdar.org/document/435370/leafy-legacies-the-ecofactual-value-of-surface-vegetation-and-a-critique-of-its-documentation
DOI: doi:10.6067/XCV85D8VDK

Society of Historical Archaeology Conference 2017
Fort Worth, TX January 4-8
Presenter: John S. Harris, MA student, University of Montana

Leafy Legacies: The Ecofactual Value of Surface Vegetation and a Critique of its Documentation

This landscape archaeology-oriented presentation concerns on-going thesis research that seeks to change the way archaeologists perform site surveys, as the prevailing method of recording site surface vegetation is of little research value. This presentation seeks to draw attention to the under-appreciated value of surface vegetation at sites as ecofacts, offering a critique of how it is presently documented on site forms, and suggesting some procedural solutions to increase their usefulness to the researcher.

In my on-going thesis work on identifying, recording, and interpreting anthropogenic surface vegetation at archaeological sites, I've noticed few have written about the presence of conspicuous shifts in vegetation over sites and precious little is available for detailing methods of its documentation or interpretive frameworks. Some archaeologists have viewed surface vegetation as little more than mere nuisance during field surveys. Others have eyed it with the raptor-like gaze of a prospector, seeing it as no more than a "X" which marks the spot of where the *real* treasure lays. It is my view that such scrub, its qualitative changes, and spatial context at a site offer their own rewards, if only we could learn how to read our leafy legacies that hide in plain sight.

Since surface vegetation is largely overlooked it has prompted me to address: 1.) Examples of how surface vegetation at archaeological sites can provide useful ecofactual information, including social and behavioral archaeological value. 2.) Make archaeologists aware of diverse subjectivities and assumptions that guide ineffective field methods of documenting site vegetation; thus affecting a cyclical problem for furthering this research. 3.) Propose some methodological adjustments on how to better record site vegetation.

The vast majority of previous archaeological research dealing with the human-plant entanglement has been approached through two methodologically polar extremes, from the microscopic scale of buried plant remains in palaeoethnobotany, to the telescopic scale of that of the bird's eye view from aircraft and satellite imagery in remote surveying. In palaeoethnobotany, research questions have largely orbited around: tracing and explaining the origins of agriculture in a given society (with an emphasis upon domesticates); ascertaining a society's subsistence lifestyle and diet; and reconstructing past environmental changes. Aerial

reconnaissance, as far as vegetation is concerned, has cared about it in more broad strokes, such as how crop marks and plant communities' growth patterns over the landscape can be used to locate undiscovered sites. Caught between these two extremes is the seldom-considered surface vegetation. In the last 100 years, 15 methodologically detailed English publications have focused on site surface vegetation.[1] These, as well as others imparting general observations, address: using vegetal patterns to disclose the presence of undiscovered archaeological sites and features; link the presence of a specific species to direct human introduction (whether intentional or unintentional) at sites; and attribute past human activities (or disturbances) to soil modifications, which in turn attract certain vegetal communities. Though, more research has been concerned with: culturally modified trees; whole forests dependent upon prehistoric anthropogenic fire disturbance; and tracing how the environment has broadly changed as seen through historic land-use records.[2]

In a way, sites tend to be viewed like ice bergs, with the archaeological record being underground, excepting its protruding ruins and artifacts above ground- so much so that when the definition of an ecofact is given, it describes these organic unmodified materials as "remains", seemingly ruling out ecofactual usefulness of surface vegetation. Scrutinizing the value of surface vegetation like the way artifacts are treated can be problematic, since it is often assumed that its value lies only in the antiquity of its provenance. It should be pointed out that the *provenance* of site vegetation is not the sole decider of its value to the archaeologist. Such a view may cause the field tech to "unsee" the value in: garden escapees; long-lived relict species left in place since last occupation; descendants of historically introduced species at the site; later than period-specific forest succession; or (native or non-native) modern "weedy" arrivals. Neither should just the "utilitarian" species be a determinant of what vegetation merits ink spilt over it in documentation. Surface vegetation can assist the archaeologist in a number of ways, such as: delineating past physical and perceived boundaries (e.g. marking off public vs. private domain; safety vs. danger; sacred vs. profane; a place appropriate for a certain activity, labor, class, gender)[3]; plants can *remember* where structures once stood through leaving ghost-like outlines in vegetal community or qualitative changes, relating what the past use a building served, or clarify the layout and orientation of a site (such as where pathways, specific structures, features, or where specific activities were conducted)[4]; vegetation is sometimes used as indicators of later historic or modern disturbances of the site[5]; plants, just as much as structures

or landforms, can be essential in the making of "place" or an overlooked component of integrity what makes a site- a site, such as traditional cultural places and landscapes; relict vegetation at sites that carried symbolic significance to its previous occupants, can be indicative of the expression of beliefs, prestige, or markers of their group membership[6]; vegetation can preserve artifactual context from taphonomic processes, thus tipping off the archaeologist to the increased likelihood of in situ artifacts; while other kinds of vegetation can affect site formation processes (e.g. floralturbation) and assists in explaining the formation of matrix incongruities[7]; some surface vegetation could harbor genetic information about human-plant migration patterns; plants and fungi can be used forensically where insects begin to taper off in usefulness for dating time since death, or reveal the presence of a burial[8]; lichens, when studied locally, can be used to date the antiquity of in situ stone features.[9]

Despite all these useful applications of surface vegetation, it is seldom documented adequately for perpetuity on site forms and other records, all too often these sites are lost to increasing property development. With this threat of loss of information, site forms are often the only records left of sites. Much of site forms concentrate their attentions on the details of architecture and artifacts witnessed or collected, or historical references to the place. With this emphasis on features and artifacts, there is a paucity of references to ecofacts. Vegetation on these forms often have sections for a habitat/ecotone, and on and off-site vegetation description. However, the vegetation sections are often populated with the same information, such as using an all-encapsulating vague "conifer forest" or a combination of it a couple of other immediately recognizable species. About a quarter of all these descriptions are ambiguous descriptors like "berry bushes" or "various grasses". Such inconsistent descriptions are of little value to a researcher, just imagine how helpful it would be to researchers if we described architectural features as "things with four walls" and did not even photograph them prior to governmental "reclamation" or development was done. So I asked myself, why do archaeologists create such lopsided descriptions of site vegetation? To better understand the reason for the current state of vegetal documentation, prior to offering solutions, I invited Montana archaeologists to participate in a survey to ascertain their perceptions of site vegetation and their methods of documenting it. Taking the responses of 28 Montana archaeologists, I compared it with vegetal descriptors employed on 40 different historical Western Montana archaeological site forms.

The forms survey found that while over half of the descriptors were species specific, a staggering percent of these species were trees, followed by smaller plant types (shrubs, herbs, grasses), though no fungi, lichens, fern allies, or mosses. In my analysis, our schema values monumentality, as a key factor in why one species was documented over another. The bigger a life form seems, the more likely we are to take notice of it, the more likely we are to learn how to identify it. Survey participants did not only rate larger life forms as easier than smaller ones, participants could more readily identify a list of species (by plant-type) if these species belonged to larger plant types than smaller plant types. Additionally, participants acknowledged two key methods to determine the vegetation to be recorded, "only what I can immediately recognize and identify" and "whatever seems most impressionable". Therefore, ease of plant recognition, guided by plant size, plays an important role in whether a species is documented is further supported by participants reporting the two largest hindrances to effective vegetal documentation was a lack of botanical knowledge and training on which anthropogenic plants to look for at sites.

So while such resources geared towards archaeologists are lacking, this constitutes only two-thirds of the problem, the other one-third of the problem is how one-third of the participants share some dubious reservations against any perceived archaeological value of surface vegetation. A few of which insisted that no matter what, archaeology is not about surface vegetation, but most objectors did so only because of their realization that it is a problem bigger than themselves or due to it being beyond their research design and scope of work determined for them. Herein is what I meant at the beginning, there is a cyclical problem that has been preventing us from going forward. To break through it, we need to acknowledge how our subjectivities shape records in such a way that it discourages others to its use, due to their perceived lack of helpfulness. The second component needed to break out of this loop is the creation of user-friendly materials for training on not just what to look for with anthropogenic vegetation, but how to best record it and interpret it, which are the contributions my on-going thesis work hopes to make to archaeology.

But for starters, let's discuss some examples of alternatives to how we record vegetation, from the perspectives of the one who documents it and the researcher who utilizes the site form. Survey participants remarked site forms sometimes had a template of possible descriptions to choose for describing on- vs. off-site vegetation in terms of broad habitat categories. Others

criticized that these categories were either too confining or too vague to be of any use. Then there is the need to disclose (in the references potion of a site form) what were used in identifying habitat type and species, even if that means recording that the surveyor drew upon their own botanical knowledge. There also needs to be some form of continuity to what determines our language to describe site vegetation, so as to make search criteria easier on the researcher's end. But broad vegetation settings are not enough; one needs to be flexible with vegetation descriptions too. Do not just include the forest or grassland type or habitat type, but add in more specific species and more than what you can immediately identify, pay special attention to the immediate vicinity around each of the different features at sites. While it is not practical to flip through plant guides in field, assign mystery species with numbered signs and photograph them, include pictures of key characterizing features based on its plant type.

Even the creation of "laundry lists" of species, by identifying just the mere presence (or absence), is not enough; as it demonstrated by crop marks from aerial surveying. By only listing the presence of a plant, one excises it from its context, which is key to extrapolating information about ecofacts. It is important to remark about qualitative patterns, such how they are spatially distributed, how their distribution is in relation to features and artifacts, whether these species exhibit signs of plant stress, a marked absence of a species abounding in the area, lushness, or denseness. One habit many share is deliberately not recording non-natives at prehistoric sites, or native plants at historic sites; however, it is better to be more inclusive due to the aforementioned reasons. During background research on your site, keep in mind more than just utilitarian aspects of vegetation, and their differing distributions among features (e.g. vegetation in relation to a former fenced garden, corrals, vicinity between a residence and a privy, fences, gates, doorways, and view shed) when consulting oral, ethnographic, and a host of other written and photographic sources.

It is important to be open to the possibilities about what we can learn from surface vegetation and its qualitative and spatial patterns of distribution, as vegetation in the West was not just good to eat but good to think, and the landscape of the West was not just intentionally colonized in terms of artifacts and ideas, but also ecologically. It is my hope that with greater awareness of this subject will assist us in the first steps towards realizing the intertwined cultural and environmental site formation processes conveyed through surface vegetation, as others have done similarly in social zooarchaeology, social palaeoethnobotany, and behavioral archaeology.

Endnotes

[1] (Zeiner 1946; Bank 1953; Yarnell 1965; Clark 1968; McCartney 1976; Minnis and Plog 1976; McCartney 1978; Pearson 1988; Forbes 1993; Forbes 1994; Forbes 1996; Huisinga 2001; Larrue et al. 2010; Tømmervik et al. 2010; Warren 2016)

[2] (Vale 2002; Minnis 2004; Ostlund et al. 2009; Turner et al. 2009; Shelly 2012; Nicolai 2013; Sullivan and Forste 2014; Bobbitt 2015)

[3] (Stewart 1977; Russell 1997; Savinelli 1997; Schultes, Richard R.; Hofmann, Albert; Ratsch 1998; Francis, Mark; Hester 1999; Mitchell 2002a; Anderson, E. N.; Pearsall, D.; Hunn, E.; Turner 2011; Graham 2011; Augé 2013; Turner 2014)

[4] (Clark 1957; McCartney 1976; Stewart 1977; Loendorf 1978; McCartney 1978; Beckes et al. 1982; Holzner, W.; Werger, M; Ikusima 1983; Blasing 1986; Brooks and Johannes 1990; Castri et al. 1990; Forbes 1993; Forbes 1994; Forbes 1996; Russell 1997; Egan and Howell 2001; Johnson, Elizabeth A.; Klemens 2005; Šilc 2010; Tømmervik et al. 2010; Pearson and Pearson 2016)

[5] (McCartney 1976; McCartney 1978; Forbes 1993; Forbes 1994; Schiffer 1995; Forbes 1996; Tømmervik et al. 2010)

[6] (Tuan 1974; Florin 1977; Leone 1984; Rival 2001; Jones, Owain; Cloke 2002; Mitchell 2002b; Schultz 2002; Augé 2013:222-227, 280-290, 363-388; Tuan 2013; Nancy J Turner 2014)

[7] (Schiffer 1995)

[8] (Lane et al. 1990; Tibbett and Carter 2003; Armstrong 2004; Hawksworth and Wiltshire 2011; Osborn et al. 2015)

[9] (McCartney 1978; Armstrong 2004; Benedict 2009; Osborn et al. 2015)

Works Cited

Anderson, E. N.; Pearsall, D.; Hunn, E.; Turner, N., editor,
2011 *Ethnobiology*. Wiley-Blackwell, Hoboken.

Armstrong, Richard
2004 Lichens, Lichenometry, and Global Warming. *Microbiologist* September.

Augé, C Riley
2013 Silent Sentinels: Archaeology, Magic, and the Gendered Control Of Domestic Boundaries In New England, 1620-1725. University of Montana.

Bank, Theodore P.
1953 Ecology of Prehistoric Aleutian Village Sites. *Ecology* 34(2):246–264.

Beckes, M.R.;, B.K.; Jagler, T.L.; Burge, and T.G. Love
1982 Possible Cultural Origin of an Isolated Stand of Pinus Flexilus in the Little Missouri Badlands. In *39th Annual Plains Anthropological Conference, Bismarck, North Dakota*. Unpublished Paper. ND.

Benedict, James
2009 A Review of Lichenometric Dating And Its Applications To Archaeology. *American Antiquity* 74(1):143–172.

Blasing, R.
1986 *Archaeological Survey of the Upper Deep Creek Drainage, Kansas*. Wichita, KA.

Bobbitt, Mary
2015 The Historical and Cultural Landscape of the Missoula Valley During the 19th and 20th Centuries. University of Montana.

Brooks, Robert, and Dieter Johannes
1990 *Phytoarchaeology*. Dioscorides Press, Portland, OR.

Castri, F.;, A.J.; Hansen, and M. Debussche, editors,
1990 *Biological Invasions in Europe and the Mediterranean Basin*. Monographi. Kluwer Academic Publishers, Dordrecht, GER.

Clark, Arthur B.
1968 Vegetation on Archaeological Sites Compared with Non-Site Locations at Walnut Canyon, Flagstaff, Arizona. *Plateau* 40(3):77–90.

Clark, Grahame
1957 *Archaeology and Society*. Harvard University Press, Cambridge, MA.

Egan, Dave;, and Evelyn Howell, editors,
2001 *The Historical Ecology Handbook: A Restorationist's Guide To Reference Ecosystems*. Island Press, Washington, D.C.

Florin, Lambert
1977 *Historic Glimpses Of Trees Of The West*. Superior Publishing Company, Seattle, WA.

Forbes, Bruce C
1993 Anthropogenic Tundra Disturbance and Patterns of Response in the Eastern Candian Artic. McGill University, CAN.
1996 Plant Communities of Archaeological Sites, Abandoned Dwellings, and Trampled Tundra in the Eastern Canadian Arctic: A Multivariate Analysis. *Arctic* 49(2):141–154.

Forbes, Bruce C.
1994 The Importance of Bryophytes in the Classification of Human-Disturbed High Artic Vegetation. *Journal of Vegetation Science* 5(6):877–884.

Francis, Mark; Hester, Randolph, editor,
1999 *The Meaning of Gardens: Ideas, Place, and Action*. The MIT Press, Cambridge, MA.

Graham, Wade
2011 *American Eden: From Monticello to Central Park to Our Backyards: What Our Gardens Tell Us About Who We Are*. HarperCollins Publishers, New York, N.Y.

Hawksworth, David L., and Patricia E J Wiltshire
2011 Forensic Mycology: The Use of Fungi in Criminal Investigations. *Forensic Science International* 206(1–3). Elsevier Ireland Ltd:1–11. http://dx.doi.org/10.1016/j.forsciint.2010.06.012.

Holzner, W.; Werger, M; Ikusima, I., editor,
1983 *Man's Impact on Vegetation*. Dr. W. Junk Publishers, Boston, MA.

Huisinga, Kristin D
2001 Cultural Influence As a Factor in Determining the Distribution of a Rare Sage, Salvia Dorrii Subspecies Mearnsii. In *Southwestern Rare and Endangered Plants: Proceedings of the Third Conference*, Louella Maschinski, Joyce; Holter, editor, pp. 228–237. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fort Collins, CO.

Johnson, Elizabeth A.; Klemens, Michael W., editor,
2005 *Nature in Fragments: The Legacy of Sprawl*. Columbia University Press, New York, N.Y.

Jones, Owain; Cloke, Paul
2002 *Tree Cultures: The Place of Trees and Trees in Their Place*. Berg Publishers, Oxford, U.K.

Lane, Meredith A, Loran C Anderson, Theodore M Barkley, Jane H Bock, Ernest M Gifford, David W Hall, David O Norris, Thomas L Rost, William Louis, Meredith A Lane, Loran C Anderson, Theodore M Barkley, Jane H Bock, Ernest M Gifford, David W Hall, David Norris, Thomas L Rost, and William Louis Stern
1990 Forensic Botany. *BioScience* 40(1):34–39.

Larrue, Sébastien;, Jean-Yves; Meyer, and Thomas Chiron
2010 Anthropogenic Vegetation Contributions to Polynesia' S Social Heritage: The Legacy of Candlenut Tree (Aleurites Moluccana) Forests and Bamboo (Schizostachyum Glaucifolium) Groves on the Island of Tahiti. *Economic Botany* 64(4):329–339.

Leone, M.
1984 Interpreting Ideology in Historical Archaeology. In *Ideology, Power, and Prehistory*, pp. 25–35. Cambridge University Press, Cambridge, MA.

Loendorf, L.L.
1978 *An Evaluation of 100 Archaeological and Historical Sites in Little Missouri Grasslands of North Dakota*. Dickinson, PA.

McCartney, Nancy G.
1976 Effects of Eskimos on Soils and Vegetation At Two Northern Archaeological Sites. University of Wisconsin.
1978 Lichens from Three Archaeological Sites, N.W.T., Canada. *The Bryologist* 81(4):610–613.

Minnis, Paul E, editor,
2004 *Plants and People in Ancient Western North America*. Smithsonian Books, Washington, D.C.

Minnis, Paul E, and Stephen E Plog
1976 A Study of the Site Specific Distribution of "Agave Parryi" in East Central Arizona. *Kiva* 41(3):299–308.

Mitchell, W.J.T.
2002 *Landscape And Power*. The University of Chicago Press, Chicago, IL.

Nicolai, Dean Sonneah
2013 The Archaeological Investigation Of Cedar Bark Basket Trees In Western Montana : Background , Methods , And Trial Study Of Culturally Modified Trees. University of Montana, Missoula, MT.

Osborn, Gerald, Daniel Mccarthy, Aline Labrie, Randall Burke, and Bob Dylan
2015 Lichenometric Dating : Science or Pseudo-Science ? *Quaternary Research* 83(1). University of Washington:1–12. http://dx.doi.org/10.1016/j.yqres.2014.09.006.

Ostlund, Lars; Lisa; Ahlberg, Olle; Zackrisson, Ingela; Bergaman, and Steve Arno
2009 Bark-Peeling, Food Stress and Tree Spirits- the Use of Pine Inner Bark For Food in Scandinavia and North America. *Society of Ethnobiology* 29(1):94–112.

Pearson, Sue
2016 Botanical Indicators in Historical Archaeology Published by : Australasian Society for Historical Archaeology Stable URL : http://www.jstor.org/stable/29543211 Botanical Indicators in Historical Archaeology 6(1988):74–82.

Rival, Laura, editor
2001 *The Social Life of Trees: Anthropological Perspectives of Tree Symbolism*. Berg, New York, N.Y.

Russell, Emily W.B.
1997 *People and the Land Through Time: Linking Ecology and History*. Yale University Press, New Haven, CN.

Savinelli, Alfred
1997 *Plants of Power: An Historical Survey of the Divine Nature of Plants and Ritual Communication through Plant Helpers to the Spirit World*. self-published, Taos.

Schiffer, Michael B.
1995 *Behavioral Archaeology: First Principles*. University of Utah Press, Salt Lake City, UT.

Schultes, Richard R.; Hofmann, Albert; Ratsch, Christain
1998 *Plants Of The Gods: Their Sacred, Healing, and Hallucinogenic Powers*. Healing Arts Press, Rochester, U.K.

Schultz, Elizabeth
2002 An Investigation of Plant Distributions In Relation To Mortuary Practices At The Multi-Component Engelbert Site (Tioga County, New York). Binghamton University, N.Y.

Shelly, Karen
2012 Mapping A Historic Bitterroot Valley, Montana Landscape Using General Land Office Surveyors' Field Notes. University of Montana.

Šilc, Urban
2010 Synanthropic Vegetation: Pattern of Various Disturbances on Life History Traits. *Acta Botanica Croatica* 69(2):215–227.

Stewart, John J
1977 Landscape Archaeology: Existing Plant Material on Historic Sites as Evidence of Buried Features and as Survivors of Historic Species. *Bulletin of the Association for Preservation Technology* 9(3):65–72.

Sullivan, Alan P, and Kathleen Forste
2014 Fire-Reliant Subsistence Economies and Anthropogenic Coniferous Ecosystems in the Pre-Columbian Northern American Southwest. *Vegetation History and Archaeobotany* 23(Supplement):S135–S151.

Tibbett, Mark, and David O. Carter
2003 Mushrooms and Taphonomy: The Fungi That Mark Woodland Graves. *Mycologist* 17(1):20–24. http://www.journals.cambridge.org/abstract_S0269915X03001150.

Tømmervik, Hans, Sigbjørn Dunfjeld, Gunilla A Olsson, and Marit N Østby
2010 Detection of Ancient Reindeer Pens, Cultural Remains and Anthropogenic Influenced Vegetation in Byrkije (Børgefjell) Mountains, Fennoscandia. *Landscape and Urban Planning* 98:56–71.

Tuan, Yi-Fu
1974 *Topophilia: A Study Of Environmental Perception, Attitudes, and Values*. Columbia University Press, New York, N.Y.
2013 *Landscapes of Fear*. Pantheon, Minneapolis, MN.

Turner, Nancy J
2014 *Ancient Pathways, Ancestral Knowledge - Ethnobotany and Ecological Wisdom of Indigenous Peoples of Northwestern North America: Volume 1 The History And Practice Of Indigenous Plant Knowledge*. McGill-Queen's University Press, Montreal, CAN.

Turner, Nancy J.;, Yilmaz; Ari, Fikret; Berkes, Iain; Davidson-Hunt, Z.; Ertug, and Andrew Miller
2009 Cultural Management of Living Trees: An International Perspective. *Journal of Ethnobiology* 29(2):237–270.

Vale, Thomas R., editor,
2002 *Fire, Native Peoples, and the Natural Landscape*. Island Press, Washington D.C.

Warren, Robert J.
2016 Ghosts of Cultivation Past - Native American Dispersal Legacy Persists in Tree Distribution. *Plos One* 11(3):e0150707. http://dx.plos.org/10.1371/journal.pone.0150707.

Yarnell, Richard A
1965 Implications of Distinctive Flora on Pueblo Ruins 67(3):662–674.

Zeiner, Helen Marsh
1946 American Journal of. *American Journal of Botany* 33(1):83–90.