

Tribal Cultural Resources Bibliography

The following provides a partially annotated bibliography of the economics literature on cultural resource valuation and some non-economics literature related to tribes, culture and sense of place, which are thought to have potential relevance. In addition, citations are provided for documents supporting tribal natural resource damage and restoration (NRDAR) cases. Similar topics are grouped together under the following categories: Cultural Heritage (includes international examples), Existence Value/Non-market Valuation Methods, Understanding Tribes/Culture/Sense of Place, Reports and Guidebooks, and Tribal NRDAR Case-Related Documents. This document is not intended to be a comprehensive review of the literature, and the papers and reports contained in this bibliography have not necessarily been evaluated in terms of the quality of methods applied, data collected, model estimated or overall relevancy. In addition, this bibliography should not be interpreted as providing any statement for or against any particular method or approach.

The NRDAR case-related documents are grouped using the Bureau of Indian Affairs' Regions as follows:

- Alaska
- Eastern (Alabama, Arkansas, Delaware, Florida, Georgia, Indiana, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Mississippi, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia)
- Midwest (Illinois, Iowa, Michigan, Minnesota, Wisconsin)
- Northwest (Idaho, Oregon, Washington)
- Rocky Mountain and Great Plains (Montana, Nebraska, North Dakota, South Dakota, Wyoming)
- Southern Plains and Eastern Oklahoma (Kansas, Oklahoma, Texas)
- Southwest, Western, and Pacific (Arizona, California, Colorado, Nevada, New Mexico, Oklahoma, Utah)

Additional documents are available in the Restoration Program's NRDAR Case Document Library:
http://www.cerc.usgs.gov/orda_docs/.

Acronyms used in this bibliography include: Choice modeling (CM) (i.e., contingent choice or conjoint analysis), contingent valuation (CV), contingent valuation method (CVM), willingness-to-accept (WTA), willingness-to-pay (WTP). See 43 CFR 11.83 for descriptions of NRDAR economic methodologies:
<http://www.gpo.gov/fdsys/granule/CFR-2011-title43-vol1/CFR-2011-title43-vol1-sec11-83>.

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CULTURAL HERITAGE

1. Alberini, Anna and Alberto Longo. 2006. Combining the Travel Cost and Contingent Behavior Methods to Value Cultural Heritage Sites: Evidence from Armenia. *Journal of Cultural Economics*. 30:287-304.

Alberini and Longo estimate single-site travel cost models for four cultural heritage sites located in Armenia using data on actual trip behaviors and state behaviors under hypothetical site conservation actions. Stated trip behaviors were based on responses to one of three conservation actions presented to the respondent: (1) actions that would enhance the user's cultural experience at a site (interpretative materials or a small museum), (2) infrastructure improvements, or (3) provision of tourism related services (e.g., restaurant, café, shops, tourism info center). A total of 125 completed questionnaires were collected at each of the four site locations. In general, across the sites they find that improved tourism related services are valued similarly to enhancements in cultural experience, which are both valued slightly more than infrastructure improvements. Aggregated over the population of visitors, the authors estimate that total welfare is improved by \$3.690 million per year for an enhanced cultural experience program, \$2.800 million per year for an infrastructure improvement program, and \$4.230 million per year for a program improving tourism related services.

2. Alberini, Anna and Alberto Longo. 2007. Valuing the Cultural Monuments of Armenia: Bayesian Updating of Prior Beliefs in Contingent Valuation. Fondazione Eni Enrico Mattei. Working Paper #36.

Alberini and Longo use contingent valuation (CV) to value conservation of built cultural heritage sites in Armenia. Through their CV survey they test the extent that prior beliefs of built cultural heritage sites are impacted by the information presented in the survey and how a respondents "updated beliefs" are related to WTP for the conservation program. The conservation program consisted of government program to assess the condition of sites, implement conservation measures, and establish a sustainable conservation program. The CV survey is conducted in-person in 2004 and resulted in 1,000 completed surveys. The format of the WTP question was a dichotomous choice referendum question on one of five bid amounts (1000, 2000, 3500, 6000, and 10,000 AMD).¹ The referendum was described as a one time tax that would be imposed if a majority of votes in favor of the program were cast. A follow-up dichotomous choice question was asked after the initial question and for respondents that voted against both amounts in the two WTP questions were asked to state the amount that would turn their vote to be in favor of the program. WTP is found to be higher among visitors of sites, males, married respondents, and respondents with greater education. The authors state that WTP is also strongly associated with income and respondents that demonstrate uncertainty about what to expect regarding conservation in the next ten years express WTP amounts approximately 25 percent lower than respondents with "well-defined expectations" of heritage site conservation.

3. Boxall, Peter C., Jeffrey Englin, and Wiktor L. Adamowicz. 2003. Valuing Aboriginal Artifacts: A Combined Revealed-Stated Preference Approach. *Journal of Environmental Economics and Management*. 45:213-230.

Boxall, Englin, and Adamowicz combine RP and SP data to estimate the value backcountry recreationists place on the ability to view Aboriginal pictographs during trips taken to Nopiming Provincial Park in Manitoba, Canada. RP data consisted of actual site choice data for trips taken in

¹ The authors state that at the time of the survey approximately 515 AMD equaled one US dollar.

1993 and 1994 and SP data were collected via a survey administered in 1995. Approximately 42 percent of survey respondents indicated that they would change their site choice to another site to view a pictograph in pristine condition, while 10 percent indicated they would change site choice to view a pictograph in poor/vandalized condition. The authors explain their results imply that a recreationist “endowed” with an opportunity to view a pristine pictograph on their trip would experience a considerable loss if the pictograph were vandalized/defaced. (Note: It is not clear if values are in Canadian or American dollars; assume they are in Canadian dollars due to site location, but the paper does not explicitly state this.)

4. Grijalva, Therese, Robert P. Berrens, Alok K. Bohara, and W. Douglass Shaw. 2002. Testing the Validity of Contingent Behavior Trip Responses. *American Journal of Agricultural Economics*. 84(2): 401-414.

Technically not a CVM study, this paper uses a “contingent behavior” approach that asks respondents to reveal their expected change in behavior due to a change in a public good (rather than their willingness to pay). The researchers then use a travel cost methodology to estimate the change in welfare from the proposed change in access rules for a world-class rock climbing site in Texas. Access was to be restricted to the Hueco Tanks to protect historical pictographs found on the boulders. The paper focuses on validity tests using survey data collected from a mail survey of 413 climbers at the site and another mail survey of 246 of those climbers a year later. The first survey asked about actual use of the site and two contingent behavior questions under restricted access scenarios. After the State of Texas restricted access, the follow-up survey asked about their actual use of the site after the rule change. The validity tests suggest climbers do not overstate changes.

5. Laplante, Benoit, Craig Meisner and Hua Wang. 2005. Environment as Cultural Heritage: The Armenian Diaspora’s Willingness to Pay to Protect Armenia’s Lake Sevan. World Bank Policy Research Working Paper 3529.

Laplante, Meisner and Wang employ a CV survey to estimate the WTP of the Armenian Diaspora in the U.S. to protect the Lake Sevan in Armenia, which is considered an important part of Armenia’s cultural heritage. The CV survey was administered via mail targeting Armenian people living in the U.S. A total of 389 surveys were returned completed (the authors sent out 6,000 invitations to participate in the survey of which 1,352 initially agreed to participate). The format of the WTP question was dichotomous choice over ten bids amount ranging from \$20 to 10,000. In addition to questions regarding the respondent’s knowledge of Lake Sevan, a maximum WTP question and level of certainty question were also asked after the dichotomous choice WTP question.

6. Lockwood, Michael, Phillip Tracey, and Nick Klomp. 1996. Analyzing Conflict between Cultural Heritage and Nature Conservation in the Australian Alps: A CVM Approach. *Journal of Environmental Planning and Management*. 39(3): 357-370.

They report on a mail survey with 702 responses to WTP questions about grazing in the Australian Alps. The region has a long tradition of grazing, but many also recognize this lifestyle’s environmental damage. Half of the surveys asked for a WTP to stop grazing in the area, and half asked for a WTP to continue grazing while reducing its environmental impacts. The intent was to measure the values of the grazing tradition and of environmental conservation in the area. Hypothetical payments would be made to a trust fund operated by the Australian Heritage Commission. Valuations were elicited using a dichotomous-choice format.

7. Ozdemiroglu, Ece and Susana Mourato. 2001. “Valuing Our Recorded Heritage, Final Report.” Paper presented to the Economic Valuation of Cultural Heritage Conference in the Department of

Economics of University College London. (Mimeo. Department of Economics. University College London.).

This paper reports on a large survey project looking at the value of recorded heritage in the Surrey History Centre (SHC), a locally run archive. It presents the results of their pilot test of the survey, including 38 interviews of users and 22 of non-users. Their pilot survey used a payment ladder format to obtain WTP values to prevent two scenarios: (1) the closure of SHC and dispersal and possibly deterioration of its collections, and (2) the closure of the SHC to the public. The sample was very small in the pilot survey. The results suggest that users perceive substantial existence value to the collection, whereas non-users see only option, altruistic, or bequest values.

8. Rolfe, John and Jill Windle. 2003. Valuing the Protection of Aboriginal Cultural Heritage Sites. *Economic Record*. 79:S85-S95.

Rolfe and Windle employ contingent choice methods (choice modeling) to assess trade-offs made between the development of water resources and the impacts to environmental and Aboriginal cultural heritage protection in central Queensland, Australia. Aboriginal cultural heritage is characterized in several ways, including art sites, burial caves, camp sites, stone tools, stone working sites, marked trees, rock wells, and middens along waterholes. In addition to the “price” attribute, the survey varied four attributes to describe the trade-off scenarios presented to respondents: (1) healthy vegetation left in the floodplain, (2) kilometers of waterways in good health, (3) protection of Aboriginal cultural sites, and (4) unallocated water. The study does not distinguish between the various types of cultural heritage sites in the survey. A total of 241 completed surveys were collected, of which 63 and 158 were Aboriginal and general population respondents, respectively. The results indicate a significant difference between the Aboriginal population and the general population in their desire to protect cultural heritage sites. As the percentage of sites protected increased, the Aboriginals were more likely to protect those sites, while the opposite was found for the general population. Additional models were estimated that indicated Aboriginals preferred the maximum protection levels most compared to all other levels of protection, while the maximum protection level was the least preferred option for the general population. The authors point out that the results do not mean the general population does not value Aboriginal cultural heritage, but that this sample is more concerned about other environmental issues. Furthermore, they state that additional research is needed to determine how values change with the protection of specific types of cultural heritage sites versus the general protection of sites applied in this study.

9. Sable, Karin A. and Robert W. Kling. 2001. The Double Public Good: A Conceptual Framework for “Shared Experience” Values Associated with Heritage Conservation. *Journal of Cultural Economics*. 25:77-89.

Sable and Kling define a double public model that accounts for the multidimensional non-market social benefits associated with many cultural goods or resources. The authors explain that the “public” nature of many cultural resources/goods implies that even if some level of the resource is provided via private markets, the welfare maximizing level will not be supplied. Coupled with the “consumption” decisions made by individuals regarding cultural resources/goods and that these choices generate “social sharing” externalities, demand for these resources will be lower than the socially optimal level. The combination of these two factors (i.e., supply and demand side externalities) is what the authors describe as the double public good aspect of their model. As such, the authors state that market intervention would be necessary for a socially optimal provision of cultural resources/goods. However, they suggest that policies only addressing one side (i.e., demand or supply side) are not appropriate and that policies should be comprehensive to ensure social welfare is maximized.

10. Sattout, E.J., S.N. Talhouk, and P.D.S. Caligari. 2007. Economic Value of Cedar Relics in Lebanon: An Application of Contingent Valuation Method for Conservation. *Ecological Economics*. 61:315-322.

Sattout, Talhouk, and Caligari implement a CV survey to estimate the WTP of the Lebanese population for the protection of twelve cedar forests in Lebanon. The cedar of Lebanon is identified as having important timber value along with important symbolic and religious values. Also, historical and cultural values of the forests have been revealed in such things as paintings, engravings, and religious transcripts. The authors conduct an open ended CV via in-person interviews and ask respondents to state their WTP for a policy that will protect and expand existing forests and promote recreational activities. Interviews were conducted in areas around Beirut, Tripoli, and Sidon. Respondents were selected in market places, coffee shops, restaurants, and movie theatres in the more urban areas (defined as city dwellers in the paper), while interview were conducted at a respondent's home in the more rural areas (defined as villagers in the paper). The authors also indicate that conserving the forests for future generations, symbolic values, and right of the forests to exist were given as the most frequent reasons for stating a WTP.

11. Tuan, Tran Huu and Stale Navrud. 2007. Valuing Cultural Heritage in Developing Countries: Comparing and Pooling Contingent Valuation and Choice Modeling Estimates. *Environmental and Resource Economics*. 38(1):51-69.

Tuan and Navrud apply CV and choice modeling approaches to value the benefits of restoration and preservation programs for the My Son world cultural heritage site in Vietnam. Surveys were administered to local residents near the My Son site and foreign visitors of the site. The CV surveys were intended to value a preservation program that will stop further degradation of the My Son temples, avoid additional irreversible losses, and ensure the temples will continue to be cultural heritage sites into the future. WTP is asked in terms of a mandatory one-time fee (increase in entrance fee) for foreign visitors and as a mandatory tax increase is used for local residents. Bid amounts were presented at four different price points for foreign (specified in US dollars) and local residents (specified in Vietnamese Dong or VND). The CM surveys were used to identify the marginal willingness to pay for attributes of preservation for My Son that people thought were important. Attributes included a price (entrance fee for foreign visitors and preservation fee via tax increase for local residents), proposed preservation plan, infrastructure upgrading, and additional services. A total of 930 in-person interviews were conducted during the summer of 2005, of which 243 CV surveys and 225 CM surveys were collected for foreign visitors and 241 CV surveys and 221 CM surveys were collected for local residents. Models were estimated for the CV surveys and CM surveys along with a combined CV/CM model to compare individual model results. The CV results indicate that foreign visitors are more likely to be willing to pay the bid amount as income increases, education levels increase, and if respondents want to visit historical sites, while less likely to pay the bid amount if they haven't visited My Son yet. For local residents, increases in income and having visited the My Son site before are associated with increased probability of willingness to pay.

12. Venn, Tyron J. 2007. Economic Implications of Inalienable and Communal Native Title: The Case of Wik Forestry in Australia. *Ecological Economics*. 64(1):131-142.

Venn discusses the potential economic consequences from and difficulties with the privatization of the native title lands of the Wik people in Australia. He explains that the social, cultural, and environmental value structures of the indigenous communities conflict with the belief that the privatization of indigenous lands will lead to the most economically efficient use of the land for the indigenous people. It is suggested that the "sustainable development framework" is more appropriate

in assessing the economically efficient use of indigenous lands due to its consideration of cultural and ecological outputs in addition to monetary outputs from the land. Furthermore, he explains that remoteness of the land, lack of rights to commercially utilize certain resources on the land, limitation of worker skills, lack of infrastructure, high importance of non-monetary land management objectives, and other general social/cultural challenges are the primary obstacles for the Wik people in taking advantage of any economic opportunities on their lands.

13. Venn, Tyron J. and John Quiggin. 2007. Accommodating Indigenous Cultural Heritage Values in Resource Assessment: Cape York Peninsula and the Murray-Darling Basin, Australia. *Ecological Economics*. 61(2-3):334-344.

Venn and Quiggin discuss the issues with incorporating indigenous cultural heritage values in resource management decisions explaining that price-based approaches may not be appropriate and state that quantity-based approaches that do not explicitly assign dollar values are more suitable. The authors describe and expand on Adamowicz *et al.*'s (1998) explanation of why non-market valuation methods are not likely to fully capture indigenous cultural values within the context of Australian indigenous cultural heritage. The factors listed are generally described as factors that can affect the elicitation of individual valuation responses from indigenous people (e.g., lack of substitutability, unfamiliarity with purchasing power of money and lack of alternative numeraire, poor English and numeracy skills, indigenous people's knowledge of non-indigenous people's forms of resource management, perception of property rights regime by respondent, and low satiation limits), factors that affect the ability to aggregate responses of indigenous people (e.g., decision making system with indigenous community, various demographic considerations, distinguishing between traditional owner groups and local indigenous communities), and factors that affect the ability to aggregate indigenous and non-indigenous responses (e.g., use of different numeraires across groups, systematic differences in income levels, differences in political structures and laws). The authors then illustrate these factors within the context of two case studies that attempted to incorporate indigenous cultural values in resource management decisions in Australia. They argue that quantity-based methods (e.g., in the form of quantitative goals and constraints) may be more appropriate because they do not need to explicitly assign a dollar value to cultural heritage and can better accommodate the rights of indigenous people to protect their cultural heritage.

EXISTENCE VALUE/NON-MARKET VALUATION METHODS, INCLUDING LEGAL PERSPECTIVES

14. Adamowicz, Wiktor, *et al.* 1998. In Search of Forest Resource Values of Indigenous Peoples: Are Non-market Valuation Techniques Applicable? *Society and Natural Resources*. 11(1):51-66.

Adamowicz *et al.* discuss issues with using non-market valuation methods to value indigenous resource values stating that the problems broadly entail difficulties with eliciting values for individuals of an indigenous community, aggregating the individual values into measures of social welfare, and comparing/aggregating welfare across culturally different groups (e.g., across different indigenous groups and across indigenous and non-indigenous groups). Problems with eliciting responses may be from a lack of substitutability for goods/resources in indigenous cultures, differences in the structure of or belief in property rights among indigenous cultures, and potential limits in the accumulation of goods or resources that may be practiced in indigenous cultures. Difficulties in aggregating individual indigenous values may be caused by social structures of indigenous cultures that may emphasize the holding and accumulation of goods/resources/wealth of larger groups and not of the individual. Furthermore, the decision making structure of an indigenous community may rely on elders and councils, making the decisions of individuals irrelevant for aggregation. The authors also explain that aggregation of individual responses may be complicated

by the potential for systematic differences in how groups or individuals in an indigenous community value resources (e.g., age and gender differences due to specific roles in the management or use of resources). Issues with aggregating indigenous and non-indigenous values could result from differences in units of valuation (e.g., monetary and non-monetary measures), lack of substitutability precluding use of any measure of valuation, differences in political structures between indigenous and non-indigenous groups, difference in understanding or beliefs in assignment of property rights, and the potential for systematic differences in income levels between indigenous and non-indigenous communities. The authors suggest combining ethnographic approaches and generalized economic theory will help address the issues identified.

15. Bishop, Richard C. and Michael P. Welsh. 1992. Existence Values in Benefit-Cost Analysis and Damage Assessment. *Land Economics*. 68(4):405-417.

Bishop and Welsh address five conceptual issues regarding existence values within the context of benefit-cost analysis and damage assessment. They explain that it is valid for individuals to hold existence values for unknown, obscure, or temporarily damaged resources and that these values should not be ruled out a priori. Problems with project/policy selection based on benefit-costs analysis are still apparent whether or not existence values are included. It is suggested that in cases with highly substitutable environmental resources, careful attention should be paid to alternatives that satisfy related demands. However, this issue is of less concern for unique resources and is not relevant in damage assessments. The authors explain that the adding up of existence values is a non-issue because adding individual values without considering the relationship between the resources being valued and the order of aggregation is not valid theoretically. The authors state that the determination of property rights in the existence of environmental resources is important and that a lack of property right may render existence values of little importance in benefit-cost analysis and damage assessment. Finally, the issue of high per-unit values is simply a consequence of the public good nature of resource existence (i.e. one "unit" of the good can satisfy many individuals) and because they are conditional on the current status of the resource.

16. Blomquist, Glenn C. and John Whitehead. 1995. Existence Value, Contingent Valuation, and Natural Resource Damage Assessment. *Growth and Change*. 26:573-589.

Blomquist and Whitehead provide an overview of environmental economics and some of the tools used in environmental valuation, present an overview of CV, and discuss some of the issues of using CV for environmental policy formation. They explain that economic theory does include values for non-market goods such as environmental resources. They state that revealed preference methods to non-market valuation are well accepted by non-economists for policy evaluation, but measures of existence value through CV are still viewed as controversial due to questions about CV's internal validity, information effects, respondent familiarity with goods, and calibration of hypothetical responses in CV studies to determine real values. They conclude that given its potential controversies, the use of CV for the measurement of existence values is still a valuable tool for policy decisions.

17. Castle, Emery N., Robert P. Berrens, and Richard M. Adams. 1994. Natural Resource Damage Assessment: Speculations About a Missing Perspective. *Land Economics*. 70(3):378-385.

Castle, Berrens, and Adams contend that the Exxon Valdez oil spill led to the focus on environmental valuation techniques/methods at the neglect of addressing other issues, such as why should natural resource damage assessments be done, how ubiquitous are passive-use values, and can CV appropriately capture the biological and ecological realities. The authors argue that the current NRDAR policies and practices do not fully address the need to develop policies aimed at deterrence

of future incidents causing natural resource damages. They suggest that the magnitude of lost passive-use values from past incidents may have little relation to policies aimed at future deterrence. The authors also explain that passive-use values can be associated with resource development and are not unique to natural resource preservation. If so, they assert that the use and application of CV in estimating passive-use values is more complicated when accounting for passive-use values associated with resource development. Lastly, they state that CV may be limited in its ability to adequately describe the complex biological/ecological environments being evaluated in the context of natural resource damage assessments.

18. Czarnezki, Jason J., and Adrienne K. Zahner. The Utility of Non-Use Values in Natural Resource Damage Assessments. *Boston College Environmental Affairs Law Review*, January 2005. Available <http://lawdigitalcommons.bc.edu/cgi/viewcontent.cgi?article=1123&context=ealr>.

19. Edwards, Steven F. 1992. Rethinking Existence Values. *Land Economics*. 68(1):120-122.

Edwards suggests that neoclassical utility theory may not provide an accurate representation of an individual's concern for the well-being of others and therefore, has implications for welfare analysis. He states that problems occur when the commitment to others is motivated by altruism and explains that it is not clear how an altruist's (which he defines as individuals "whose commitment to the well-being of others is independent of self-interest, indifference, compensation, and substitution") preferences may reveal themselves in a quantitative sense for use in welfare measurement. He suggests that other more complex preference structures should be considered and highlights the need to identify moral principles and their relation to choices individuals make among different states of the world.

20. Epstein, Richard. 2003. The Regrettable Necessity of Contingent Valuation. *Journal of Cultural Resources*. 27:259-274.

Epstein explains that although CV may be useful for non-market valuation of environmental and cultural resources, he identifies certain issues believed to be of concern when employing CV and states that CV should not be used to distort the views/debates regarding particular cultural or environmental objectives.

21. Hanemann, W. Michael, and Andrew G. Keeler. Economic Analysis in Policy Evaluation, Damage Assessment and Compensation: A Comparison of Approaches. 1996. Available at <http://ageconsearch.umn.edu/bitstream/6862/2/wp960766.pdf>.

22. Johnson, F. Reed, *et al.* 2001. Role of Knowledge in Assessing Nonuse Values for Natural Resource Damages. *Growth and Change*. 32:43-68.

Johnson *et al.* discuss the role of knowledge about resources injured from oil spills or contaminant releases affect the determination of compensable non-use losses. The authors argue that "informed concern is a precondition for compensable welfare losses, meaning that a person must possess some amount of knowledge about a utility-relevant resource and injuries to that resource to experience a meaningful change in welfare." The following three propositions are made by the authors: (1) People without knowledge of an injured resource experience no compensable welfare losses, (2) demand for information about injured resource is a necessary condition for compensable welfare losses, and (3) geographic proximity may affect existence values and/or information costs and helps define the potentially affected population. The authors present results from a telephone survey of New York and New Jersey residents conducted in 1996 to collect information about the public's knowledge of the lower Passaic River and the contamination present. The authors assert that the results of the

survey suggest that estimates of potential compensable non-use values could be significantly lower if losses were only incurred by individuals with knowledge of the contamination present or of the river itself.

23. Kanner, Allan and Nagy, Tibor, Measuring Loss of Use Damages in Natural Resource Damage Actions (2005). Columbia Journal of Environmental Law, Vol. 30, No. 2, 2005. Available at <http://ssrn.com/abstract=1874837>.
24. Kumar, Manasi and Pushpam Kumar. 2007. Valuation of the Ecosystem Services: A Psycho-cultural Perspective. *Ecological Economics*. In press.

Kumar and Kumar attempt to address some of the gaps in the valuation of ecosystem services from a psychological perspective stating that economic theory does not accurately capture a typical person's view of ecosystems and their services. The authors suggest that assumptions about rationality, well functioning markets, stable preferences, and others need significant attention to completely address this issue and to make it more widely acceptable. They explain that the "complexities that lie in human attitudes, motivational systems and their behavioral manifestations are not adequately addressed by economic valuation methods and techniques." The authors assert that regardless of the method employed to value ecosystem services, the method should recognize that an individual's relationship with nature, evolving and changing preferences, and dynamic development of ones "ecological identity" are important. They recommend that greater interaction among the fields of economics, psychology, sociology, and other social sciences is necessary to comprehensively address the valuation of ecosystem services.

25. Larson, Douglas M. 1993. On Measuring Existence Value. *Land Economics*. 69(4):377-388.

Larson challenges the notion that existence value can only be measured by employing CV methods and suggests existence value may be a consequence of the models used to characterize nonuse value. He suggests the common assumption made for existence values that preferences for environmental goods are strongly/weakly separable from all private market goods may be too simplistic or restrictive. He explains certain alternative assumptions allow for the measurement of nonuse/existence values from observed behaviors. However, these assumptions suggest that a change in value for changes in environmental goods is made up entirely of nonuse/existence values. Larson concludes it may not be appropriate to assume existence value cannot be measured from market-based methods, but states that significant work still needs to be done before practical methods for measuring existence value from observed behaviors can be implemented.

26. Lazo, Jeffrey K., Gary H. McClelland, and William D. Schulze. 1997. Economic Theory and Psychology of Non-Use Values. *Land Economics*. 73(3):358-371.

Lazo, McClelland and Schulze discuss the theory behind use and non-use values for environmental goods, the use of CV in the measurement of non-use values, and the potential of double-counting across generations from the estimation of non-use values from CV and its implications for benefit-cost analysis. They state the researcher needs to have a good understanding of the motives for and beliefs associated with non-use values to properly account for how values across individuals can be added together to avoid potential double-counting across generations.

27. Mazzotta, Marisa J., and Jeffrey Kline. 1995. Environmental Philosophy and the Concept of Nonuse Value. *Land Economics*. 71(2):244-249.

Mazzotta and Kline briefly discuss various environmental philosophies (e.g., resource conservationism, preservationism, biocentrism, ecocentrism, deep ecology, social ecology, and ecofeminism) and their implications for environmental valuation. They explain that the anthropocentric nature of environmental/natural resource economics conflicts with non-anthropocentric philosophies (e.g., biocentrism, ecocentrism, deep ecology, social ecology, and ecofeminism) because non-anthropocentric philosophies may reject the concept that humans should even make a choice regarding resource protection, but instead believe it is an obligation. As such, resource management decisions based on environmental/natural resource economic valuation methods may be viewed as inappropriate by non-anthropocentric philosophies due to beliefs that nature possesses intrinsic values independent of human values. The authors indicate that in situations where non-anthropocentric concerns are important, methods other than standard economic valuation methods (e.g., incorporation of social norms) have been argued to be more appropriate for consideration in policy decisions.

28. McDaniels, Timothy L., and William Trousdale. Resource Compensation and Negotiation Support in an Aboriginal Context: Using Community-Based Multi-Attribute Analysis to Evaluate Non-Market Losses. 2005. Available at http://www.researchgate.net/publication/222272854_Resource_compensation_and_negotiation_support_in_an_aboriginal_context_Using_community-based_multi-attribute_analysis_to_evaluate_non-market_losses_Ecological_Economics_55_173-186.

29. Nelson, Robert H. 1997. Does 'Existence Value' Exist? Environmental Economics Encroaches on Religion. *The Independent Review*. 1(4):499-522.

Nelson argues that the estimation and use of existence value in decision making should be abandoned because he suggests the estimation of existence value is similar to using an economic method to answer a religious question. He compares the spiritual connection, relationship and views people can have with nature and the environment to that of religious beliefs/practices. He explains that trying to estimate existence value is analogous to estimating the existence value of a church or the knowledge of god and therefore, is meaningless to do.

30. Quiggin, John. 1998. Existence Value and the Contingent Valuation Method. *Australian Economic Papers*. 37(3):312-329.

Quiggin provides a general overview of existence value, the relation of existence value to the use of contingent valuation methods, and the role of existence values in decision making and policy formation. He suggests that WTP estimates derived from CV studies reflect a combination of existence value categories including altruism, bequest value, psychic consumption, option value, intrinsic value of which only some are consistent with conducting an appropriate benefit-cost analysis. He also suggests biases associated with the hypothetical nature of most CV studies and embedding of environmental goods further detracts from the use of CV in benefit-cost analysis. However, he indicates choice modeling (i.e., contingent choice or conjoint) is a valuable extension to CV due its ability to model choices between alternative policy options. It is suggested that additional research is still needed to determine the way WTP for preserving natural areas is appropriately incorporated into policy decisions and that future development of CV/stated preference methods should account for both general citizen attitudes reflecting decisions about what it is best for society and consumer attitudes that reflect personal preferences.

31. Rosenthal, Donald H. and Robert H. Nelson. 1992. Why Existence Value Should Not Be Used in Cost-Benefit Analysis. *Journal of Policy Analysis and Management*. 11(1):116-122.

Rosenthal and Nelson argue that the consideration of existence values is not appropriate in the estimation of economic benefits/costs. They state that it is a mistake for economists to apply economic methods to quantitatively resolve issues that reflect fundamental differences in the social values of people. They further explain that the number of applications for measuring existence values is limitless and can extend far beyond those typically considered, which they suggest makes the concept untenable. Finally, ignoring the conceptual issues raised, the authors contend that the accurate measurement of existence value is difficult in practice due to heavy reliance on the structure and implementation of surveys needed to collect necessary information.

32. Snyder, R., Williams, D., & Peterson, G. 2003. Culture loss and sense of place in resource valuation: Economics, anthropology, and indigenous cultures. In Jentoft, S., Minde, H., & Nilsen, R. (eds.) *Indigenous peoples: Resource management and global rights* (pp. 107-123). Delft, The Netherlands: Eburon. Available at http://www.fs.fed.us/rm/pubs_other/rmrs_1993_williams_d001.pdf.

Snyder, Williams, and Peterson review some of the difficulties encountered in assessing the “culture loss” of indigenous peoples impacted by the 1989 Exxon-Valdez oil spill, describe how traditional economic valuation methods can fall short of addressing culture loss, and provide some suggestions for how this concept of loss could be more appropriately addressed in the future. They explain that the concept of “sense of place” is increasingly being used to characterize “aspects of human relationships to nature that legal, political, and market institutions under-represent in economic and other social transactions” and explain that individuals or communities possess an endowment of natural, cultural, and economic goods. The authors describe that the difficulty in measuring culture loss is related to common reasons valid economic valuation of non-market benefits/costs is generally not feasible. First, there may be things that money cannot compensate. In cases where monetary compensation may be possible in theory, the measurement of economic value may not be possible in reality due to the inability of people to envision themselves in some form of exchange for compensation. Second, indigenous peoples can depend on natural resources for a significant portion of their lifestyle and the appropriate measure of injuries to these resources is WTA compensation for the loss. However, valid measurement of WTA is typically difficult or not possible using current economic methods which results in the measurement of WTP to avoid the loss as the option chosen (which can underestimate economic value for non-price environmental goods). Furthermore, indigenous cultures may still not be willing or able to understand how appropriate non-market valuation methods can even be employed. Third, implementation of certain non-market valuation methods (e.g., CV) can be extremely costly. In addition, the authors suggest that even while current economic theory and methods may not completely address this issue, developing a solution to the problem is also likely to be costly. The authors then expand on some anthropological contributions when addressing the issue of culture loss from damages to natural resources. They cite the value in how anthropologists depict the multiple interconnections between a group’s culture loss and natural resources and the anthropologists’ desire to determine the “local and global players” in the valuation process and the factors that affect their choices. However, they state that the shortcoming from anthropological approaches is the integration of what is learned into an actual solution to the valuation problem. The authors suggest a synthesis of economic and anthropological approaches could be important to more appropriately address culture loss in the context of natural resource damages.

33. Throsby, David. 2003. Determining the Value of Cultural Goods: How Much (or How Little) Does Contingent Valuation Tell Us? *Journal of Cultural Economics*. 27:275-285.

Throsby argues that CV does not fully capture the non-market value of cultural goods and that the development of other economic methods and/or non-economic methods may be helpful for decision making regarding resource allocation for cultural goods. Throsby states that lack of information

people typically have about cultural goods significantly limits the ability for them to make an informed response in the CV framework. In some cases, "sufficient" levels of information may be acceptable for policy making decisions, but additional arguments are made that the complexity in understanding the cultural importance of goods does not lend itself to the acquisition of information quickly. Additionally, he explains that because culture can be defined in terms of beliefs, traditions, customs, etc. which help to identify a group, individual expressions of WTP are not going to capture these aspects of value. As such, he states that even state-of-the-art CV studies will undervalue cultural goods to the extent that there are portions of a good's value that are not capable of being expressed in terms of individual WTP.

34. Gregory, Robin, and William Trousdale. Compensating Aboriginal Cultural Losses: An Alternative Approach to Assessing Environmental Damages. *Journal of Environmental Management*. December 28, 2008. Available at http://www.researchgate.net/publication/24360849_Compensating_aboriginal_cultural_losses_An_alternative_approach_to_assessing_environmental_damages.
35. Whitehead, John C. "Review of Ståle Navrud and Richard C. Ready (editors), Valuing Cultural Heritage: Applying Environmental Valuation Techniques to Historic Buildings, Monuments and Artifacts." EH.Net Economic History Services, Jan 10 2003. Available at http://eh.net/book_reviews/valuing-cultural-heritage-applying-environmental-valuation-techniques-to-historic-buildings-monuments-and-artifacts/.

Excerpt of review by Whitehead: In Valuing Cultural Heritage, Ståle Navrud and Richard C. Ready address a topic growing in importance as economic development threatens many of the world's cultural and historical treasures -- the assignment of economic values to cultural and historical resources. The assignment of values is not straightforward since many cultural and historical resources are difficult to allocate by the market mechanism. The assignment of values is critical, however. When compared with the economic value of economic development, cultural and historic resource market values often appear lacking. The greatest contribution of this book is that these values will not be overlooked.

Many of the applications are high quality using state-of-the art survey methods, visual aids, survey questions that are designed to elicit "true willingness to pay" without excessive bias, appropriate statistical methods, and examinations of the validity and reliability of the willingness to pay statements. On the other hand, some of the applications are deficient in one or more of these characteristics. In some cases there are serious deficiencies that a naïve reader will, unfortunately, overlook.

The book is most useful to those who are (1) interested in the cultural and historical resource policy analysis, (2) interested in conducting a study to measure the economic values of culture, and (3) unfamiliar with valuation methods. Those in category (1) will find the book essential as an introduction to a new and growing area in their field. Experienced contingent valuation researchers who are in category (2) will find the book to be important background reading. Those in categories (2) and (3) will find the book essential but should not rely on it as a primer on how to conduct valuation studies.

UNDERSTANDING TRIBES/CULTURE/SENSE OF PLACE

36. Alfred, Taiaiake, and Jeff Corntassel. Being Indigenous: Resurgences Against Contemporary Colonialism. 2005. Available at http://corntassel.net/being_indigenous.pdf.

37. Alfred, Taiaiake. Colonialism and State Dependency. November 2009. Available at <http://web.uvic.ca/igov/uploads/pdf/NAHO%20GTA%20paper.pdf>.
38. Beckley, Thomas M., *et al.* 2007. Snapshots of What Matters Most: Using Resident-Employed Photography to Articulate Attachment to Place. *Society and Natural Resources*. 20(10):913-929.

Beckley *et al.* investigate how the attachment to place can be tied biophysical, landscape, and ecological aspects of a place along with social or cultural aspects. The authors employ resident employed photography and follow-up interviews to collect data from residents in western Newfoundland and western Alberta. Their results indicated that respondents were able to separate distinct biophysical aspects of place from other aspects (e.g., social and cultural) in which they were attached. The authors suggest that employing similar methods can provide information to policy makers regarding how natural elements (e.g., water, forest, wildlife resources) factor into residents' attachment to place when making decisions on allocating monetary resources.

39. Burger, Joanna, Michael Gochfeld, Charles W. Powers, and Michael Greenberg. Defining an Ecological Baseline for Restoration and Natural Resource Damage Assessment of Contaminated Sites: The Case of the Department of Energy. July 1, 2007. Available with membership or for a fee at <http://www.tandfonline.com/doi/abs/10.1080/09640560701402109>.
40. Burger, Joanna, Michael Gochfeld, Karen Pletnikoff, Ronald Snigaroff, Daniel Snigaroff, and Tim Stamm. 2008. Ecocultural Attributes: Evaluating Ecological Degradation in Terms of Ecological Goods and Services Versus Subsistence and Tribal Values, 28 *Risk Analysis* 5: 1261-1272. Available at <http://onlinelibrary.wiley.com/doi/10.1111/j.1539-6924.2008.01093.x/full>.
41. Burger, Joanna, Thomas M. Leschine, Michael Greenberg, James R. Karr, Michael Gochfeld, and Charles W. Powers. Shifting Priorities at the Department of Energy's Bomb Factories: Protecting Human and Ecological Health. February 2003. Available at <http://link.springer.com/article/10.1007%2Fs00267-002-2778-4>.
42. Carden, Kristin. South Florida Water Management District v. Miccosukee Tribe of Indians. 2004. Available at http://www.law.harvard.edu/students/orgs/elr/vol28_2/carden.pdf.
43. Chan, Kai M.A., Terre Satterfield, and Joshua Goldstein. Rethinking Ecosystem Services to Better Address and Navigate Cultural Values. December 20, 2011. Available with membership or for a fee at <http://www.sciencedirect.com/science/article/pii/S0921800911004927>.
44. Choi, Andy S., Franco Papandrea, and Jeff Bennett. 2007. Assessing the Cultural Values: Developing an Attitudinal Scale. *Journal of Cultural Economics*. 31:311-335.

Choi, Papandrea, and Bennett develop what they term a "cultural worldview" (CW) scale using factor and cluster analysis on survey responses to a set of questions/statements intended to measure cultural attitudes. The cultural worldview scale is intended to capture the multidimensionality of culture and to provide information about how a person's determination of cultural value is affected. Their method is based on the new ecological paradigm (NEP) scale described in Dunlap and Van Liere (1978)² and Dunlap *et al.* (2000).³ The authors focus on four dimensions in developing their CW scale: (1) loss of cultural heritage: we are continuously losing our cultural heritage and values, (2) materialism: material satisfaction can substitute for cultural heritage, (3) the possibility of an identity crisis: development and globalization cause people to lose their cultural identity, and (4) significance of cultural heritage: human beings are cultural animals. Without cultural and historic records, current civilization is not that meaningful. The construction of their initial CW scale was then incorporated into two national surveys as a part of separate economic valuation studies on the Old Parliament

² Dunlap, R.E. and K.D. Van Liere. 1978. The New Environmental Paradigm: A Proposed Measuring Instrument and Preliminary Results. *Journal of Environmental Education*. 9:10-19.

³ Dunlap, R.E., *et al.* 2000. Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale. *Journal of Social Issues*. 56(3):425-442.

House and the National Museum of Australia in Canberra, Australia. The survey was administered via mail to 4,000 randomly drawn households where 785 and 796 usable surveys were returned for the OPH and NMA versions, respectively. The authors were eventually able to use the responses to the survey after they were factor analyzed to segment people into one of four different clusters: procultural, culture-friendly, culture-averse, and anti-cultural. Referencing the clusters to various demographic characteristics, the authors could then develop sociodemographic profiles for each the clusters. The authors suggest that applying the CW scale in non-market valuation studies of cultural resources may allow for more heterogeneity which could improve estimates. They indicate that incorporating greater heterogeneity into modeling could enable more efficient/effective cultural policies to be implemented that better reflect the preferences of the population.

45. Collins, Nancy B., and Andrea Hall. Nuclear Waste in Indian Country: A Paradoxical Trade. June 1994. Available with membership or for a fee at <https://litigation-essentials.lexisnexis.com/webcd/app?action=DocumentDisplay&crawlid=1&doctype=cite&docid=12+Law+%26+Ineq.+267&srctype=smi&srcid=3B15&key=01bdecc60e45afbcf54854d1301f0f2a>.
46. Corntassle, Jeff. Toward Sustainable Self-Determination: Rethinking the Contemporary Indigenous-Rights Discourse. 2008. Available at <http://www.corntassel.net/Sustainable.pdf>.
47. Corntassle, Jeff. 2012. Cultural Restoration in International Law: Pathways to Indigenous Self-Determination. 1:1 *Canadian Journal of Human Rights* 93. Available at <http://www.corntassel.net/culturalrestoration.pdf>.
48. Crowley, Kevin, and John F. Ahearne. Managing the Environmental Legacy of U.S. Nuclear-Weapons Production. November-December 2002. Available with membership, to read online with a free account or download for a fee at http://www.jstor.org/stable/27857751?seq=1#page_scan_tab_contents.
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54. Du Bey, Richard A., Mervyn T. Tano, and Grant D. Parker. Protection of the Reservation Environment: Hazardous Waste Management on Indian Lands. Spring 1988. Available with membership or for a fee at <https://litigation-essentials.lexisnexis.com/webcd/app?action=DocumentDisplay&crawlid=1&srctype=smi&srcid=3B15&doctype=cite&docid=18+Envtl.+L.+449&key=a41779a8d46e081943d77df838ce1350> or <http://heinonline.org/HOL/LandingPage?collection=journals&handle=hein.journals/envlnw18&div=29&id=&page=>.

55. Duchesne, Matthew. Tribal Trustees and the Use of Recovered Natural Resource Damages Under CERCLA. Spring 2008. Available at http://lawschool.unm.edu/nrj/volumes/48/2/06_duchesne_tribal.pdf.
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58. Ford, Larry R. 1974. Historic Preservation and the Sense of Place. *Growth and Change*. 5(2):33-37.

Ford provides a brief description of the perception of place and how it affects human behavior in the context of the development of the urban/central city landscape over time.

59. Gill, Duane A., and J. Steven Picou. Chapter 10. "The Day the Water Died: The Exxon Valdez Disaster and Indigenous Culture," in *American Disasters* (Steven Biel ed.), New York: New York University Press. 2001. Available at https://crrc.unh.edu/sites/crrc.unh.edu/files/media/docs/Workshops/human_dimensions/reading_materials/day_the_water_died_gillpicou_chapter.pdf.
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61. Grijalva, James M. The Origins of EPA's Indian Program. Winter, 2006. Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=894103.
62. Gunderson, Kari and Alan Watson. 2007. Understanding Place Meanings on the Bitterroot National Forest, Montana. *Society and Natural Resources*. 20:705-721.

Gunderson and Watson applied a rapid appraisal research approach to elicit from people proximate to the Bitterroot National Forest in Montana the places on the forest people valued and the reasons why people valued these places. The analysis highlights that people hold values of the forest associated with specific places they visit or spend time and with places never visited but are considered important. The intention of the research was to help inform policy decisions on alternative fuel management options by incorporating local community values of the forest into the decision framework.

63. Hanson, Randel D. 2001. Half Lives of Reagan's Indian Policy: Marketing Nuclear Waste to American Indians. *25 American Indian Culture and Research Journal* 1: 21-44. Available at <http://uclajournals.org/doi/abs/10.17953/aicr.25.1.0k622h6q10212n32?journalCode=aicr>
64. Harper, Barbara, and Stuart Harris. Using Eco-Cultural Risk in Risk-Based Decision Making. April 4, 1998. Available at <http://www.iiirm.org/publications/Articles%20Reports%20Papers/Risk/papert~1.pdf>.
65. Holifield, Ryan Brooks. Spaces of Risk, Spaces of Difference: Environmental Justice in Indian Country. August 2007. Available at <http://books.google.com/books?id=UxFp4pldOK4C&printsec=frontcover>.
66. Inalhan, Goksenin and Edward Finch. 2004. Place Attachment and Sense of Belonging. *Facilities*. 22(5/6):120-128.

Goksenin and Finch examine the concept of “place attachment” and its relation/importance to facilities management and the work environment. They state that understanding place attachment within the work environment is important “to foster a sense of community by supporting the integration of groups in an organization,” improves the attraction and retention of key staff, and “it helps to identify and reflect the organizational culture.” They concluded: “The question of place attachment has a key role to play in the design of workplaces. Facilities managers, designers and planners need to be aware that people become attached to place and that they are likely to encounter resistance from them. Loss of place in an organization can be the “psychological last straw” that causes an employee to leave. Given that place attachment is a significant part of the human condition, redesign and relocation solutions should be undertaken in an informed manner. Such solutions should attempt to transfer those aspects of the environment that define place attachment.”

67. Kanner, Allan, Ryan Casey, and Barrett Ristroph. *New Opportunities for Native American Tribes to Pursue Environmental and Natural Resource Claims*. 2003. Available at <http://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=1126&context=delpf&seiredir=1&referer=http%3A%2F%2Fscholar.google.com>.
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69. Kanner, Allan. *Unjust Enrichment in Environmental Litigation*. 2005. Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1874832.
70. Kimmerer, Robin Wall. *Native Knowledge for Native Ecosystems*. August 2000. Available at http://www.nrs.fs.fed.us/pubs/jrnl/2000/nc_2000_Hull_002.pdf
71. Kirsch, Stuart. 2001. *Lost Worlds: Environmental Disaster, “Culture Loss,” and the Law*. *Current Anthropology*. 42(2):167-198. Available at <https://derianga.files.wordpress.com/2008/08/kirsch-current-anthro-lost-worlds-2002.pdf>.

Kirsch argues that the concept of “cultural property rights” can be used to address issues with culture loss of indigenous peoples in the event of disasters caused by human activities/actions. He states that cultural property rights can provide a way to identify losses associated with “knowledge, ideas, and practices of local value.” Kirsch presents his argument in the context of the court proceedings held in response to US government’s nuclear weapons testing in the Marshall Islands in the ‘40s and ‘50s and testimony in the Nuclear Claims Tribunal that was created to address claims associated with damages and loss to persons and property that resulted from the nuclear testing. He states “there is no anthropological consensus on how to describe the complex histories of indigenous communities and the problem of cultural loss.” However, he suggests that while not all losses may be compensable, “the acknowledgment of loss, however, along with appropriate acts of commemoration, historical documentation, and, where relevant, acceptance of responsibility, and the implementation of reforms designed to prevent past wrongs from recurring are partial but legitimate responses to claims of culture loss.”

72. Kirschner, F. *Primary restoration versus “replace or acquire the equivalent” of tribal reserved lands under NRDA*, presentation at ACES, 2010. Available at: <http://www.conference.ifas.ufl.edu/aces10/Presentations/Additional%20ppts%20to%20pdf/Thursday-NEW/1140%20F%20Kirschner-Thurs-plenary-am.pdf>.
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75. Loomis, Terrence M. Indigenous Populations and Sustainable Development: Building on Indigenous Approaches to Holistic, Self-Determined Development. October 15, 1999. Available at <http://isiarticles.com/bundles/Article/pre/pdf/29006.pdf>.
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78. McBride, Cody. Making Pollution Inefficient Through Empowerment. Available at <http://scholarship.law.berkeley.edu/cgi/viewcontent.cgi?article=1996&context=elq>.
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Milton argues that nature is seen as something sacred and its sacredness is dependent on being separate from humanity. Beliefs that nature should be conserved or unaffected by human activity as much as possible suggest that people view nature as something sacred. She explains that the sacredness of nature being separate from humanity contradicts the view of environmentalists that nature and humanity are interrelated. She also suggests that the sacredness of nature has both a temporal and spatial given how individuals, groups, or communities can derive cultural and historical meanings and values towards nature over time.

80. Murakami, Judith Graumann. Dances with Waste: Criminal Prosecution of Midnight Dumping in Indian Country. Spring, 1992. Available with membership or for a fee at <https://litigation-essentials.lexisnexis.com/webcd/app?action=DocumentDisplay&crawlid=1&doctype=cite&docid=19+W.+St.+U.+L.+Rev.+541&srctype=smi&srcid=3B15&key=1b94f076d39633f8f379f08da218c0fb> or http://heinonline.org/HOL/Page?handle=hein.journals/wsulr19&div=31&g_sent=1&collection=journals.
81. O'Neill, Catherine A. Environmental Justice in the Tribal Context: A Madness to EPA's Method. Spring, 2008. Available at <http://law.lclark.edu/live/files/17297-38-2oneill>.
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Williams and Patterson provide a critique of the study by Beckley *et al.* (2007, *Society and Natural Resources*) stating that the research may be mixing research paradigms and not research methods as Beckley *et al.* describe. The authors think the approach employed by Beckley *et al.* is useful in studying “place”, but also suggest it “looks like a reincarnation of multiattribute utility theory, with utility (e.g., attitude, preference, affect) rescaled as ‘attachment’.”

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