

**REPORT-WIDE ISSUES FOR INITIAL DISCUSSION AT SEPTEMBER 15, 2007
TELECONFERENCE**

1. Optimistic tone of report related to possible use of methods for valuation
2. Need for more context to explain the history of EPA's use of economic valuation and project scope to explore the appropriate role of other types of methods to characterize different types of values associated with ecological protection
3. Should there be a more rigorous rubric for assessing methods (e.g., based on precision, validity, reliability or other criteria)?
4. What are the bottom-line conclusions related to use of different methods now? Related to how EPA can do better valuations now?
5. Is there a lack of balance in evaluating economic methods vs. other kinds of valuation methods?
6. Define economic methods in terms of analysis of trade-offs, not in terms of monetization
7. Question of combining numbers derived through multiple metrics
8. Confirm report's message that all values are defined by people
9. Whose values are valued? Role of experts vs. lay publics.
10. Report message is that there are many types of values and different methods can be appropriate for characterizing different types of value
11. Does valuation only involve valuing the change in an ecosystem or ecosystem properties? Or can it involve valuing the state of an ecosystem?
12. Refer to "ecosystem response" rather than "ecosystem change" (a response could be "no-change")
13. Introduce a clear statement of steps involved in a structural framework for valuation

SELECTED MAJOR ISSUES RAISED BY C-VPESS MEMBERS AND EXTERNAL REVIEWERS' COMMENTS FOR TELECONFERENCES – OCTOBER 15 AND 16, 2007

Chapter/section (new report outline)	Issue	No.
1 Introduction	Freeman – issue passim with message about multiple methods p. 9, line 7: we say, “The Committee will offer advice on several approaches to characterizing ... values ...” I am hard pressed to say what that advice is, other than be open to a variety of different methods. Can we summarize this advice in the Recommendations/Conclusions section?	1.
	Slovic: “ The report has an optimistic tone that implies that, despite certain limitations, we do have acceptable methods for valuation that can be taken off the shelf and used, perhaps supported a bit by other less-tested but promising methods.” Preferences are volatile	2.
	Slovic: “p. 10. Here and throughout the report, ecosystem services are given far more attention than ecosystems. Perhaps the word “ecosystems” should be deleted from the title of the report.”	3.
2 Conceptual framework	Opaluch proposal for different structural framework “a set of stages in quantification of ecosystem values” – and relate concept of value and role of methods to it	4.
2.1. An overview of key concepts		
2.2. Some caveats regarding valuation	Costanza : should economic methods be more than WTP, and whether we should be able to aggregate across methods.	5.
2.3. Ecological valuation at EPA	Opaluch and Smith: call for economic methods to be described as more than monetary methods, essence involves trade-offs	6.
2.4. An integrated and expanded approach to ecosystem valuation: key features	Mooney – simplify definition discussions in chapter by moving much of text to an appendix	7.
2.5. Implementing the integrated and expanded approach	Pitelka: Page 13-18. I found this discussion of values difficult to follow and sometimes confusing and wonder how useful the section will be to EPA.	8.
2.6. Conclusions and	Opaluch – simplify values discussion by distinguishing between	9.

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recommendations	strongly non-anthropocentric views and weakly non-anthropocentric views		
	Opaluch – address issue of when analyses may be sufficient to answer EPA’s question, even if they are incomplete	10.	
	Smith – use of the term benefits not consistent throughout the report	11.	
	Freeman – section 2.2.3 goes beyond valuation to policy valuation (no recommendation)	12.	
	Freeman – redundancies between Chapters 2 and 6 and within chapter 6 – report too long. Pitelka – same issue (with a twist – see 6.1 comment)	13.	
	Smith: report doesn’t communicate clearly that all values come from people	14.	
	Smith: role of the expert vs. role of the public in defining values not clear (see examples given, p. 7-8 of his comments)	15.	
	Pitelka- CAFO discussion Page 30, lines 3-16. It is not clear here whether the discussion pertains to the conceptual model that was developed to describe the system or the mathematical/computer models that were used to estimate quantitatively the ecological effects of the rule. For instance, on lines 6-7, the sentence is addressing the conceptual model (mentioned in the prior sentence), but later in the paragraph reference is made to “opportunities to quantify effects precisely”, which is not what a conceptual model is for. The last sentence of the paragraph starts with “Developing integrated models of relevant ecosystems...” and it is not clear whether this refers to the conceptual or the quantitative models.	16.	
	Smith – p. 29 text describing CAFO rule and conclusion is wrong		
	Smith – p. 30 – need to define what a representative case study is		
Smith – p. 33 – concern lines 18-23 about how concept of benefit is used and implication that non-economic benefits can be included in			

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	a benefit-cost analysis. related concern p. 38, lines 17-25	
	Freeman, Slovic – address the issue of resources needed more directly.	17.
	Slovic: p. 55. Notes the need for finding out what is important to people, once they have been informed. Our report should make clear, early on, that every reference to public input assumes an informed public.	18.
	Slovic: p. 20. I believe multiple methods should be required so that inconsistencies, indicative of preference construction, can be identified and dealt with. The report assumes that useful information about value is contained in inconsistent measures. Maybe not.”	19.
	Freeman – p. 35, lines 15-16 refers to “accepted scientific standards of precision and reliability” – questions what are accepted scientific standards – questions language	20.
	Slovic: p. 36. Section 2.3.3. Sets forth criteria for using multiple values, when expanded methods meet accepted scientific standards of precision and reliability, and so on. These criteria should apply to all measures used. As noted above, I think few would meet these standards.	21.
	Freeman. p. 42, lines 6-22: I think that this paragraph oversells deliberative processes. In any case, it is out of place in a section on “Implementation.” So cut it.	22.
	Slovic– Emphasize deliberative processes: Preference construction poses many serious challenges to the methods and conclusions of this report. But there is a bright side. The decision-aiding methods described briefly in the appendix (pp. 314-322) are designed to guide experts and laypersons to an informed, rational, transparent construction process, resulting in a defensible expression of value. Because the process is transparent, critics can debate and modify	23.

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	the structure. These constructions can be put before decision makers in the stages where integration, deliberation, and negotiation is addressed in more or less formal interactions with stakeholders and publics (see pg. 227, lines 18-19).	
	Slovic: The report incorrectly states that such decision aiding produces multiple dimensions of value that cannot be synthesized into a single quantitative measure (p. 315, lines 1-5). This is incorrect. The correct view, that a single value could be constructed using multi-attribute utility theory, is presented on p. 318, lines 9-15.	24.
	Patton – comments to sharpen language (i.e., distinguish between “ecosystem change” and ecosystem “response” to an action which may be “no change”); link C-VPSS approach to Figure 2; more feedback loops in Figure 2 to show process is iterative, not linear	25.
	Bostrom: change language so it doesn’t give impression that experts are without bias	26.
	Bostrom: change language Page 55 line 3-4 and elsewhere (e.g., page 190 lines 23-26) there is a little lack of clarity regarding EPA providing value information versus eliciting values	27.
3 Building a foundation for ecological valuation: predicting effects on ecological systems and services 3.1. The concept of linkages between stressors, ecological effects, and ecosystem services 3.2. Challenges in implementing conceptual models and ecological production functions	Kasperson’s call for more guidance on how a conceptual model should be designed. Duncan Patton made the same point. Pitelka called for consistency on how conceptual modeling is used	28.
	Patton suggested clarification of terms: “parameterization of models” and stakeholders	29.
	Patton questions use of term “change” as the only outcome of some action. Suggests instead “Predicting ecological Response”.	30.
	Grossman questions recommendations relating to ecological production: “I would suggest that we review the utility and transferability of the ‘economic production function’ concept for	31.

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3.3. Strategies to provide the ecological science to support valuation 3.4. Identifying relevant ecosystem services 3.5. Conclusions/recommendations	use in ‘ecological production functions’. Economic production functions represent human decisions to provide input in different quantities that result in a desired function or service. Ecosystem services are based on ‘outputs’ from complex ecosystem components and interactions over which humans have a variable ability to control. I know that it resonates with some as it provides a nice parallel structure to economics, but it has never made complete sense to me.”	
	Grossman calls for more of an introduction to concept of endpoints before discussion of ecol production functions	32.
	Patton: page 61, line 22 calls for acknowledgement of broader definitions of indicators, including “a state that tells something about a process”; p.64 acknowledge report cards are subjective	33.
	Patton-page 65 line 19 discuss indices (e.g., IBI) in discussion of meta-analysis	34.
	Patton questions applicability of NEON to EPA valuation procedures	35.
	Risser suggests text delete, or at least shorten, the discussion of the criteria for identifying ecosystem services	36.
	Freeman comment about inserting more discussion of ecosystem dynamics and non-linearity	37.
	Pitelka question about functional groups – should text remain as is? Mooney comment on same issue	38.
	Mooney – replace figure 5 with veersion with arrows	39.

Chapter/section (new report outline)	Issue	No.
	Freeman Section 3.4.1 – responds to Kathy Segerson’s question about Barbier Reference, Hoagland and Jin.	40.
	Mooney: pg 67. Line 6-9. It is a shame that the committee didn’t discuss further the suggestion by the OMB staff person of pushing for a Bureau of Ecological Dta comparable to the bureau of standards. It is frustrating to see the wealth of data available from faostat and the Division of Agricultural Statistics where it is so easy to see trends and to realize that nothing comparable is available for economists-ecologists from which to work	41.
4 Methods for assessing value 4.1. An expanded set of methods 4.2. Value transfer	Freeman, Bostrom: What will be new section on decision science ?	42.
	Freeman – Table 3, p. 87 – questions comment on Individual Narratives – “can provide reliable and valid quantitative assessments	43.
	Opaluch and Smith– report does not give balanced treatment of methods (e.g., citizen juries, emergy, energy, socio-psychological).	44.
	Smith: Table 2 misleading in terms of summary of information and goals	45.
	Opaluch: Enlarge discussion of conjoint analyses to broaden discussion of economic methods, include HEA	46.
	Smith – HEA is not an economic concept. p. 83	
	Smith – replacement costs should not be used Slovic: Pros and cons of various methods are presented but, in my view, the cons are underweighted. Forty years of research on constructed preferences indicates that preferences for complex, unfamiliar outcomes are not well-formed but are often constructed on the spot in the context of elicitation. I am not talking about general values (e.g., biodiversity is important) but rather about the	47.

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	quantitative tradeoffs essential to valuation (see, e.g., p. 79, lines 22 and 23 on substitutability and tradeoffs underlying economic-valuation methods).	
	Freeman:- Table 3, p. 88: “I still don’t think that Focus Groups is a valuation method. It is a useful tool. And this is how it is described on p. 81. The same comment applies to pp. 281-283.”	48.
	Smith issue: p. 84, lines 14-17 – with text that “no single method, metric or index of value can be used to fully reflect important ecological effects and human concerns for decision-making because value is such a complex concept”	
	Freeman – benefit transfer: P. 91, line 13: Regarding benefits transfer, I think that “uniformly negative” is too strong (gives citation for acceptable transfers)	49.
	Freeman- 6. Section 4.2: Somewhere here (perhaps p. 98?), we should mention the Environmental Valuation Reference Inventory (EVRI), a searchable data base of environmental valuation studies. EPA has supported the creation of this data base.	50.
	Opaluch –acknowledge recent work assessing benefit transfers research	51.
	Segerson: EPA use of benefit transfer in research on Mid-Atlantic region – issue of appropriate criteria for benefit transfer and reference to this example	52.
5 Cross-cutting issues	Kasperson’s suggestion to find structural way to give uncertainty section more visibility	53.
5.1. Analysis and representation of uncertainties in ecological valuation	Patton notes that uncertainty also relates to conceptual models – discussion of uncertainty might come earlier in report	54.
5.2. Communication of ecological valuation information	Smith: 101- Monte Carlo reduces transparency Patton looking for section summarizing recommendations from uncertainty section, suggests this could be merged with recommendations from communications section	55.

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	Pitelka: Pg. 100, line 2-5. This is potentially confusing because I presume the “three analytic steps” mentioned here are the same as the 3 steps discussed in Chapter 3. However, the second one here, “predicting behavioral reactions to these outcomes” sounds very different from “predicting the effects of these outcomes on ecosystem services valued by people” (my wording).	56.
	<p>Pitelka Pg. 104, line 12. I wondered about this statement because a few years ago I worked with Granger Morgan on an expert elicitation in which we developed subjective probability distributions for all the questions that experts answered. While Granger was responsible for that part, it did not seem “difficult” to me. I am no expert on expert elicitations but wonder why “translation into probabilities is difficult”? I suggest adding to the sentence “but can be done.” If a reference is needed one option is the paper from the project I worked on with Granger:</p> <p>Morgan, J.G., L.F. Pitelka, and E. Shevliakova. 2001. Elicitation of expert judgments of climate change impacts on forest ecosystems. <i>Climatic Change</i>, 49:279-307.</p>	57.
	Patton: Section 5.2.3 has a lot of redundancy. Rick: Move to uncertainty section	58.
	Freeman: P. 109, lines 9-23: This paragraph is out of place. It is more about how to communicate information to respondents in a survey to elicit values.	59.
	Slovic: p. 105 Section 5.2. This section makes numerous good points about communication but it seems miscast. Dialogue with the public is not merely to educate them about the valuation analysis but to involve them integrally in the entire assessment process. That was the real message of the 1996 NAS report,	60.

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	Understanding Risk.	
	Slovic: p. 109 lines 21-23. Says numbers will be dominated by qualitative and visual stimuli. Yes, except when these numbers are dollar values. Dollars carry special meaning that other numbers may not have. Dollars will likely dominate non-monetized dimensions of value.	61.
	Slovic p. 112 Section 5.2.4. First bullet. Iterative approach needed for elicitation of values, not just for communication. General comment: Perhaps keep the part of Section 5 dealing with statistical uncertainties. The communication part is really more about interacting with the public in value elicitation. This fits better with the discussion of Robin Gregory’s work in the decision-aiding section.	62.
6 Applying the approach in three EPA decision contexts	Patton: change terminology from “predicting ecological change” to “predicting ecological response”	63.
	Patton: discuss staffing issues more broadly than just in the regional context	64.
	Patton: make format for recommendations more consistent; likes bullet approach	65.

Chapter/section (new report outline)	Issue	No.
	<p>6.1 Valuation for National Rulemaking</p> <p>Freeman re: Kathy’s question: re “Few studies provide national level value estimates for a range of services that could be readily used in a national level benefit assessment.” Rick: 1. P. 126, lines 20-22: “Few studies provide national level value estimates ...” Is this accurate? Other than the CAFO recreation values based on Mitchell and Carson, none come to mind. So, “few” might be an overstatement.</p>	66.
	<p>Pitelka: Pages 116-135. These pages of section 6.1 ostensibly are about national rule making, but the text actually is a general discussion of the committee’s advice for all three contexts of EPA decision-making. CAFO and national rule making are mentioned very little in these pages, and in most cases, where they are mentioned, you could replace them by referring to “all EPA decision-making”. Thus, there are 19 pages of text with little analysis or advice specific to the national rule making context. Thus, the entire section, while clear and well-written, seems redundant with earlier sections of the report. In contrast, the two major sections that follow (6.2 and 6.3) on site-specific and regional decision making are quite focused on unique aspects of those two decision-making contexts. It seems odd that pages 28-31 of the report and Text Boxes 2 and 3 represent the actual analysis of the CAFO process (more along the lines of what is done in 6.2 and 6.3) but are either elsewhere in the report or relegated to text boxes. Section 6.1.3 Conclusions (pages 132 to 135) summarizes the prior 16 pages and yet takes three pages to do so. Thus, the summary is redundant with the prior 16 pages, which are redundant with other parts of the report.</p>	67.

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	<p>Daniel: P 118 figure 6 [I do not recall this model being presented in the CAFO documents that we reviewed and critiqued. My understanding was that a “conceptual model” at this level of detail was not developed until after the CAFO benefits assessment was essentially concluded. My concern is that if this figure is taken by the reader to be from the CAFO analysis (especially if it was developed and used early in the process), it may call into question some of the criticisms and recommendations that we present earlier in our report.]</p>	<p>68. 69.</p>
	<p>Pitelka: Page 117, line 9 – page 120, line 32. This discussion seems to be ambivalent about the active involvement of the public or publics in the development of the conceptual model. For instance, on page 117, lines 9-10 and page 118, lines 18-20, the text seems to state that the conceptual model should be developed by the experts without direct public involvement. This is in contrast to what we say in other places in the report where we strongly recommend direct public involvement. On page 118 the text acknowledges that it is important to consider what ecosystem features are valued by the public but says that “This can be gleaned from a variety of research approaches” rather than stating that the public, or relevant publics, should be involved in the process. On page 119, lines 8-20 the potential involvement of the public is included in two of the three bullets, but even here there is a sense that the experts need to find out what the public cares about but not necessarily involve them in the process of developing the conceptual model. On page 120, lines 11-20 there is finally mention of “a more participatory process”, but it is presented as an option, rather than being the clear recommendation of our committee. Is the national rule-making process different enough to make public involvement less critical or more difficult? If so,</p>	<p>70.</p>

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	perhaps that should be stated more clearly so that the approach discussed here does not seem inconsistent with what we say elsewhere.	
	Smith: p.120, lines 23-26 disagrees with recommendation that “in order to increase transparency the Agency should document in its economic benefit assessments and RIAs how the decisions underlying the conceptual model were made. It should clearly identify the criteria for including effects within the core analysis and how these criteria were applied to those analytical choices.”	
	Segerson- “There is precedent in the literature on economic benefits transfer for these types of analyses (see Rosenberger and Loomis 2003 and Navrud (in press), for examples of how this logic might be used in benefits transfer). [I don’t understand the idea behind this second approach from the description here. What is the key distinction? I think it would be helpful to have some clarification, but I can’t revise this to be clearer without more info. KS] “	71.
	Patton: edit text to see where “response” “output” or consequences” might better substitute for change.	72.
	Pitelka: Page 124, lines 11-13. I am not sure what this (“fully tested techniques are available for evaluating different functional groups”) means. This makes it sound as though there is a methods manual for applying the concept of functional groups. It really is not that straightforward. For one thing, how species are divided into functional groups depends on what criteria are used and so is arbitrary. Plant species A and B could both have wind-dispersed seeds and be grouped in the same functional group with regard to seed dispersal. But A might be a nitrogen-fixing herb and B a conifer tree. They would be in different functional groups with	73.

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		regard to growth form or their roles in nitrogen cycling.	
		Patton: p.124 calls for more discussion of how to select a model “that applies nationally and yet has sufficient detail to help the process”	74.
		Patton – discuss air quality and CAFOs earlier, e.g., p. 129, 1.9	75.
	6.2 Valuation for Site- Specific Decisions	Patton: discuss modeling the ecosystem earlier in section	76.
		Daniel: can the story-line in this section be made clearer?	77.
	6.3 Valuation for Regional Partnerships	Patton: explain distinction between local or site specific examples with broader impacts and regional examples	78.
		Patton: discuss how representative Chicago Wilderness is	79.
		Patton: explain relationship of SE Framework to valuation	80.
7	conclusions and recommendations	Kasperson’s suggestion to reduce the number of recommendations, structure it along model of conclusion/justification/related recommendation	81.
		Freeman added recommendation: strive to use valuation methods that capture information on the widest range of effects of Agency actions	82.
		Freeman comment about p. 193, l. 19-21 “methods that have been validated by substantial research” – calls for adding discussions of validity tests for Appendix B methods and revising recommendations	83.
		Freeman – include discussion of information collection requests and burden on valuation	84.

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	<p>Slovic issues: p. 191 lines 18-20. What if experts disagree with the public’s priorities for services?</p> <p>p. 192. Certainly the public input should be respected, but what if the informed public does not wish to place much/any value on systems and services that experts believe important? This wording seems slanted too much in favor of the public’s views.</p> <p>p. 193. See my early criticisms regarding validity of methods and use of multiple methods of value that may disagree.</p> <p>p. 194 line 6. Decision-aiding methods should be cited here.</p> <p>p. 194 line 27. Concepts of non-value (or construction) may also be exposed by multiple methods.</p> <p>196. line 3. Yes, communications about benefits are important but communication issues are secondary to major problems of value elicitation.</p> <p>197 line 6. What if resources are lacking?</p>	85.
	<p>Daniel: Page 191, line 19 add language to sentence that ends that are of public importance; while still being watchful for services that the public should appreciate but may not be aware of.” [This may not be the best way—but we need to remind the Agency somewhere in here of the other important edge of the public value sword.]</p>	86.
	<p>Pitelka comments: Page 191, lines 16-17. This seems to be putting the cart before the horse. This is calling for the application of ecological models before the conceptual model is developed. For instance, the term “predict” sounds too quantitative. I think the concept here is that the experts should identify and describe in qualitative terms how the EPA action could affect the ecosystem. This can be done without “using ecological models that are scaled and parameterized</p>	87.

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	<p>to the ecosystems.” We are simply advocating a box and arrow conceptual model. The application of appropriately scaled and parameterized models would happen later when the time comes to quantify the effect on ecosystems, determine how that affects ecosystem services that matter to people, and value those changes.</p> <p>Pitelka Page 191, lines 26-33. The term “biophysical” is used fairly commonly in the report, but this paragraph now makes we wonder if there are different concepts of what it means. How are biophysical properties different from ecological properties? In this paragraph, what is the difference between “experts in both relevant biophysical aspects of the modeling” and “ecologists, who know what biophysical changes can be measured”? This seems to be calling for the involvement of ecologists twice but under different names. Maybe a little rewording would solve this.</p>	
Appendix A: special terms and their use in this report	Freeman - Include definition of benefits	88.
Appendix B: discussion of methods	Is treatment of decision science approaches appropriate here? (waiting to see Joe’s text)	89.
Bio-physical ranking methods	Freeman questions about Conservation Value Method	90.
Ecosystem benefit indicators		
Measures of attitudes, preferences, and intentions		
Economic methods		
Group expression of values and	Freeman question about Energy and Material flows: p. 212, lines 9-11: The blue crab spawning sanctuary does not seem to me to be an example of the ecological footprint of the blue crab population, especially given the much wider distribution of the blue crab population throughout the Bay during the summer.	91.

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social/civic valuation Deliberative processes	Slovic: 245 line 8. I disagree that the largest barriers to use of survey methods are institutional. I believe they are conceptual (lack of validity).	92.
Methods using cost as a proxy for value	Freeman question about conjoint survey Text box 13: pp. 235-238: Why is Text Box 13 in this section rather than in the economic methods section?	93.
	Freeman questions re Mediated Modeling: 1. pp. 305-310: I still don't think that mediated modeling is a valuation method. Mediated modeling is a process for reaching consensus on a wide variety of analytical issues. To the extent that it is used to deal with valuation issues, how does it differ from deliberative processes more generally? In the South African fynbos example (pp. 306-307), where did the values listed in Table 1 of Higgins, et al., (1997) come from? Was there a deliberative process? Was this a form of benefits transfer? The unit value of wildlife harvest might have been simply a market price. Also question of how facilitator influences outcomes	94.
	Slovic: 318. Valuation by Decision Aiding. The name for this method is misleading. The method applies multi-attribute modeling to construct values, in keeping with preference construction. Yes, it aids decisions, but that is the aim of all other methods as well. Perhaps call it Value Construction Methods. 315 line 1. No. The method can provide a specific estimate, as correctly noted on p. 318 lines 9-14. 320 line 5. All methods in this report aim to provide decision support through valuation. Yes, it may not be liked by OMB. This may reflect a deficiency in OMB's guidelines. Yes, the facilitator may influence the results. Nuances of the other methods also may influence their results. That's what preference construction implies.	95.
	Smith: report appears to suggest that ecosystem services and their	96.

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	valuation are more important than other things EPA takes account of; this is misleading	
	Smith: report over-emphasizes ecosystem protection and doesn't put it in context of EPA's overall mission; legislative mandates may not require EPA to base decisions on ecosystems	97.
APPENDIX C: SURVEY ISSUES FOR ECOLOGICAL VALUATION: CURRENT BEST PRACTICES AND RECOMMENDATIONS FOR RESEARCH		98.