

U.S .Environmental Protection Agency  
Science Advisory Board (SAB)  
Committee on Valuing the Protection of Ecological Systems and Services (C-VPES)  
Summary Meeting Minutes of a Public Teleconference Meeting  
12:30 p.m. - 2:30 p.m. (Eastern Time)  
February 27, 2007

Committee: The SAB Committee on Valuing the Protection of Ecological Systems and Services (C-VPES). (See Roster - Attachment A.)

Date and Time: February 27, 2007, 12:30pm - 2:30 pm (Eastern Time) (see Federal Register Notice – Attachment B)

Location: Participation by Telephone Only

Purpose: The purpose of the teleconference is to discuss draft text developed by committee members for a draft report related to valuing the protection of ecological systems and services. (See Meeting Agenda - Attachment C.)

Attendees: Members of the C-VPES:  
Dr. Barton H. (Buzz) Thompson, Jr. (Chair)  
Dr. Kathleen Segerson (Vice-Chair)  
Dr. Gregory Biddinger  
Dr. Robert Costanza  
Dr. Terry Daniel  
Dr. A. Myrick Freeman  
Dr. Dennis Grossman  
Dr. Robert Huggett  
Dr. Douglas MacLean  
Dr. Harold Mooney  
Dr. Louis Pitelka  
Dr. Paul Risser  
Dr. Holmes Rolston  
Dr. Mark Sagoff  
Dr. Paul Slovic

Consultants to the C-VPES

Dr. Joseph Arvai  
Dr. Allyson Holbrook  
Dr. Jon Krosnick

EPA SAB Staff

Dr. Angela Nugent (Designated Federal Officer)

Other Members of the public (see Attachment D)

## **Meeting Summary:**

The meeting followed the issues and general timing as presented in the meeting Agenda (see Meeting Agenda - Attachment C). There were no written comments submitted to the SAB and no requests for public comment.

The DFO opened the meeting by noting that the proceedings conformed to the requirements of the Federal Advisory Committee Act and that the members of the chartered SAB had met the requirements of the Ethics in Government Act.

Dr. Buzz Thompson, the chair of the committee welcomed committee members and expressed appreciation for the diligence and work involved in drafting components of the draft report. He also thanked committee members for providing written comments in advance of the meeting (see compilation of member comments in Attachment D).

Dr. Thompson noted that the purpose of the six teleconference calls planned for the committee was to “go over substantive issues in portions of the report not previously discussed” so that the text could be revised for the committee’s face-to-face meeting, May 1-2, 2007. He noted that these new sections, Parts 2 and 3, currently represent 300 pages of material and that the teleconferences by necessity can only devote brief time to discussion of each topic. He asked committee members to express their issues and suggestions briefly and committed to working with the C-VPES vice chair, Dr. Kathleen Segerson, and the DFO to identify ways to revised sections discussed either during the committee or immediately afterward. He also committed to identifying topics needing additional discussion by the full committee that merit inclusion on the agenda for the May 1-2, 2007 meeting.

### **Discussion of Amount of Detail/Type of Discussion Desired in "Method Write-Ups" in C-VPES Draft Report, Part 3**

Dr. Segerson briefly discussed efforts since the October 2006 C-VPES meeting to provide guidance for method write-ups in Part 3 of the report. She reviewed the current draft method write-up for Citizen Valuation Juries (Part 3, Section 6.3 of the 2/15/07 C-VPES draft report) as an illustration of the tone, level of detail, and type of content desired. She suggested that the write-up provided:

- Clear description of how the method works
- Identification of the inputs and outputs
- Description of what the method can and cannot do, especially what kinds of values it is designed to capture and not capture
- Discussion of how the method could be used in valuation
- Examples to illustrate how it could be used in a valuation context
- Discussion of how it would fit into C-VPES process
- Discussion of the status of the method in terms of use in the past by EPA, other federal agencies

- Discussion of whether the method was ready for use immediately or was in an exploratory stage
- Balanced presentation, not an advocacy pieces
- Discussion of what the method can and cannot do in principle and its strengths and weaknesses in practice.
- Research needs.

Dr. Segerson asked committee members for comments. Members made the following comments:

- It would be desirable to “step through a specific case” to see how a method is used and to illustrate data inputs and outputs.
  - Dr. Segerson and Thompson responded that the decision-context discussions in Part 2 of the draft report were intended to provide an opportunity for such an illustration. They asked that discussion of this topic be deferred to teleconferences devoted to those sections of the draft report.
- Write-ups should include references to more than one example where method was used. Such references would be helpful for EPA practitioners.
- Method write-ups can provide EPA with an outline of the research program to evaluate methods. The method write-ups can help EPA evaluate how the benefits of applying methods compare to cost of developing them.
- C-VPES report is not intended to be a “cookbook.” EPA practitioners will use the references to look elsewhere to learn in detail about how to apply methods.
- Method write-ups should provide examples relevant to EPA so EPA practitioners could understand method.
  - It might be useful to have a greater level of interaction with EPA staff to develop examples
  - Method write-ups should include text boxes that would illustrate applications for EPA practitioners
- How to strike the “right balance” between discussing a specific example and providing a broad review of major methodological issues in a brief write-up is challenging.
  - Common goal is to pique the interest of EPA practitioners so they would see potential applicability and relevance to EPA’s work and to provide them with other sources that would be useful to help them more fully understand, evaluate, and apply the method.
- Write-ups should envision EPA practitioners as audience and communicate to them in an appropriate style and level of detail. Write-ups should avoid technical jargon.
  - Members suggested that the DFO ask for EPA feedback on level of jargon/clarity of method write-ups.

Conservation Value Method (Part 3, Section 2.2; Part 2, Section 4.1 text on Conservation Value)

At the request of the Chair, Dr. Dennis Grossman, summarized the written comments on the “Conservation Value Method” write-up. He noted that comments fell into four categories (strengths, weaknesses, confusions, and suggestions). In terms of “strengths,” he noted that members commented on the desirability of measuring values consistently across a landscape and recognizing the geographic nature of ecosystems. Members also agreed there was potential for EPA to undertake use of this method and EPA ecologists were positioned to take advantage of it. In terms of “weaknesses,” he noted that committee members found the description of the methodology difficult to follow.

In terms of comments related to “confusions,” Dr Grossman noted that commenters found: 1) some inconsistency of use of the term “value” as compared with Table 1 of the report (e.g., the write up refers to “inherent values” associated with biodiversity, while Table 1 defines value primarily in anthropocentric terms) and suggested that the analytical outputs be called “measures” rather than “values;” 2) a need for clearer discussion of where the method fits into the C-VPES process; 3) a need to discuss how the method allows non-expert values or weights to be added to value maps and if different groups have different values, how decision-makers decide which values to address; 4) a need to discuss how interactions between different value criteria relating to biodiversity and conservation values combine to provide a value attribute—e.g., if there are multiple conservation goals in same landscape, how do methods aggregates multiple conservation values on the same landscape to derive aggregation of valuation; and 5) a need to discuss how are quality ranks aggregated and separated.

Dr. Grossman noted the following suggestions: 1) identify all assumptions associated with the method be clearly (e.g., is biodiversity a “starting goal”); 2) use examples; 3) avoid jargon; and 4) address how intrinsic ecologic values can be integrated with economic values.

Dr. Grossman then stated that the text can be clarified to address most of the issues raised. He noted that he would like to revise text to focus the method on expert determinations of biodiversity and conservation values and drop discussion of integration between ecological and social values.

Several members provided oral comments. Members asked for:

- More clarity on the types of values captured or not captured by the method
- Citations or references to where the method has been used
- One or more examples illustrating use of the method
- Limiting detail presented in Table and replacing brief discussion of examples there with more discussion of those examples
- Revision of text so that it has a more balanced, less advocacy-oriented tone

- Evidence for assertions about the power or usability of the method or revision of the text if evidence or assertions are not available
- Consistency between language on page 71 of the draft text and conservation value-write up

Members also noted that there was no necessary need for the method write-up to integrate the “outputs” from this method with the outputs of other methods. What may be a “weakness” of this method in some contexts might be an asset in other contexts. Ecological values identified in this method can be different from economic values identified by other methods and it may be appropriate to identify them separately.

Dr. Thompson thanked Dr. Grossman for his work and committed to communicating suggestions for next steps in revising the method write-up after consultation with Dr. Segerson and the DFO.

Energy and Material Flow Analysis (Part 3, Section 2.3; Part 1, Section 4.1 text on Energy and Material Flow Analysis)

Dr. Robert Costanza led the discussion of text developed with Dr. Gregory Biddinger. He noted that it will be important to gain the assistance of an editor in developing future drafts of the C-VPES report. He summarized written comments received prior to the teleconference. Members had noted that several pages were replicated and the DFO had acknowledged an error in compiling that section of the report. Several commenters requested more detail illustrating how the energy method might be used and how the ecological footprint method might work.

Several members of the committee provided oral comment. Members asked that the text be revised to:

- Provide less detail on topics not related directly to valuation, e.g., GNP vs. energy use
- Provide reference for study using energy analysis to assess ecosystem services
- Clarify, consistent with brief text on page 71, that methodology is based on an energy theory of value and represents the energy cost of producing goods and services
- Avoid saying that the energy cost can be a proxy for economic value without discussion of whether the analysis meets the “limited conditions where cost can be proxy for economic value or human preferences.”
- Include a text box with example that could help the reader understand the method
- Use example examining interest in using any kind of cellulostic cells to meet energy needs. Example could consider returns on investment as compared with other uses of the ecosystem.
- Discuss availability of data for analysis, compared with other valuation methods

- Address comments that the DFO might obtain from Dr. Kerry Smith on several references to empirical work listed in the current write-up.
- Expand the ecological foot-print discussion, especially how this might be used by EPA

Dr. Costanza noted that he could describe in more detail the energy-based analysis set in Louisiana.

Dr. Thompson committed to communicating suggestions for next steps in revising the method write-up after consultation with Dr. Segerson and the DFO.

### Socio-Psychological Approaches (Part 3, Section 3; Part 2, Section 4.2)

Dr. Terry Daniel began the discussion by summarizing written comments received. He first noted comments that relate to other sections of the report, i.e.: 1) identify fundamental assumptions clearly and briefly in this section (some redundancies with Part 2, section 4.2); 2) discuss the relationships between social/psychological methods and economic methods; 3) discuss reliability and validity, and 4) discuss the role of public opinions and preferences in Agency decisions making. Dr. Daniel noted that these issues are addressed briefly in the Social and Psychological methods section, but they touch on much broader issues and probably should be removed from the social/psychological methods section. Dr. Daniel noted that Part 2 of the report has text on “Introduction to different types of methods” and Uncertainty. Dr. Segerson also noted that Part 1 has a new section 2.4, “Some Caveats Regarding Valuation” that also addresses related issues. Finally, Dr. Daniel noted that Appendix A provides a detailed discussion of survey research and that the Socio-Psychological section might reference that text for more detailed discussion of several survey implementation issues.

Dr. Daniel noted that the second set of written topics encompass issues of “coverage.” He noted that the current draft has no explicit discussion of mental models and asked whether text previously generated will be included as a separate section or be incorporated in this section. A commenter also asked for a discussion of focus groups’ involvement in assigning values, and making trade-offs and decisions. Dr. Daniel noted that there is a separate section on deliberative groups and that he had limited the discussion of focus groups in this section to qualitative analysis exercises that do not arrive at final values.

C-VPES members provided oral comments specifically on the Socio-Psychological write-up. Members asked that the text include more detail on examples of how surveys can be used for valuation. Dr. Daniel responded that he could develop the Forest Service examples as a text box. A member asked that the section explain more clearly how socio-psychological methods differed from willingness-to-pay surveys. Members also discussed reframing the section to focus on the types of questions asked by different socio-psychological methods, how they differed from economic surveys and from each other, and types of information gathered through them. Dr. Jon Krosnick, consultant to the committee, suggested that the Socio-Psychological Method write-up

might discuss how the methods compared to one another and to economic contingent valuation surveys in terms of sampling, types of response measures, what kinds of information are given to respondents, and whether respondents are allowed to consult with others before responding. He also suggested that the text reference Appendix A on surveys. He suggested that the text refer to "attitude survey questions," instead of "attitude surveys," because surveys can include both attitude-related and contingent valuation/stated preference questions.

C-VPES members also discussed the relationship of the Socio-Psychological methods section to other components of the C-VPES report. Members made the following comments:

- Discussion of fundamental issues dealing with all methods should be addressed in one clearly identified part of the report and cross referenced in other parts of the report.
  - This section should include comparison of metrics and types of measures used (e.g., conservation value/importance rating/willingness to pay method)
  - This section might include a graphic showing relationships between types of ecosystem values, information needed to understand them more fully, and types of methods that might be used (e.g., one measure might be appropriate for recreation value, another measure appropriate for sustaining values in Millennium Assessment framework, another type of measure appropriate for aesthetic or cultural values). All these methods are needed
- New text in Part 1, Section 2.4 (pp.18-19) identifies broad issues with valuation as context for part 1
  - Suggestion: change tone of that section to send message that experts can help people make connections necessary to understand some kinds of ecosystem values. Lay values reflect popular perceptions. Values may change over time with the amount of information and understanding people have. Current framing/tone implies..."unless people perceive values, it's not a value."

Dr. Thompson committed to communicating suggestions for next steps in revising the method write-up after consultation with Dr. Segerson and the DFO. He noted the need to coordinate revisions in this section with any revisions to be made with the economic method section.

### Conclusion of Teleconference

Dr. Thompson thanked participants for the valuable discussion. He acknowledged the contribution of Dr. Segerson in revising the document and the DFO in assisting her in assembling components.

The teleconference was adjourned at 2:30 p.m.

Respectfully Submitted:

/s/  
Angela Nugent  
Designated Federal Official

Certified as True:

/s/  
Dr. Barton H. (Buzz) Thompson, Jr.  
Chair  
SAB Committee on Valuing the  
Protection of Ecological Systems  
and Services

#### List of Attachments

Attachment A: Roster of the SAB C-VPES

Attachment B: Federal Register Notice

Attachment C: Meeting Agenda

Attachment D: Attendees from the Public Who Requested or Were Provided Call-in Information

Attachment E: Comments from Members and Consultants of the SAB Committee on Valuing the Protection of Ecological Systems and Services (C-VPES) on the 2/15/07 draft report for discussion at the 2/27/07 C-VPES public teleconference call

**Attachment A:  
Roster of the U.S. Environmental Protection Agency  
Science Advisory Board  
Committee on Valuing the Protection of Ecological Systems and  
Services**

**CHAIR**

**Dr. Barton H. (Buzz) Thompson, Jr.**, Robert E. Paradise Professor of Natural Resources Law, Stanford Law School, and Director, Woods Institute for the Environment, Stanford University, Stanford, CA

**VICE-CHAIR**

**Dr. Kathleen Segerson**, Professor, Department of Economics, University of Connecticut, Storrs, CT

**MEMBERS**

**Dr. William Louis Ascher**, Donald C. McKenna Professor of Government and Economics, Claremont McKenna College, Claremont, CA

**Dr. Gregory Biddinger**, Coordinator, Natural Land Management Programs, Toxicology and Environmental Sciences, ExxonMobil Biomedical Sciences, Inc, Houston, TX

**Dr. Ann Bostrom**, Associate Professor, School of Public Policy, Georgia Institute of Technology, Atlanta, GA

**Dr. James Boyd**, Senior Fellow, Director, Energy & Natural Resources Division, Resources for the Future, Washington, DC

**Dr. Robert Costanza**, Professor/Director, Gund Institute for Ecological Economics, School of Natural Resources, University of Vermont, Burlington, VT

**Dr. Terry Daniel**, Professor of Psychology and Natural Resources, Department of Psychology, Environmental Perception Laboratory, University of Arizona, Tucson, AZ

**Dr. A. Myrick Freeman**, William D. Shipman Professor of Economics Emeritus, Department of Economics, Bowdoin College, Brunswick, ME

**Dr. Dennis Grossman**, Principal Associate - Biodiversity Protection and Conservation Planning, Environmental and Natural Resources Department, Abt Associates Inc., Bethesda, MD

**Dr. Geoffrey Heal**, Paul Garrett Professor of Public Policy and Business Responsibility,

Columbia Business School, Columbia University, New York, NY

**Dr. Robert Huggett**, Consultant and Professor Emeritus, College of William and Mary, Williamsburg, VA

**Dr. Douglas E. MacLean**, Professor, Department of Philosophy, University of North Carolina, Chapel Hill, NC

**Dr. Harold Mooney**, Paul S. Achilles Professor of Environmental Biology, Department of Biological Sciences, Stanford University, Stanford, CA

**Dr. Louis F. Pitelka**, Professor, Appalachian Laboratory, University of Maryland Center for Environmental Science, Frostburg, MD

**Dr. Stephen Polasky**, Fesler-Lampert Professor of Ecological/Environmental Economics, Department of Applied Economics, University of Minnesota, St. Paul, MN

**Dr. Paul G. Risser**, Chair, University Research Cabinet, University of Oklahoma, Norman, OK

**Dr. Holmes Rolston**, University Distinguished Professor, Department of Philosophy, Colorado State University, Fort Collins, CO

**Dr. Joan Roughgarden**, Professor, Biological Sciences and Evolutionary Biology, Stanford University, Stanford, CA

**Dr. Mark Sagoff**, Senior Research Scholar, Institute for Philosophy and Public Policy, School of Public Affairs, University of Maryland, College Park, MD

**Dr. Paul Slovic**, Professor, Department of Psychology, Decision Research, Eugene, OR

**Dr. V. Kerry Smith**, W.P. Carey Professor of Economics, Department of Economics, W.P. Carey School of Business, Arizona State University, Tempe, AZ

**Dr. Robert Stavins**, Albert Pratt Professor of Business and Government, Environment and Natural Resources Program, John F. Kennedy School of Government, Harvard University, Cambridge, MA

#### **CONSULTANTS TO THE COMMITTEE**

**Dr. Joseph Arvai**, Professor, Environmental Science and Policy Program, and Department of Community, Agriculture, Resource and Recreation Studies (CARRS), Michigan State University, East Lansing, MI

**Dr. Allyson Holbrook**, Assistant Professor of Public Administration and Psychology, Survey Research Laboratory, University of Illinois at Chicago, Chicago, IL

**Dr. Jon Krosnick**, Frederic O. Glover Professor in Humanities and Social Sciences, Professor of Communication, Director, Methods of Analysis Program in the Social Sciences, Associate Director, Institute for Research in the Social Sciences, Stanford University, Palo Alto, CA

**SCIENCE ADVISORY BOARD STAFF**

**Dr. Angela Nugent**, Designated Federal Officer, 1200 Pennsylvania Avenue, NW 1400F, Washington, DC, Phone: 202-343-9981, Fax: 202-233-0643, (nugent.angela@epa.gov)

**Attachment B: Federal Register Notice**

**Science Advisory Board Staff Office; Notification of Six Public Teleconferences of the Science Advisory Board Committee on Valuing the Protection of Ecological Systems and Services**

[Federal Register: December 28, 2006 (Volume 71, Number 249)]  
[Notices]  
[Page 78202-78203]

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ENVIRONMENTAL PROTECTION AGENCY  
[FRL-8262-8]

Science Advisory Board Staff Office; Notification of Six Public Teleconferences of the Science Advisory Board Committee on Valuing the Protection of Ecological Systems and Services

AGENCY: Environmental Protection Agency (EPA).  
ACTION: Notice.

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SUMMARY: The EPA Science Advisory Board (SAB) Staff Office announces six public teleconferences of the SAB Committee on Valuing the Protection of Ecological Systems and Services (C-VPSS) to discuss components of a draft report related to valuing the protection of ecological systems and services.

DATES: The SAB will conduct six public teleconferences on February 5, 2007, February 13, 2007, February 27, 2007, March 6, 2007, March 20, 2007, and March 27, 2007. Each teleconference will begin at 12:30 p.m. and end at 2:30 p.m. (eastern standard time).

LOCATION: Telephone conference call only.

FOR FURTHER INFORMATION CONTACT: Any member of the public wishing to obtain general information concerning this public teleconference may contact Dr. Angela Nugent, Designated Federal Officer (DFO), via telephone at: (202) 343-9981 or e-mail at: [nugent.angela@epa.gov](mailto:nugent.angela@epa.gov). General information concerning the EPA Science Advisory Board can be found on the EPA Web site at: <http://www.epa.gov/sab>.

SUPPLEMENTARY INFORMATION: The SAB was established by 42 U.S.C. 4365 to provide independent scientific and technical advice, consultation, and recommendations to the EPA Administrator on the technical basis for Agency positions and regulations. The SAB is a Federal advisory committee chartered under the Federal Advisory Committee Act (FACA), as amended, 5 U.S.C., App. The SAB will comply with the provisions of FACA and all appropriate SAB Staff Office procedural policies.

Background: Background on the SAB C-VPES and its charge was provided in 68 Fed. Reg. 11082 (March 7, 2003). The purpose of the teleconference is for the SAB C-VPES to discuss components of a draft advisory report calling for expanded and integrated approach for valuing the protection of ecological systems and services. The Committee will discuss draft assessments of methods for ecological valuation and application of those methods for valuing the protection of ecological systems and services.

These activities are related to the Committee's overall charge: to assess Agency needs and the state of the art and science of valuing protection of ecological systems and services and to identify key areas for improving knowledge, methodologies, practice, and research.

Availability of Meeting Materials: Agendas and materials in support of the teleconferences will be placed on the SAB Web Site at: <http://www.epa.gov/sab/> in advance of each teleconference.

Procedures for Providing Public Input: Interested members of the public may submit relevant written or oral information for the SAB to consider during the public teleconference and/or meeting.

Oral Statements: In general, individuals or groups requesting an oral presentation at a public SAB teleconference will be limited to three minutes per speaker, with no more than a total of one-half hour for all speakers. To be placed on the public speaker list, interested parties should contact Dr. Angela Nugent, DFO, in writing (preferably via e-mail) 5 business days in advance of each teleconference.

Written Statements: Written statements should be received in the SAB Staff Office 5 business days in advance of each teleconference above so that the information may be made available to the SAB for their consideration prior to each teleconference. Written statements should be supplied to the DFO in the following formats: One hard copy with original signature, and one electronic copy via e-mail (acceptable file format: Adobe Acrobat PDF, WordPerfect, MS Word, MS PowerPoint, or Rich Text files in IBM-PC/Windows 98/2000/XP format).

Accessibility: For information on access or services for individuals with disabilities, please contact Dr. Angela Nugent at (202) 343-9981 or [nugent.angela@epa.gov](mailto:nugent.angela@epa.gov). To request accommodation of a disability, please contact Dr. Nugent preferably at least ten days prior to the teleconference, to give EPA as much time as possible to process your request.

Dated: December 22, 2006.  
Anthony Maciorowski,  
Associate Director for Science, EPA Science Advisory Board Staff  
Office.

## Attachment C: Meeting Agenda

**EPA Science Advisory Board  
Committee on Valuing the Protection of Ecological Systems and Services (C-VPESSE)  
Public Teleconference  
February 27, 2007, 12:30 p.m. - 2:30 p.m. Eastern Time**

**Purpose:** The purpose of the teleconference is to discuss draft text developed by committee members for a draft report related to valuing the protection of ecological systems and services.

12:30 – 12:35	Opening of Teleconference	Dr. Angela Nugent, Designated Federal Officer
12:35 – 12:45	Review of Agenda	Dr. Buzz Thompson, Chair Dr. Kathleen Segerson, Vice-Chair
12:45 – 12:55	Public Comments	TBA
12:55– 1:10	Discussion of Amount of Detail/Type of Discussion Desired in "Method Write-Ups" in C-VPESSE Draft Report, Part 3 - Discussion of method write-up for "Citizen Valuation Juries," Part 3, Section 6.3, as example	Dr. Buzz Thompson, Chair Dr. Kathleen Segerson, Vice-Chair Committee
1:10 – 1:35	Conservation Value Method (Part 3, Section 2.2; Part 2, Section 4.1 text on Conservation Value) - Summary of written comments and response - Committee Discussion - Next Steps	Dr. Dennis Grossman  Committee Dr. Buzz Thompson
1:35 – 2:00	Energy and Material Flow Analysis (Part 3, Section 2.3; Part 1, Section 4.1 text on Energy and Material Flow Analysis) - Summary of written comments and response - Committee Discussion - Next Steps	Drs. Robert Costanza and Gregory Biddinger Committee Dr. Buzz Thompson
2:00 – 2:25	Socio-Psychological Approaches (Part 3, Section 3; Part 1, Section 4.2) - Summary of written comments and response - Committee Discussion - Next Steps	Dr. Terry Daniel Committee Dr. Buzz Thompson
2:25 – 2:30	Summary and Next Steps	Dr. Buzz Thompson

**Attachment D: Attendees from the Public Who Requested or Were Provided Call-in Information**

Mary Jane Calvey

Pat Casano

Nancy Beck

Jim Christman

Patrick Frey

Pieter Booth

Paul Hendley

Traci Iott

Darrell Osterhoudt

Jean Public

Matt Shipman

Wayne Munns

**Attachment E: Compilation of Comments from Members and Consultants  
of the C-VPESS**

Comments from Members and Consultants of the SAB Committee on Valuing the Protection of Ecological Systems and Services (C-VPESS) on the 2/15/07 draft report for discussion at the 2/27/07 C-VPESS public teleconference call

**Comments Received**

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Comments from Ann Bostrom.....	21
Comments from Rick Freeman.....	22
Comments from Lou Pitelka.....	23
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**A. General comments**

Comments from Lou Pitelka

Comments from Lou Pitelka for conference call on February 27.

I do not have a lot of comments on these sections. My one over-arching comment is that the section on bio-physical ranking methods might need more detail and examples, while the section on socio-psychological approaches needs less. Even though I am ecologist, I found it hard to “visualize” the methods that are discussed. I believe than non-ecologists will find them conceptually abstract and difficult to understand. In contrast the concepts that are discussed in the section on survey methods, focus groups, and even emerging methods are not conceptually complex and are easy to follow.

While I am not sure that we want to add a lot of detail or other information to the section on bio-physical methods, maybe the report should cite more examples. For instance, the

embodied energy method should cite more examples that EPA staff could obtain to help them understand the method.

I also think that the section on socio-psychological approaches is too long and repetitive. The concepts are not that complex. In particular, the Introduction (pages 204-206 could be cut drastically because almost everything that is discussed in the introduction is then repeated in somewhat more detail in the following sections on specific approaches. In some cases almost the same sentences were used to that I had a real sense of having already read much of the information. Beyond that, the text from page 207 to 223 probably could be cut substantially without reducing losing important information or making it harder to understand.

Other comments:

Delete the text from page 191, line 9 through page 193, line 21; it repeats verbatim text on the prior three pages.

Page 199, lines 11-12. I suspect that the term “ecological footprint” is used by many people to mean something that this specific method. Thus, I might use the term to refer to the ecological impact of something. This could mean that many of the Google hits do not pertain to this specific concepts popularity. I would suggest checking on that before making this statement.

## **B. Comments on draft Conservation Value Method text**

### Comments from Ann Bostrom

restructure so that it flows better (editor?). It suffers a little from the template it was written to fit.

### Comments from Terry Daniel

While there is potential for this (or a similar) method to make important contributions to EPA’s ecosystems/services valuation goals, the current description of the method is very difficult to follow. Before attempting to suggest changes in the text, however, it is necessary to get a better understanding of what the method purports to do and what procedures are used to achieve that end.

Mostly from studying the tables (less so from the text), one might deduce that the input to the method is a list of “occurrences” of (for example) individual plant or animal species (at the fine level) and of vegetation types and ecosystems (at the coarse level). Coarse level instances would generally subsume multiple fine level instances. These occurrences (based on certain agreed upon definitional criteria) are mapped over the land and water area of concern. This is clearly an expert task appropriate for ecologists.

Each occurrence, e.g., an instance of a particular plant species mapped as a polygon (or point or line, as appropriate), is ranked by expert judgment based on how closely (completely) it fits

within the “range of variation” (in size, condition and landscape integrity/context) that has been found for undisturbed instances of this particular plant species. This “quality ranking” of each instance ranges from A, indicating that the instance is within the range of size, condition and all other criteria for undisturbed instances, to D, indicating that the instance is outside the range for undisturbed instances on all criteria to the extent that it is “no longer restorable.” Thus, each instance/polygon (of a given plant species, for example) would at this stage in the process be designated (“attributed”) with a rank (A, B, C, or D). It appears that there could be overlaps among instances even at the same fineness/coarseness level (e.g., two species share the same piece of ground, but it is not clear how this would be handled in the method. Also, because each instance would necessarily be of a particular size and be surrounded by particular biotic and abiotic features, the rank/class would be at least partially redundant information with the location, as the quality rank is determined in part by size and by surrounds (“landscape integrity”). The implications of such redundancies are not addressed in this presentation of the method. A second designation is assigned to each quality-ranked instance (e.g., of a plant species) based on how common such instances (at each quality level?) are on a local, regional or global basis, and how vulnerable the instance is to disturbance or destruction. These “global ranks” range from G1 (extremely rare and critically imperiled) to G5 (widespread, abundant and secure). It would appear that there would be some (nonlinear) correlation between the quality classes and the scarcity/vulnerability classes (e.g., As and Ds might be more scarce than intermediate quality classes and Ds would tend to be low in vulnerability). The potential for correlations between these two rankings, and the implications for the method is not addressed in the text.

The definition and mapping of an “occurrence” and the assignment of A to D quality ranks and G1 to G5 scarcity/vulnerability ranks seems an appropriate task for ecological experts. The need for explicit and standardized criteria for these ranking processes is properly acknowledged, but some mentioned criteria appear on the face to allow more objective determination (e.g., size and range extent and area of occupancy) than others (e.g., landscape integrity and intrinsic vulnerability). On the other hand, how these (and perhaps other) attributes of occurrences are aggregated into an “ecological value” designation for each instance (occurrence) is less clear. The starting assumption for this ecological valuation seems to be that biodiversity (and/or ecological integrity and/or sustainability) is an overarching goal that is generally accepted by ecologists, and largely by the agencies/decision makers using the method. This assumption (or set of assumptions) is not clearly acknowledged, even if it plausibly would be accepted by experts and the general public. More problematic is the need to more clearly rationalize the connections between this goal and the quality and scarcity/vulnerability rankings, and the less clearly specified methods by which quality ratings and scarcity/vulnerability rankings are to be combined into some “ecological value” index. For example, would an A, G1 instance always have higher ecological value (bio-diversity value) than a B, G2?

The aggregation process determining ecological values is determined by a weighted sum (or perhaps a weighted averaging) process that is not clearly described. The procedure allows different stakeholders (including different experts) to assign their own “weights” to the attributes (the two rankings, perhaps along with some additional attributes?) so that the “value” map for one stakeholder could be different from that of another for the same land/water area.

It is not clear how (or if) these multiple value maps (customized conservation surfaces?) are consolidated or compared and contrasted to determine what environmental policies are to be implemented where over the study area.

The text asserts that ecosystem services, resource values and economic values (monetary and non-monetary) are either implicitly incorporated or can be explicitly added to the ecological values (as alternative or additional attributes of the mapped and ranked occurrences or as independent polygons?). It is not at all clear how this would be accomplished nor how issues such as conflicts and confounds among these values would be addressed in some weighted aggregation process. A strength of the method is that values (however obtained) are explicitly mapped over the landscape, consistent with the fact that ecosystems and many services are geographical entities. At the same time, because different policies will likely produce different ecological value maps (for any given stakeholder/weighting scheme), there will be an additional level of complexity for decision makers as they seek to determine which geographic (and temporal) distribution of values is "best." As for aggregation/comparisons between value maps, the description of the method does not adequately address how values can be aggregated over space or over time to compare different policies/outcomes.

#### Comments from Rick Freeman

p. 175, lines 15, 16 ((also p. 176, line 1): I worry about how the term "value" is used here. It does not seem consistent with the definition laid about in Table 1, p. 15. Here the term seems to be used to refer to biophysical measures rather than norms, values, etc.

There are a lot of things in this section that are just not clear to me:

- p. 176, lines 2-3: "incorporation of economic values ..." What economic values? Where did they come from? How do they get "incorporated"?

- p. 177, line 2: How could this method be used in Step 1 of the C-VPES Framework? See p. 34 for Step 1.

- p. 177, lines 7-9: What is meant by "the integration of intrinsic ecosystem values with social values"? How is this done? What is the "transparent methodology"? This all seems to be empty jargon to me.

- p. 177, lines 13-15: How are additional inputs incorporated? What are "secondary monetary factors"? How do they get incorporated? Some explanation and perhaps examples are needed.

- p. 178, lines 28-29: Same here: How is "social scientist input" incorporated?

p. 179, line 14: I've seen nothing over the past several years on C-VPES to indicate that this method incorporates "best practices in the social science of stakeholder surveys." Are there references to examples?

p. 179, line 31: Can you provide some references that describe the Agency's use of this method?

p. 182, in the Table, what is "the EO"?

p. 185, line 27: There is reference to "a single benefit number;" but this does not seem to refer to how benefit is defined in Table 1. Or if it does, there is nothing in this section to indicate how what this method does is linked to human well-being.

General Comment: I think that this section should include some discussion of the relationship of what this method produces to value as we have defined it (see Table 1). As I understand it, this discussion would say something like, "It produces a measure of the contribution as defined or estimated by relevant experts of a landscape unit to the conservation of species diversity."

#### Comments from Bob Huggett

My comments are minimal.

- 1) Page 179, line 23: Change "has" to "have".
- 2) Page 186, line 14: Change "is" to "are".
- 3) Page 186, line 15: Change "does" to "do".

#### Comments from Lou Pitelka

See points points made in (A) General Comments

### **C. Comments on draft Energy and Material Flow Analysis Text**

#### Comments from Ann Bostrom

Fun to read and well written, but covers some topics in quite a lot of detail - more depth than is in most of the report currently (it appears on first read). I'd favor keeping most of it though. Maybe trim the first section a little.

#### Comments from Terry Daniel

The first obvious thing about this section of the report is that pages 191 – 193 duplicate pages 188-191. The second obvious thing about this section is that it is well-written and clear.

The premise that energy flow is the most fundamental basis for comparing alternative environmental policies and actions seems very plausible—it is hard to argue with the laws of thermodynamics. Another strength of this approach is that it provides an (almost) independent means for assessing and comparing alternative ecosystems/services protection policies. Given that there is no method that uncontroversially provides the “right” assessment, an approach that

is conceptually and methodologically distinct from other methods can serve important cross validation and challenging functions, as the text points out. Certainly policy makers could take considerable comfort when decisions are consistently supported by economic, ecological, social and energy assessment methods. The complexity and potential difficulties of implementing the energy-based method are adequately acknowledged and the method is appropriately offered as most suitable for larger scale, more consequential policy analyses.

I cannot comment on the “energy” method, but accept the general conclusion that it is not quite ready (if it ever will be) for adoption in Agency policy making.

The ecological footprint method is presented mostly as an alternative metric to represent the output of an assessment based on energy flow. However, it seems that ecological demands/costs of alternative policies might be measured in terms of multiple ecological variables (including availability and flows of fresh water, biomass, carbon sequestration capacity, etc) without the reduction to fundamental energy flows. A plausible and useful “footprint” metric might be based on these intermediate factors of production.

#### Comments from Rick Freeman

p. 188, line 10: It is not clear in what follows that ecological and economic systems can be treated in the same conceptual framework. I think that more needs to be done to show this. There is a brief discussion (p. 195, lines 27+) of applying these methods to ecosystem services and the kind of valuation problems that the Agency faces in doing RIAs. But I think that more needs to be done with this.

p. 191 +: This repeats the previous passage.

p. 196, line 9: What is the reference to Heuttner? It is not in the reference list? Also, is Patterson (2002) the piece in Ecological Economics? Again, not in the reference list.

#### Comments from Bob Huggett

Page 191, line 9 thru page 193, line 21: Redundant with page 188, line 28 thru page 191, line 8.

#### Comments from Lou Pitelka

See points made in (A) General Comments

### **D. Comments on draft Socio-Psychological Approaches Text**

#### Comments from Ann Bostrom

Would like to see more discussion of development of survey items in this section – adding a small section on survey content choice might address this, and my other comments/questions below.

3.2.2 – the focus group write-up should include some discussion of group processes (e.g., polarization, or deference to expertise, from decision research on groups) that can influence focus group discussions and outcomes.

3.2.3 – while section 3.2.3 refers to the mental models section elsewhere in the report, I don't think that section is in the report currently. Some mental models studies have relied on probability sampling, rather than convenience samples; the survey phase of a mental models study should rely on probability sampling whenever possible (like any other survey). Further, a decision analysis-based approach such as the mental models approach described in Morgan et al. 2002, provides a science-based method of identifying information needs (relevant to the discussion on page 217-218). In Appendix A, the authors state “once a questionnaire has been drafted according to the rules above” (p 317; see also page 323-324 – “with pretest respondents, who can be told about the ecosystem” – but these rules in no way determine the actual content of the survey, or what they should be told about the ecosystem. Exploratory research, and a mental models approach in particular, can guide content choices. The discussion on 212 ignores the potential context ‘vacuum’ in virtual environments. Actions in real life are purposeful. In virtual reality, the game imposes a goal, generally, making the game designer a potent framer of the results. Might reference research on socially meaningful games (on page 213) as an example of this (e.g., Ian Bogost's).

#### Comments from Rick Freeman

p. 72-74: I think that there should be some brief discussion of the relationship between the social-psychological methods and the economic methods, especially concerning the latter's in a coherent theory of preferences and concepts of individual and social welfare.

p. 73, lines 23-24: There should be references to those examples of the “extensive use ...”, or at least to the one example (apparently) cited on p. 215.

p. 204, line 17: “providing reliable and valid measures of relative value ...” Except for p. 219, lines 15-18, there doesn't seem to be any discussion of either reliability or validity in this section. I think that there needs to be an explanation of these terms, a brief discussion of how one would assess various concepts of reliability and validity, and a review of the evidence or citations such reviews.

p. 211, line 5: mental model methods are mentioned as being discussed elsewhere. But I don't see this term in the table of contents.

p. 218, beginning at line 22: The discussion in this paragraph is out place. This is not the place to discuss the “leave it to the experts” view.

p. 222, beginning at line 11: How does this discussion relate to the uncertainty discussion in Part 2, Section 8? I haven't had a chance to read that section yet.

General Comment: I think that there should be some discussion of how these methods can be applied specifically to valuing provisioning, regulating, and supporting services.

Comments from Lou Pitelka

See points made in (A) General Comments

Comments from Joseph Arvai

(see markups on following pages)