

Guidance for the NCCP Independent Science Advisory Process

August 2002

The State of California's Natural Community Conservation Planning (NCCP) Act mandates that a process be established for obtaining independent scientific analysis and input, to assist the California Department of Fish and Game and other plan participants in meeting scientifically sound principles for the conservation and management of species proposed to be covered by each Natural Community Conservation Plan. To help achieve this, a process is presented here for procuring critical scientific input, beginning as early in the planning process as is feasible. This working paper reflects concepts and techniques that have been developed and implemented by the NCCP program to date. It also considers processes for scientific involvement that are used by other government agencies and that have been employed and found to be effective in a variety of recent scientific assessments. The NCCP science advisory process is expected to continue to evolve, and the Department welcomes ideas that could make the process as productive as possible.

Contents

The Need for Independent Scientific Advice
The General Science Advisory Process
The Science Advisors
Charge of the Scientists
The Coordinator/Facilitator
Reports and Products from the Scientists
Summary
Where to Send Ideas
Sources of Information about Independent Scientific Input and Professional Facilitation

The Need for Independent Scientific Advice

The NCCP program of the California Department of Fish and Game uses locally-developed collaborations to integrate conservation of biodiversity with land-use planning. The scientific foundation of the NCCP process is important in determining whether a plan meets its conservation objectives, as well as in assuring that a plan complies with the goals and requirements of endangered species laws and responsible land use planning. NCCPs are broad, ecosystem-focused planning tools that, by complementing endangered species laws and regulations, are specifically designed to help resolve conservation and land use conflicts. The NCCP Act (California Fish and Game Code sections 2800-2840) mandates the inclusion of independent scientific analysis and input in the NCCP process in order to identify foundational principles for landscape and habitat conservation, species protection, and adaptive management. In this way, conservation and land use planning decisions can be based on the best science possible beginning in the formative stages of the NCCP, to improve a plan's chances for technical success, its credibility in the eyes of the public, and its legal defensibility. In addition, scientific involvement can help to assess the sufficiency of the existing body of ecological information for the planning area, identify data gaps, and evaluate scientific uncertainty and risks.

The General Science Advisory Process

The NCCP Act specifies that NCCP planning agreements "...shall establish a process for the inclusion of independent scientific input to assist the department and plan participants..." in devising scientifically sound conservation strategies, reserve design principles, a monitoring and adaptive management framework, and in identifying data gaps and uncertainties. To accomplish this, scientific input is sought as early as possible during plan initiation. Professional scientists who are independent from the process and plan participants (including the lead planning agencies, their consultants, the permitting agencies, and any stakeholder, steering, or technical advisory committee such as a biological working group), are informally invited to participate, with the help of a professional coordinator/facilitator, who may assist in preparing the advisors' scope of work. (The science advisors are not a legislative, governing, or subsidiary body, and are not assembled through a formal act of a legislative body).

Collectively, the advisors are asked to provide scientific information and analysis and expert opinion that will be used to inform the NCCP planning process from the outset. Additionally, the independent scientists may be asked to provide guidance on technical issues (for example, additional data needs, interim strategy, reserve alternatives) that arise during any stage of plan development. A broad scientific advisory team membership is sought, including experts on (at minimum) the specific natural communities present, local ecosystem function, ecological requirements of species in the planning area, and conservation biology principles. The group should include persons with local experience, as well as those with more general expertise.

The selection of a facilitator and the nomination of science advisors are collaboratively carried out by a group of representatives of the Wildlife Agencies (California Department of Fish and Game, U.S. Fish and Wildlife Service, and National Marine Fisheries Service, when appropriate) and the plan participants, which may solicit input on advisor selection from other interested parties and experts. The final selection of scientists to be invited is made by the same group of representatives (or a subset of this group), sometimes with the assistance of the coordinator/facilitator, as appropriate. Invitations are extended to potential advisors by the facilitator, who becomes the advisors' point of contact during their involvement.

After the advisors agree to participate, they are provided an opportunity to review existing scientific information regarding the planning area, and are given an initial orientation to the project (which may involve agency staff and plan participants). The scientists then meet together privately, as needed, independent of agency representatives and other plan participants (including consultants, stakeholders, public working groups, and other advisory committees). At or before the initial meeting (usually a two-day workshop), one scientist may be designated lead scientist and given the responsibility of coordinating the writing and editing of a final report from the advisors. (The coordinator/facilitator is usually not involved in any stage of writing or producing the final report.) The advisors' report, and any other subsequent advice, as requested, will be used by the lead planning agency (usually a local jurisdiction) and its consultants to guide their development of alternative reserve designs, conservation strategies, and an adaptive management framework for the plan, and it will be used by the Wildlife Agencies in their determination of findings on which NCCP approval will be based.

The Science Advisors

Every effort is made to enlist scientific advisors who are without bias or conflict of interest, and who are independent of the planning process. Typically, the coordinator/facilitator discusses these issues with candidate advisors prior to extending invitations to participate. Final composition of the group of science advisors (ideally, ten persons or fewer) is based on scientific credentials, the diversity of subject matter that the plan likely will cover, and availability. Typically, scientists are selected because of their professional technical reputations (competence) and their teamwork skills. Selection is expected to be balanced with respect to disciplines, experience on similar teams, level of prior involvement, local/broad expertise, and other relevant factors. Makeup of the science advisors group does not preclude other individuals being called upon to help with the tasks or provide review.

In some situations, totally independent advisory scientists may be rare and difficult to identify. For example, for most species, the pool of technical experts is extremely small, and sometimes the most qualified scientists have already been involved in issues in the planning area. In many cases it may be appropriate to strive for a compromise between independence and expertise. It is hoped that diverse composition of the group will bring a balanced range of technically legitimate perspectives to the effort.

Individual characteristics of the scientists:

- Widely recognized by peers for technical expertise
- Strong publication record or record of scientific leadership
- Willingness to participate in the planning process with objectivity and professionalism
- Track record of fair and unbiased, yet constructive, criticism
- Willingness to participate in a nontraditional scientific setting (possibly with professional risk)
- Ability to function within a team

Charge of the Scientists

The role of independent science advisors in the NCCP program is to establish science-based conservation and management standards that will guide the development of NCCPs and assist the Wildlife Agencies in their permitting responsibilities. The advisors are asked to recommend conservation criteria and guidelines early in the planning process to assist in providing the general biological context and scientific premises for conservation in the planning area. The scientists are charged with clarifying the current state of technical knowledge required by the plan, not with answering policy questions. They do not comprise a "blue ribbon panel" established to approve the planning process or alternatives, but instead are individual scientists providing expert advice and information to the planning process. It is generally understood by the participating interests that sound scientific advice is critical to creating a strong and durable conservation plan, and guidance from the scientific team is expected to provide the scientific underpinnings of plan development.

A descriptive scope of work will guide the general tasks of the science advisors. To focus their discussion, the scientists are usually asked to answer a set of questions that are written by a committee representing the Wildlife Agencies and plan participants

(sometimes through a biological/technical advisory committee composed of local consultants, independent scientists, land managers, agency biologists, and environmental groups). The questions are provided to the scientists prior to the first orientation workshop, and are designed to motivate group discussion and keep it centered on development of the scientific guidelines and principles that will be used to inform the plan. Under the guidance of the facilitator and lead scientist, the advisors may also discuss topics and questions not formally posed to them, and may continue to be consulted throughout the development of the plan.

General tasks of the scientists include the following, but this list can be expanded to meet the needs of each particular plan:

- Review existing data on species/habitat relationships, presence/absence of rare and endemic species, landscape features, important ecological processes, natural disturbance regimes, and other ecological factors relevant to the planning area
- Assess ecological requirements, life history characteristics, population size and status, genetics, and other attributes of individual species that are proposed to be covered by the plan
- Identify important data gaps and additional research needs
- Evaluate ecological rationale for the geographical scope of the planning area
- Propose principles that will guide the conservation and recovery of covered species and natural communities
- Develop locally-relevant reserve design and landscape-level conservation principles
- Formulate strategies for reserve management
- Recommend strategies and targets for monitoring and adaptive management
- Evaluate scientific uncertainty and levels of risks
- Identify potential for changed circumstances, for example, large scale fires, floods, drought, non-native species invasions, windstorms, earthquakes.

The Coordinator/Facilitator

The professional facilitator is a neutral intermediary who coordinates the meetings and materials, assists in explaining the charge and questions to the scientists, solves unexpected logistical problems, and acts as the point of contact between the scientists and the plan participants and interested parties in order to buffer the scientists from special interests. The facilitator is independent from the lead planning agencies and its consultants, plan participants, and permitting agencies. The specific roles of this person are to help prepare a scope of work (including timeline) to help guide the science advisors, organize and convene the meetings, to assist in identifying relevant background information and preliminary data (and to facilitate the transmission of such information to the science advisors), and to make the meetings of the scientific advisors run smoothly and productively. In addition, the coordinator/facilitator may serve as a mediator who answers questions about the NCCP process for the scientists and resolves any misunderstandings. The primary focus of the coordinator/facilitator is on procedural matters, to enable the scientists to focus solely on their analysis and report.

This position requires a unique suite of skills and experience. Because the NCCP program is still fairly new, to date it has seemed critical, for consistency and expediency, that the coordinator/facilitator be dually familiar with the NCCP process and with conservation science in general. This has engendered trust in the facilitator from the

participating scientists, has kept the process focused on the needs of the plan, and has ensured timely production of results. Indeed, it is becoming widely appreciated that the individual or organization coordinating scientific input in this fashion should be experienced both with traditional science and with natural resource management. In addition, this person must have excellent “people” skills, which will encourage group dialogue and participation, increase group effectiveness, and, in order to maintain the autonomy of the group, progressively decrease the group’s dependence on the coordinator/facilitator.

Individual characteristics and skills of the coordinator/facilitator:

- Substantially neutral with respect to the group the person is facilitating (i.e., the independent science advisors) and acceptable to plan participants
- Has no decision-making authority and no stake in the outcome of the scientific report
- Supports the science advisory process and the scientists’ product; will make sure logistical details are carried out and that the process keeps to its timeline
- Understands the scientists’ needs and perspectives
- Understands the NCCP regulatory framework
- Knows how to guide a group of people through cooperative processes
- Good at accurate listening and observing
- Ability to communicate clearly, and help group members communicate among themselves
- Good at analyzing and synthesizing issues
- Infinite patience

Reports and Products from the Scientists

The role of the scientific advisory team is to provide the best possible available information and recommendations to the plan lead agency and their consultants, for use by them in developing a Natural Community Conservation Plan. The scientists will be informing the planning process about state-of-the-art principles and guidelines that could measurably contribute to comprehensive management and conservation of multiple species and natural communities within the planning area.

The products of the scientists represent a synthesis of local ecological data, peer-reviewed literature, and the experience of the science advisors and other experts. The science advisors as a group independently prepare, without assistance from any other participant or the coordinator/facilitator, a detailed written summary of their findings, expressed as conservation, reserve design, and management guidelines. Their report should clearly describe and justify the scientific sources, methods, and considerations they used to arrive at their results, and it should identify any informational or process deficiencies. The principles described in the report are intended to form the scientific foundation of regional conservation planning, and they define the bounds within which the ecological and conservation goals and objectives of an NCCP may be achieved. Additional response papers may also be prepared when solicited during the planning process. It is expected that the scientific recommendations of the advisors will not be treated as a competing interest, but rather as a source of objectivity that can be used to inform the planning process and increase the ability of the Wildlife Agencies to carry out their regulatory responsibilities.

Summary

Natural Community Conservation Planning ensures a process for soliciting and incorporating scientific input and analysis as early in the planning effort as possible, preferably before stakeholder negotiations begin. The intent is that, by integrating scientific advice in the plan's most formative stages, the NCCP conservation strategies, reserve design alternatives, and land use planning decisions will all be based on the best science possible, which will give them the best chance to contribute to conservation and recovery of the species, habitats, and ecosystems covered by the plan. In addition, continuous scientific checks throughout the NCCP process will help to improve technical aspects of the plan in order to maximize its long-term conservation effectiveness, to increase its legal defensibility, and to increase its support by the public.

Where to Send Ideas

Development of an NCCP process for consulting independent science advisors will benefit from more extensive deployment, and this working paper will be changed in the future to reflect additional lessons learned. For more information on the NCCP program and to suggest improvements to the NCCP independent science process, please contact the California Department of Fish and Game, Habitat Conservation Planning Branch, 1416 Ninth Street, Suite 1341, Sacramento, 95814 (<http://www.dfg.ca.gov/hcpb>). Additional information on the NCCP program can also be obtained at <http://www.dfg.ca.gov/nccp>.

Sources of Information About Independent Scientific Input

Adler, P.S. *et al.* 2000. Managing scientific and technical information in environmental cases: principles and practices for mediators and facilitators. PDF file available at (<http://www.resolve.org/resources/pubs/default.htm>). Sponsored by RESOLVE (<http://www.resolve.org>), U.S. Institute for Environmental Conflict Resolution (<http://www.ecr.gov>) and Western Justice Center Foundation (<http://www.westernjustice.org>).

Alexander, G. and R. Yaseen. 2000. Resources for Environmental Conflict Resolution: Selected Bibliographies, Databases, and Publications. Udall Center for Studies in Public Policy at The University of Arizona Publications 00-4. See udallcenter.arizona.edu.

American Institute for Biological Science (AIBS), Scientific Peer Advisory and Review Services (SPARS) (<http://www.aibs.org/spars/index.html>).

Brosnan, D.M. 2000. Can peer review help resolve natural resource conflicts? Issues in Science and Technology Online. (http://www.nap.edu/issues/16.3/p_brosnan.htm).

Brosnan, D.M. 2001. Scientific peer-review in the Endangered Species Act, U.S. Senate Subcommittee Testimony, May 9, 2001 (<http://www.sei.org>).

CALFED Ecosystem Restoration Program-Interim Science Board
(<http://calfed.ca.gov/ecosystem/board/termsofref.htm>)

CALFED ERP ISB Science Administration Report: Working Draft. 2000. CALFED Ecosystem Restoration Program. (<http://calfed.ca.gov/ecosystem/board/sciadmin.htm>).

Fleishman, E. 2001. Moving scientific review beyond academia. *Conservation Biology* 15(3):547-549.

Harding, E.K. *et al.* 2001. The scientific foundation of habitat conservation plans: a quantitative assessment. *Conservation Biology* 15(2):488-500.

Hosack, D., L. Hood, and M. Sonatore. 1997. Expanding the participation of academic scientists in the HCP planning process. *Endangered Species Update* 14:60-62.

Johnson, K.N. *et al.* (eds.) 1999. *Bioregional Assessments: Science at the Crossroads of Management and Policy*. Island Press: Washington D.C.

Kareiva, P. *et al.* 1999. Using science in habitat conservation plans. American Institute of Biological Sciences and NCEAS. Available at <http://www.nceas.ucsb.edu/projects/hcp>.

Keystone Center. 1996. The Keystone National Policy Dialogue on Ecosystem Management. Final Report. The Keystone Center, P.O. Box 8606, Keystone, Colorado 80435-7998. Phone 970-468-5822.

Kostoff, R.N. (no date). Research program peer review: principles, practices, protocols. (<http://www.dtic.mil/dtic/kostoff/Peerweb11.html>).

Meffe, G.K. *et al.* 1998. Independent scientific review in natural resource management. *Conservation Biology* 12(2):268-270.

National Science Foundation, National Center for Environmental Decision Making Research (NCEDR). (no date). Habitat conservation plans: participatory research focused on decision making, participants, and improvement. PDF file available at (<http://www.ncedr.org/research/projects/hcp.htm>).

Natural Heritage Institute (<http://www.nhi.org>).

Noss, R.F., M.A. O'Connell, and D.D. Murphy. 1997. *The Science of Conservation Planning: Habitat Conservation Under the Endangered Species Act*. Island Press: Washington D.C.

Northwest Fisheries Science Center (NOAA/NMFS), Recovery Science Review Panel (<http://www.nwfsc.noaa.gov/cbd/trt/rsrp.htm>).

Sustainable Ecosystems Institute (<http://www.sei.org/peerrev.html>).

Thomas, G.A. 2001. Special Series: Habitat Conservation Planning. Where property rights and biodiversity converge, Part II: The role of science. Endangered Species UPDATE 18(1). See (<http://www.umich.edu/%7Eesupdate/janfeb2001/thomas.htm>) for abstract.

U.S. EPA. 2000. Peer Review Handbook, 2nd Edition, Peer Review Advisory Group, Science Policy Council, EPA 100-B-00-001. PDF file available at (<http://www.epa.gov/ORD/spc/sopmenu.htm>).

Watchman, L.H., M. Groom, J.D. Perrine. 2001. Science and uncertainty in habitat conservation planning. American Scientist 89:351-359.

Wollondeck, J.M. and S.L. Yaffe. 2000. Making Collaboration Work: Lessons from Innovation in Natural Resource Management. Island Press: Washington D.C.

Sources of Information About Professional Facilitation

Center for Conservation Biology, Stanford University
(<http://www.stanford.edu/group/CCB/info.htm>).

Conservation Biology Institute (<http://www.consbio.org>).

CONCUR Environmental Conflict and Dispute Resolution (<http://www.concurinc.com/>).

Integrations, 5209 Canyon Drive, Eugene, Oregon 97405. Phone 541-485-7708.

Kleinschmidt Consultants (<http://www.KleinschmidtUSA.com>).

Mediate.com (<http://www.mediate.com/articles/cddrcstds.cfm>).

Meridian Institute (<http://web.mitretrek.org/meridian/home.nsf/>).

Online Resolution (<http://www.onlineresolution.com/ethics.cfm>).

RESOLVE (Center for Environmental and Public Policy Dispute Resolution)
(<http://www.resolve.org>).

Sustainable Ecosystems Institute (<http://www.sei.org/peerrev.html>).

U.S. Institute for Environmental Conflict Resolution
(<http://www.ecr.gov/roster/search/neutral.htm>).