1. Overview
The Network Information System Advisory Committee (NISAC) is a Targeted Standing Committee that serves at the discretion of the Executive Board as described in the LTER Bylaws Article VII, Section 1 (2006, Revision 2). NISAC provides a forum where ecological research scientists, information managers, and members of the LTER Network Office (LNO) work collectively to advise and evaluate development of the LTER Network Information System (NIS; see appendix 9.1) in support of intersite, interdisciplinary, and synthetic science.

2. Purpose
NISAC was established specifically for the purpose of guiding and critically evaluating efforts to promote network-scale science and information management. A primary role is to advise the EB and the Science Council on these matters. The aim is to facilitate understanding and synthesis through discussion of information systems and infrastructure that promotes the exploration, analysis, and presentation of LTER data and data practices. NISAC periodically reviews and evaluates the success of strategies planned to accomplish NIS goals, helping identify and prioritize tasks critical to NIS development. It does so by interacting with and facilitating communication among the LTER Executive Board, Science Council, Information Management Committee, LTER Network Office and various working groups. Types of decision-making, projects, actions, and responses are detailed in Appendices 9.2-9.5.

Goals
The primary NISAC goals are to 1) promote the improvement of quality and accessibility of LTER data and metadata, 3) support knowledge generation and discovery through multi-site synthesis, and 4) review and recommend for approval standards identified by the LTER community, 5) liaise with information management committee, the LNO, and other relevant LTER entities to facilitate reaching network science goals, and 6) establish criteria for evaluating progress and performance toward NIS goals.

Background
An initial advisory group for the development of the NIS (Network Information System) was formed following the May 2002 LTER Executive Committee (EC) recommendation that a mechanism be created for encouraging better interaction between scientists and information managers with respect to building cross-site data products. At the Fall 2002 Coordinating Committee (CC) meeting at NWT, the EC reviewed a proposed plan of action developed by the information managers and then recommended to the CC that a committee as described in that plan be formed for a limited duration with the specific goal of drafting a long-term plan for NIS development. This plan would become part of the LTER response to the 20-year review. At the May 2003 CC meeting at KBS, NISAC was established as a standing committee by vote of the CC. Membership is designed to ensure balance between the CC, the IM committee, and the Network office.
A strategic plan written by NISAC for the Network Information System (NIS) including a mission statement, goals, and strategies was approved in September 2005 at the VCR CC meeting.

More recent drivers of NISAC activities include the Strategic and Implementation Plan and the 30 year site review of LTER that followed. The SIP identifies specific information management goals for the network, and the process and responsibilities for achieving those goals. NISAC has been tasked with reviewing progress toward those goals and reporting recommendations to the Executive Board.

3. Membership

Recommended membership consists of official seats for 4 LTER information managers, 6 LTER research scientists. In addition, the LNO will have one or more representatives who will share one vote on the committee. The LTER chair requests nominations and candidates are approved by the EB for the research scientists’ seats. Nominations for IM membership are made by the Information Management Committee (IMC) at its annual meeting. All nominations are forwarded by NISAC to EB for approval. Terms are staggered with an expectation of service for 3 years. Replacement of retiring member(s) with newly elected members occurs at the NISAC annual meeting, with overlap of retiring and newly confirmed members in teleconferences before that meeting. If a member leaves before the end of his or her term, the timing of the nomination, confirmation, and replacement process will be determined by NISAC.

Voting

Both continuing and newly confirmed members attend the annual meeting. Official members who are in attendance at in-person meetings or teleconferences may vote. A majority vote is required to approve any motion. In the case of a tie, a re-vote will be carried out. At least half the members must be present to constitute a quorum.

All official members are voting members except when there is a conflict of interest. Before any vote, there is a discussion of potential conflicts of interest with particular sensitivity to LNO members voting on LNO-related issues or project-leaders voting on their own funded projects. Discussion continues until consensus is reached as to which members will abstain from voting.

4. Offices

Terms

The length of term of site members who have been nominated and approved is three years with an optional fourth year for those who become co-chair.

Co-chairs

One research scientist and one information manager will be co-chairs. They are ex-officio members of the LTER Science Council in accordance with the LTER Bylaws Article IV, Section 2.5 (2006, Revision 2). The co-chairs of the committee, or designated committee member(s), will represent NISAC at LTER Science Council meetings. The term of the NISAC co-chairs is for a period of two years.
Co-chairs will be identified by NISAC members voting at the NISAC annual meeting. If a co-chair leaves office before the end of his or her term, NISAC will decide on the timing of the replacement process.

Co-chairs generally oversee, supervise and coordinate the governance and communication of the NISAC. They ensure ongoing communication among NISAC members as well as among NISAC members and other LTER boards, committees, and partners.

**Subgroups**
Subgroups will be designated for targeted tasks in consultation with the full committee. Criteria for creation of subgroups will include a statement of why they are needed, expected goals and benefits, projected timeframe, and the process for selection of members who are engaged either as an expert or a user.

5. **NISAC Responsibilities**

**Agenda**
An agenda for the annual meeting and teleconferences will be created, distributed, and posted by the co-chairs prior to each meeting. Co-chairs will request agenda items prior to meetings.

**Rosters**
A roster of members and co-chairs, their site affiliations, and their dates of service will be maintained and posted online.

**Communication and Reporting Requirements**
- A final agenda and notes will be made available publically after each meeting.
- An annual report to the LTER EB will be produced and posted online.
- Meeting notes with motions and decisions made will be recorded and posted online.
- A cumulative dated list of NISAC responses and of NISAC recommendations to the EB together with EB responses will be recorded and posted online.
- Information about NISAC activities will be disseminated via reports to the Science Council
- NISAC will be represented online by maintaining publically available web pages with the support of LNO.
- NISAC co-chairs will make a concerted effort to communicate on a regular basis with the IMExec to discuss issues relevant to both committees.

6. **Meetings**
NISAC meets in person at least once a year for a designated annual meeting. Additional meetings by teleconference will be scheduled quarterly, and as needed.

7. **Budget and Expenses**
A budget will be maintained at the LTER network Office to support the NISAC annual meetings. Funds will be made available when possible for at least one in-person meeting per year that will be held at LNO except when special circumstances arise.
8. Amendments
These Terms of Reference may be amended by two-thirds vote of NISAC voting members at the annual meeting.

9. Appendices
9.1 Network Information System (NIS) definition
The NIS is a collaborative undertaking that encompasses multiple overlapping components including data contributions by sites, a suite of software applications for curating data, and capabilities relating to data analysis and product generation. A whole systems perspective of the NIS is inclusive of the people who contribute to, design, or use NIS and its products; agreements relating to standards, best practices, and quality control; as well as organizational arrangements that support NIS.

9.2 Types of decision-making
Following are types of NISAC decision-making:
- Formal (vote will be taken)
- Semi-formal (consensus; special meeting circumstances)
- Informal agreement (iterative discussions; example: meeting agenda)
- Tacit (tradition; example: having periodic teleconference calls)
- Compliance (mandatory: request from LTER Executive Board)

9.3 Types of projects
Following are some of the types of NISAC projects:
- Multi-site LTER project led within LTER; site participation is optional (e.g. MALS)
- All-site LTER project led by an LTER member; site participation is mandatory (e.g. PersonnelDB, BiblioDB, SiteDB, ClimDB)
- Multi-site domain project led by LTER member or partner; site participation is optional (e.g. MIRADA)
- All-site domain project led by LTER member or partner; site participation is mandatory (e.g. Metacat, EcoTrends)

9.4 Types of actions
Since NISAC’s primary role is to advise the EB and the Science Council, NISAC reviews, activities, requests, and responses may be initiated by NISAC or may be requested by LNO, IMC, SC, or EB. Some of the ways NISAC may take action are as follows:
- Carry out a review of plans or activities relating to NIS.
- Respond to requests for comments, support, and endorsement.
- Issue a request for information about NIS to LNO, IMC, SC, or EB.

9.5 Types of Responses
NISAC can create responses to ‘Letters of Request’ from members of the LTER community. Inquiries may take the following forms: