Charter for Inventory, Monitoring, and Assessment

Natural Resource Data Stewards Community of Practice (I&M DS CoP)

Program Goals

- Support the Inventory Monitoring and Assessment (IM&A) activities of the Forest Service (IM&A Strategy, USDA Forest Service 2013).
- Establish a Community of Practice for IM&A natural resource data stewards to provide a formal forum where ideas, innovations, and problem solving for data collection activities, data quality, and data stewardship can be shared and discussed.
- Create, verify, and formalize roles and responsibilities for a cross program group of I&M data stewards in the Forest Service so these activities are acknowledged by supervisors and that support is provided for completing them.

Program Purpose

- Assist in the implementation of the IM&A Strategy with the following: 1) providing relevant and credible data and information products to support effective decision-making 2) support IM&A activities that are inclusive and comprehensive. 3) assist in keeping the IM&A system responsive and adaptive to change.
- Create a presence in the data management process for inventory and monitoring natural resource data stewards by creating a community of practice.
- Develop data steward's roles and responsibilities for planning, designing, collecting, and assessing high quality I&M datasets and databases to support agency decision-making.

Program Objectives

- Formalize already established roles and responsibilities and document requirements as well as challenges for protocols management.
- Evaluate and refine National Data Collection Protocol development, implementation, and management activities.
- Evaluate and refine other data management activities related to data collection protocol activities such as identification of data needs, business requirements, data standards, and data collection with quality control/ quality assurance.
- Discuss and propose new best management practices for natural resource management business that have traditionally been managed by resource specialists.
- Discuss feasibility of developing new methods for natural resource management data stewards that are more efficient and effective in achieving results.
- Discuss feasibility of recommendations to expedite best practices, new methods, and potential policies for all natural resource management data stewards.
- Develop a common and well-understood mutual vocabulary that satisfies the need for both the natural resource data stewards and the IT professionals.

Program Benefits

- Connecting natural resource specialists in a community peer group with common interests.

- Discussing and evaluating topics of interest and data management processes with other like-minded individuals from other geographic regions.
- Developing solutions and creating improved methods with other knowledgeable individuals.
- Increasing the knowledge and capability of each community member by asking other members questions about specific topics.
- Providing opportunities for learning new methods, techniques, and processes for natural resource data management.
- Encouraging mentorship within the community.

Membership/Participants

- National level personnel including EMC Assistant Directors, National Program Managers (or their selected staff) who are responsible for each resource area, other interested deputy area directors including Forest Health Protection and Forest Inventory and Analysis (FIA), and information resource management staff including RIMs, IMDs, CIO, GMO, NRM and other interested staff.
- Regional and forest level individuals with an interest and expertise in data management activities including developing/assessing business requirements; identifying information needs; developing/revising data collection protocols and protocol management; collecting data and performing any post-collection analyses; and quality assurance and control activities.
- Sponsors include EMC-RIG Assistant Director, Adaptive Management Assistant Director, and others as assigned.
- Stakeholders including people and staffs who have an interest in the work of the Community of Practice and any proposed deliverables of the Community of Practice including:
    - Regional and forest level individuals who are responsible for natural resource data management activities (see above).
    - Information Technology (IT) individuals who are responsible for particular natural resource data management activities that overlap with IT work.
    - Forest Service personnel interested in developing best practices for I&M natural resource management activities agency-wide.

Roles & Responsibilities

- Collaborate with other data stewardship groups and staffs including the RIMC, DADAs, RIMs, IMDs, CIO, GMO/GIS, and NRM personnel
- Share experience and know-how in an environment promoting good-will and camaraderie
- Discuss common issues and interests for improving data collection and data collection protocols
- Collaborate in solving problems by analyzing causes and contributing factors, experimenting with new ideas and novel approaches, and capturing and documenting new vetted methods
- Promote learning across all Deputy areas and national, regional, and forest, levels within NFS by documenting and sharing existing methodologies

- Provide leadership and mentoring to novice business data stewards, and provide continuity of ownership of data stewardship roles and responsibilities
- Provide a mechanism for development and management of data collection protocols throughout the data lifecycle
- Evaluate roles and responsibilities for data collection protocol management that are coordinated in the inventory and monitoring protocol SharePoint site

Operational Guidelines:

- I&M DS CoP will be self-guided by an annual plan of action, the direction of the team and approval of the action plan by the EMC-RIG Assistant Director, Adaptive Management Assistant Director, and/or other sponsors
- Regularly scheduled meeting times and occurrences will be determined by the Community of Practice at the initial meeting.
- Lead responsibilities for each meeting including agenda and note-taking will be determined by the Community of Practice at the initial meeting.
- The need for a Steering Committee to provide oversight for activities of the Community of Practice will be discussed at the initial meeting.
- Special meetings occurring outside of the regularly scheduled meetings including conferences and special working groups will be determined by the Community of Practice at the initial meeting.

Community of Practice Approval (go to end of document)

Glossary

Business –

1. Generally, any purposeful activity.
2. Specifically, a commercial or industrial enterprise.
3. Commercial activity engaged in as a means of livelihood (DMBOK 2011).

Business Data – data about people, places, things, rules, events, or concepts, used to operate and manage any enterprise (not just commercial enterprises). Used to identify data that is not considered to be meta-data (DMBOK 2011).

Business Data Steward – A knowledge worker, business leader, and recognized subject matter expert assigned accountability for the data specifications and data quality of specifically assigned business entities, subject areas, or databases, but with less responsibility for data governance than a coordinating data steward or an executive data steward (DMBOK 2011).

Business Driven Data Resource – A data resource where the design, development, and maintenance are driven by business needs, as defined by the business information demand (Brackett 2011),

Business Entity – something of interest to an organization. It may be concrete or an abstract concept. May be represented by a data entity in a data model. (DMBOK 2011)

Business Information Demand – An organization's continuously increasing, constantly changing need for current, accurate, integrated information, often on short notice or very short notice, to support its business activities. It is a very dynamic demand for information to support the business that constantly changes (Brackett 2011).

Business Intelligence – A set of concepts, methods, and processes to improve business decision-making using any information from multiple sources that could affect the business and applying experiences and assumptions to deliver accurate perspectives of business dynamics (Brackett 2011).

Business Process – A process that is intended to contribute to the overall value of an enterprise. The complex interactions between people, application, and technologies designed to create customer value. A process is composed of activities. (DMBOK 2011)

Business Requirements—A business need identified as necessary for successful achievement of business goals/objectives (including strategic, tactical, legal, or operational objectives). Business requirements may be represented in a variety of contexts and are most often defined in response to establishing requirements for process, compliance to business direction, and to identification of information technology functionality requirements (USDA Forest Service 2009). A list of management requirements and management questions pertaining to protocol focus.

Coordinating Data Steward – A business data steward with additional responsibility for

a) Leading Data Stewardship teams, and
b) Representing data stewardship issues and integrating the models and specifications in a Data Stewardship Committee. (DMBOK 2011)

Data Attribute –

1. An inherent fact, property, or characteristic describing an entity or object; the logical representation of a physical field or relational table column. A given attribute has the same format, interpretation, and domain for all occurrences of an entity. Attributes may contain adjective values (red, round, active, etc.)
2. A unit of data for which the definition, identification, representation, and permissible values are specified by means of a set of characteristics.
3. A representation of a data characteristic variation in the logical or physical data model. A data attribute may or may not be atomic. (DMBOK 2011)

Data Collection Protocol – specific methods or procedures for collecting a type of data for a specific requirement or need. Example is using a DBH tape, 4 ½ feet (with variations) from the ground to measure the diameter of a tree.

Data Collection Protocol Technical Guide – a document that describes implementation requirements for collecting data for a specific data standard that includes the business requirements for the data standard, the management question this protocol is designed to address, the description of how the data is to be collected (protocol(s)), a description of data quality procedures to be used when collecting the data, the sampling design used, description of procedures for any analyses, and a description of where the data will be stored after it is collected and before it is entered into the corporate databases.

Data Management –

1. The business function that develops and executes plans, policies, practices, and projects that acquire control, protect, deliver, and enhance the value of data.
2. A program for implementation and performance of the data management function.
3. The field of disciplines required to perform the data management function.
4. The profession of individuals who perform data management disciplines. (DMBOK 2011)

Data Quality – The degree to which data is accurate, complete, timely, consistent with all requirements and business rules, and relevant for a given use (DMBOK 2011).

Data Standard – rules by which data are described and recorded. In order to share, exchange, and understand data, the format and meaning must be standardized (USGS 2009).

Data Steward – A business leader and / or subject matter expert designated as accountable for;

a) The identification of operational and business data requirements within an assigned subject area,
b) The quality of data names, business definition, data integrity rules, and domain values within an assigned subject area,
c) Compliance with regulatory requirements and conformance to internal data policies and data standards,
d) Application of appropriate security controls,
e) Analyzing and improving data quality, and
f) Identifying and resolving data related issues.
Data stewards are often categorized as executive data stewards, business data stewards, or coordinating data stewards. (DMBOK 2011)

Data Stewardship –

1. The formal, specifically assigned, and entrusted accountability for business (non-technical) responsibilities ensuring effective control and use of data and information resources.
2. The formal accountability for business responsibilities ensuring effective control and use of data assets. (DMBOK 2011)

Executive Data Steward – A role held by a senior manager sitting on the Data Governance Council, accountable for the data quality and data practices within a department, for planning and oversight of data management programs, and appoint of other data stewards. Sometimes referred to as a strategic data steward. (DMBOK 2011)

Information Technology (IT) –

1. A broad subject concerned with technology and other aspects of managing and processing information, especially in large organizations. IT deals with the use of electronic computers and computer software to convert, store, protect, process, transmit, and retrieve information.
2. The department of an organization that deals with computer hardware, application software systems, and the data. (DMBOK 2011)

Metadata – Literally, "data about data"; data that defines and describes the characteristics of other data, used to improve both business and technical understanding of data and data-related processes (DMBOK 2011).

Subject Matter Expert (SME) – A person with significant experience and knowledge of a given topic or function (DMBOK 2011). In the Forest Service, subject matter experts for

inventory and monitoring are natural resource specialists in selected disciplines (i.e., soils, vegetation, forest management, air, range, wildlife, etc.).

Glossary References

Brackett, Michael H. 2012. Data Resource Design: Reality Beyond Illusion. Technics Publishing, LLC. 390pp.

The DAMA Data Management Body of Knowledge, 2nd edition. 2017. Data Management Association, International. Technics Publications, LLC. New Jersey. 624pp.

The DAMA Dictionary of Data Management, 2nd edition. 2011. Data Management Association, International. Technics Publications, LLC. New Jersey. 254pp.

U.S. Department of Agriculture (USDA), Forest Service. 2009. Forest Service manual 1940. Inventory, monitoring, and assessment activities. Washington, DC: U.S. Department of Agriculture, Forest Service, Ecosystem Management Coordination Staff. 20pp.

Appendix A: Six-step Information Management Framework for IM&A activities (adapted from Forest Service Framework for Inventory & Monitoring, USDA Forest Service, 2000)

Process Step	*Description of Step*	*Relevant Framework Components (Standards, Guidelines, Tools)*	*Data Steward Roles and Responsibilities (partial list, see Appendix B for more activities)*
STEP #1	1. a. Assess business requirements	• Business analysis process standard • Authoritative information repository • Guidelines and principles for change management processes	• Ensure business requirements are described, documented, and maintained for each resource area • Evaluate business requirements periodically to include new statutes, EOs, agency mandates and directives with existing change management processes • Ensure business analysis process is understandable and achievable and standards exist for applicable processes
	b. Evaluate information needs and identify data needs	• Authoritative information repository • Guidelines for evaluation of information needs • Guidelines for identification and evaluation of specific data needs	• Summarize and analyze data needs for natural resources within resource area • Describe data needs for use in Forest Service decision making, including standards for data collection using GPS • Ensure processes are available to record status and trend of natural resource data
STEP #2	2. Develop protocols and data standards	• Authoritative information repository • Process for coordinating reporting and analysis tool development and acquisition • Guidelines for QA/QC to be included in protocols • Guidelines and principles for change management processes	• Ensure data collection protocols are described, documented, and maintained for each resource area • Ensure protocols contain information on data standards, collection methods(s), sampling design, QA/QC procedures, and change management processes • Evaluate protocols and identify gaps for needed protocol coverage for each resource area
STEP #3	3. Acquire and collect data	• Authoritative information repository • Guidelines for data collection processes	• Provide oversight to ensure data is collected with a trained field crew using methods specified in the protocol with QA/QC techniques

		• Guidelines for QA/QC to be used during collection and acquisition	• Assist with processes of dataset acquisition outside of the Forest Service to increase quality and usability • Ensure datasets are evaluated for data quality before transmittal to corporate databases
STEP #4	4. Enter, migrate, and store data in corporate information systems	• Authoritative information repository • Guidelines for QA/QC to be used during entry of datasets into corporate information systems • Guidelines and principles for change management processes	• Ensure datasets are migrated to authoritative information repositories with correct metadata including data standard, protocol used, time, date, etc. • Assist in development of data models describing interactions between variables • Track datasets to insure data integrity
STEP #5	5. Use data to conduct analyses, evaluations and assessments	• Authoritative information repository • Process for coordinating reporting and analysis tool development and acquisition • Develop GIS layers and other analytical techniques	• Analyze and report status and trends of natural resource data • Develop or coordinate basic model development for forest, region, and national evaluations • Assist and coordinate with GIS staffs in developing GIS layers and other analytical techniques
STEP #6	6. Develop information products	• Finalize reports and maps • Process data and information for forest plans and NEPA • Use information in conducting assessments	• Ensure reports and maps utilize established processes for production, including statistical procedures • Review, enhance, maintain, and ensure established procedures are followed for using data and information for forest plans and NEPA

Appendix B: Roles and Responsibilities for IMA Natural Resource Business Data Stewards (Resource Inventory and Monitoring Protocol Development Guidebook, USDA Forest Service, 2017)

Table B-1.—Data stewardship roles and responsibilities by protocol phase.

1.0 Initiation Phase	
Role	***Responsibilities***
National program managers	• Ensure information needs are identified, revised, and maintained for Inventory, Monitoring, and Assessment (IM&A) activities in their resource areas. • Ensure business requirements and data quality standards are described and documented for their resource areas. • Ensure all developed national protocols used for collecting data in their resource include the following: each protocol's definition of the data collection standard, link to business requirements, description of data quality standards, data collection methods and procedures, statistical analysis, and location of storage of the datasets. • Maintain data standard with review and recalibration if needed. • Evaluate gaps in protocol coverage and determine protocol development priorities. • Participate as protocol sponsors, participate on protocol teams or serve as a business lead for new national protocol development or for revision of a current national protocol. • Serve as protocol sponsors by initiating the project charter and obtaining funding for protocol development. • Approve regional protocols, if needed.
Regional resource managers	• Ensure establishment or development of regional protocols where national protocols do not exist for their resource areas. • Document how and why regional protocol may differ from official national protocols. • Evaluate and maintain business requirements, information needs, and data quality standards for protocols in their resource areas. • Select appropriate national, regional, and local protocols to achieve needs specified by the region. • Define the use for national protocols without modification or national protocols modified for each forest's use depending on the IM&A business requirements. • Develop their own regional protocols if no national protocol exists to meet their business and information needs. • Participate on protocol teams or as business lead for new regional protocols. • Initiate the project charter and determine project funding, as appropriate for all regional protocol projects.
Forest resource managers	• Develop forest-specific protocols for their resource areas where national or regional protocols do not exist. Plan and complete protocol development. • Ensure documentation of how and why their protocols differ from national and regional protocols. • Evaluate and maintain business requirements, information needs, and data quality standards for their protocols and resource areas. • Ensure collaboration with regional resource manager to determine regional and forest-level needs. • Responsible for choosing national, regional and local protocols to achieve needs specified by the region and forest.
Sponsor for national protocol	• Prepare proposal for new data collection protocols based on new information needs and secure support from national and regional data stewards. • Approve proposal and obtain funding from potential sources (national program

1.0 Initiation Phase	
Role	***Responsibilities***
development effort	managers, other Federal agencies, State agencies, etc.) for the new protocol. • Complete protocol development project charter and assign project manager. • Work with the project manager to choose core team, including a representative from NRM to ensure the database design is ready for the data when the protocol has been completed and a GMO representative to ensure the updates on new data standard development are synchronized with future database design. • Work with the project manager to select steering committee members. • Work with project manager to establish protocol organizational structure, team roles for all teams, and ensure protocol development objectives are met.
Line officers (Chief, deputy chiefs, regional foresters, forest supervisors, district rangers)	• Provide opportunities and funding for protocol development. • Provide people and time for organization of protocol development teams. • Ensure any performance targets associated with the protocol initiation phase are met.
2.0 Development Phase	
Role	***Responsibilities***
National program managers	• Serve as a sponsor for a protocol development team, a member of the protocol development team or a key stakeholder that reviews documents and provides advice to the team. • Ensure all protocols in development within the particular resource area are supported and understood.
Regional and forest resource managers	• Serve as a sponsor for a protocol development team, a member of the protocol development team or a key stakeholder that reviews documents and provides advice to the team.
Protocol development manager and team	• Follow the steps in this protocol guidebook to produce protocols that contain a data collection standard, link to business requirements and information needs, description of data quality standards and data collection methods to ensure appropriate sampling design, statistically valid data, statistical analysis, and location of storage of the datasets.
Protocol stakeholders	• Provide advice and participates in reviews of interim protocol documents because of their experience and expertise in working with the resource.
Line officers	• Provide opportunities and funding for protocol development. • Provide people and time for data stewards to develop protocols. • Ensure any performance targets associated with the protocol development phase are met.

Table B-2—Typical stewardship roles and responsibilities for data acquisition.

National	Regional	National Forests and Grasslands
✓ Develop and implement national plans for inventory and monitoring activities including data collection standards and data quality/assurance. ✓ Provide and manage funding for implementation of resource inventory and monitoring. ✓ Oversee program implementation as part of the agency's Inventory, Monitoring, and Assessment Strategy. ✓ Develop and maintain any necessary agreements between National Forest System, Research and Development (including Forest Inventory and Analysis), and State and Private Forestry. ✓ Provide guidance in the development of regional inventory and monitoring plans. ✓ Support, monitor, and evaluate implementation of regional inventory and monitoring plans. ✓ Identify data and metadata requirements for inventory and monitoring activities needed for decision making. ✓ Ensure regions are providing protocol data stewardship and quality training. ✓ Assist regions in oversight of protocol implementation, including data collection standards and methods. ✓ Develop collaborative relationships with other Federal and State agencies to facilitate a landscape conservation approach. ✓ Document accomplishments for national inventory and monitoring activities.	✓ Develop and implement regional inventory and monitoring plans including data collection standards and data quality/assurance. ✓ Provide field unit guidance in development of inventory and monitoring plans. ✓ Support, monitor, and evaluate implementation of forest, inventory and monitoring plans. ✓ Provide for change management and implementation of protocols through coordination with forests, regional offices, national program staff, and research stations. ✓ Develop, coordinate, and conduct training for field data collection and oversight, including data stewardship and data quality training. ✓ Oversee and direct the overarching framework in which protocol implementation fits. ✓ Direct protocol funds to correct parties/projects. ✓ Coordinate data collection across the region by involving forests. ✓ Identify data and metadata requirements for inventory and monitoring activities needed for decision making. ✓ Assist forests in oversight of protocol implementation necessary to achieve data collection standards and methods prescribed in plans. ✓ Coordinate with broader Forest Service programs and landscape conservation partners. ✓ Document field-level enhancements to national data collection protocols. ✓ Document accomplishments and provide suggestions for enhancing regional inventory and monitoring activities..	✓ Develop and implement a plan for field unit inventory and monitoring activities, including implementation of protocols and data quality and assurance activities. ✓ Participate in regional inventory and monitoring plan development (identify and communicate forest-specific needs). ✓ Propose data and metadata requirements for inventory and monitoring activities needed for decision making. ✓ Implement data standards and methods in data collection activities. ✓ Perform data stewardship and data quality activities during inventory and monitoring activities. ✓ Ensure funding is allocated to complete project needs/goals. ✓ Participate in multi-forest/region coordinated implementation. ✓ Collaborate with partners to joint landscape conservation objectives ✓ Document metadata used in datasets. ✓ Document accomplishments for forest level inventory and monitoring activities.

Table B-3—Typical stewardship roles and responsibilities for analyses and data management.

National	Regional	National Forests and Grasslands
✓ Develop and maintain data stewardship roles and responsibilities and establish succession plannimg to ensure steward roles are continuously filled. ✓ Establish and maintain data stewardship communities of practice within National Forest System, Research and Development, and State and Private Forestry. ✓ Identify and appoint national data stewards and acknowledge roles in data governance. ✓ Develop and maintain data policies and procedures for data stewards including developing protocols, defining data requirements, data content quality and metadata standards. ✓ Maintain and enhance the data stewardship training available on AgLearn for the community of practice. ✓ Develop and implement national plans for data stewardship activities. ✓ Maintain and review procedures for upward reporting of summary statistics of natural resources. ✓ Analyze and report status and trends of natural resources. ✓ Work collaboratively with Natural Resource Manager (NRM) staff to integrate resource information into, develop and maintain, corporate databases, information standards, and associated metadata. ✓ Develop standards for assessing critical importance of location (Global Positioning System) information for all inventory and monitoring data collection. ✓ Develop or coordinate basic model development for forest, region, and national evaluations. ✓ Evaluate and implement funding necessary to maintain these activities across the agency.	✓ Ensure data stewardship roles and responsibilities are completed at the regional and forest level. ✓ Idenitfy and appoint regional data stewards. ✓ Develop and implement regional plans for data stewardship activities. ✓ Oversee data entry, management, and input in appropriate NRM application. ✓ Coordinate with adjacent regions and national program staff on data collection and management to ensure data compatibility. ✓ Summarize and analyze regional and forest data for natural resources ✓ Evaluate sampling efficiency and statistical power. ✓ Coordinate with local agencies and organizations to maximize collaboration ✓ Provide support at the regional level to maintain NRM code tables so that local management units can enter inventory and monitoring data into the appropriate corporate databases. ✓ Ensure regional funding levels are adequate to maintain data stewardship activities.	✓ Ensure data stewardship roles and responsibilities are completed at the forest level. ✓ Identify and appoint forest data stewards. ✓ Develop and implement forest-level plans for data stewardship activities. ✓ Ensure procedures for developing protocol enhancements, defining data requirements, data content quality and metadata standards are followed. ✓ Maintain confidentiality of sensitive information. ✓ Communicate or complete forest-level analyses and assessments with regions. ✓ Ensure inventory and monitoring data are entered into the appropriate corporate databases such as NRM. ✓ Ensure forest-level funding levels are adequate to maintain data stewardship activities.

Table B-4—Typical stewardship roles and responsibilities for data quality.

National	Regional	National Forests and Grasslands
✓ Develop and coordinate a national strategy for meeting agency data quality objectives for inventory and monitoring activities. ✓ Establish and plan national data quality activities including quality assurance for their resource area nationally, in regions, and in forests and grasslands. ✓ Develop, coordinate, and conduct resource specific training for data quality activities. ✓ Use continuous improvement techniques and work processes to prevent data errors and ensure data is of sufficient quality during inventory and monitoring data collection and data management activities. ✓ Provide guidance and feedback on the quality of information needed to support management decisions. ✓ Establish national thresholds or measures of conformance to data quality requirements and ensure these are assessed during data collection and data management activities. ✓ Ensure data quality specifications are documented in data collection protocols, data standards, and metadata. ✓ Establish and implement national metadata dimensions or desirable metadata attributes and characteristics to be included as documentation for agency data collection activities. ✓ Ensure metadata for datasets are documented for inventories and monitoring activities in their resource area.	✓ Plan and implement data quality activities within their regional or specific program area. ✓ Ensure inventory and monitoring staff are adequately trained for collecting data to data quality requirements. ✓ Coordinate data collection across the region by involving forests. ✓ Provide oversight on the review and revision of metadata for regional data collection protocols. ✓ Implement national thresholds or measures of conformance to data quality requirements and ensure these are assessed during data collection and data management activities within the region. ✓ Ensure data quality specifications are documented in data collection protocols, data standards, and metadata for data collection activities with their region. ✓ Implement national metadata dimensions or desirable metadata attributes and characteristics by including as documentation for data collection activities within their region. ✓ Ensure metadata for datasets are documented for inventories and monitoring activities in their resource area.	✓ Plan and implement data quality activities for field inventory and monitoring data collection. ✓ Take data quality training for data collection and data management activities. ✓ Ensure data quality standards specified in the data collection protocol are met when collecting and managing data. ✓ Ensure data quality standards are met for FGDC data standards and other guidance. ✓ Ensure funding is sufficient to allow for quality assurance and control activities performed during data collection and data management. ✓ Record metadata parameters after data collection. ✓ Collaborate with partners to ensure data quality expectations are met. ✓ Meet national thresholds or measures of conformance to data quality requirements and ensure these are assessed during data collection and data management activities. ✓ Ensure data quality specifications are documented in data collection protocols, data standards, and metadata for data collection activities. ✓ Use national metadata dimensions or desirable metadata attributes and characteristics as metadata documentation for data collection activities in their resource area.

Community of Practice Approval

The undersigned acknowledge they have reviewed the community of practice charter and agree to sponsor the I&M Natural Resource Data Stewards Community of Practice. Changes to this community charter will be coordinated with and approved by the undersigned or their designated representatives.

Signature/Date:	11/28/18
Print Name:	Richard D. Ullrich
Title:	Assistant Director, Resource Information Group, EMC Staff
Role:	Sponsor

Signature/Date:	11/28/18
Print Name:	Roy J. Barbour
Title:	Assistant Director, Adaptive Management, EMC Staff
Role:	Sponsor