

Data Management Plan
Rice Center for the Environmental Life Sciences



Prepared by:
William Shuart
Rice Center for Environmental Life Sciences
&
Center for Environmental Studies
November 30, 2004

INTRODUCTION	3
OBJECTIVES	3
PROCEDURES	3
SUBMISSION OF DATA	4
DISCLAIMER	4
DATA USER'S AGREEMENT.....	5
ACKNOWLEDGEMENT OF RICE CENTER	5
DATABASES	6
PROJECT MANAGEMENT	6

Introduction

A data management system that reduces effort, facilitates awareness and communication of Rice Center data resources, and coordinates research efforts can significantly increase scientific productivity. When data are freely accessible, use of data is expanded, an historical record for research at the Rice Center is established, and data are incorporated into scientific literature more rapidly. In addition, loss of data is prevented and misuses of data are more easily discovered. Increased awareness of data availability at the Rice Center through the creation of a data catalog, site bibliography, and data archive may reduce the need to perform pilot studies. Many data sets (e.g. meteorology, water quality, species lists, habitat, etc.) are of general interest to a large number of scientists who perform research. Individual scientists can not justify the cost of individually collecting and storing these data sets; rather, this cost should be handled by the operational unit.

Objectives of the Data Management Plan

- Assure high quality data are produced and available for the Rice Center
- Standardize quality control procedures for all data sets
- Assure that raw data are archived in an unmanipulated form (ASCII text).
- Maintain adequate backup protocols for all data sets
- Reduce time between data collection, entry, and analysis because
 - Poorly recorded, erroneous, and/or missing data are more easily recovered
 - Improvements in experimental design, data collection forms, etc., can be made in a more timely fashion
- Facilitate data access
- Provide an electronic data archive (internet and intranet)
- Provide metadata for all datasets to researchers and the public

Procedures

A researcher will submit a copy of his/her research proposal to the data manager to include in a project database. The researcher will complete metadata forms for data being collected at the Rice Center (Appendix I). A short project description will be posted on the Rice Center's web site under research to inform the public of current and ongoing projects being conducted at the Rice Center. Upon final completion of the project, the researcher shall submit a letter indicating that all research has been completed. Following publication or 2 years since completion of research, which ever is sooner, the researcher will submit all raw data to the data manager pertaining to the project for an archival process.

Submission of data

It is the responsibility of individual investigators to provide their core data and standard dataset documentation (metadata) forms as digital ASCII files to be placed in the Rice Center Data Repository as soon as it has been processed and not more than 2 years after data collection. The sharing of data internal to the VCU community should occur rapidly to promote data assimilation and collaboration between researchers. Quality assurance and control is the responsibility of the data collector and is to be recorded in the dataset form.

Disclaimer

For any data that are to be distributed with online access, including meteorological data, geographic information systems data, imagery, etc., a disclaimer/users agreement must be acknowledged and an email will be sent to the principal investigators/originators to inform them that their data have been downloaded.

The user of this Rice Center data set agrees to provide proper acknowledgement with each usage of these data. Citation of name(s) of the investigator(s) responsible for the data set in addition to the generic statement above, constitute proper acknowledgement. Author(s) (including VCU/Rice Center investigators) of published material that makes use of previously unpublished VCU/Rice Center data agree to provide the Rice Center data manager with 4 (four) copies of that material for binding as soon as it is available. The user of the VCU/Rice Center data agrees not to resell or redistribute shared data. The user of these data should be aware that, while efforts have been taken to ensure that these data are of the highest quality, there is no guarantee of perfection for these data contained herein and the possibility of errors exist.

Data user's agreement

By downloading and using data collected under auspices of the VCU Rice Center, the user agrees to the following responsibilities:

1. Before downloading a dataset, the user will provide accurate and complete information to the principal investigator (PI) responsible for the data set. We will provide a web based method to enable a user to perform that function
2. The user agrees not to sell or distribute any data provided by the Rice Center.
3. The user will provide any manuscript for courtesy review by the PI at least 30 days before submitting it for publication.
4. The user will submit 4 (four) copies of any manuscript that draws upon Rice Center data to the following address:

Rice Center for Environmental Life Sciences
1000 West Cary Street
Box 843050
Richmond, Virginia 23284

5. The PI retains all rights to data released to the public; ecological data sets are dynamic and may change over time. VCU/Rice Center and the PI(s) disclaim any responsibility for errors that may or may not exist within online data.
6. The user assumes all responsibility for errors in analysis or judgment associated with online data.
7. Violation of any of the terms of the Data User's Agreement will result in immediate forfeiture of the use of any data, as well as a complete loss of future access privileges to data collection by researchers associated with the VCU/Rice Center.

Acknowledgement of Rice Center

Published works including reports, peer reviewed manuscripts, and other written documents using any Rice Center resources should be acknowledged and reference the contribution number in the acknowledgements section of the manuscript. Series numbers can be obtained from the Director of the Center for Environmental Studies. Contribution numbers are to be cited as follows "Inger and Walter Rice Center for Environmental Life Sciences Contribution Number ###"

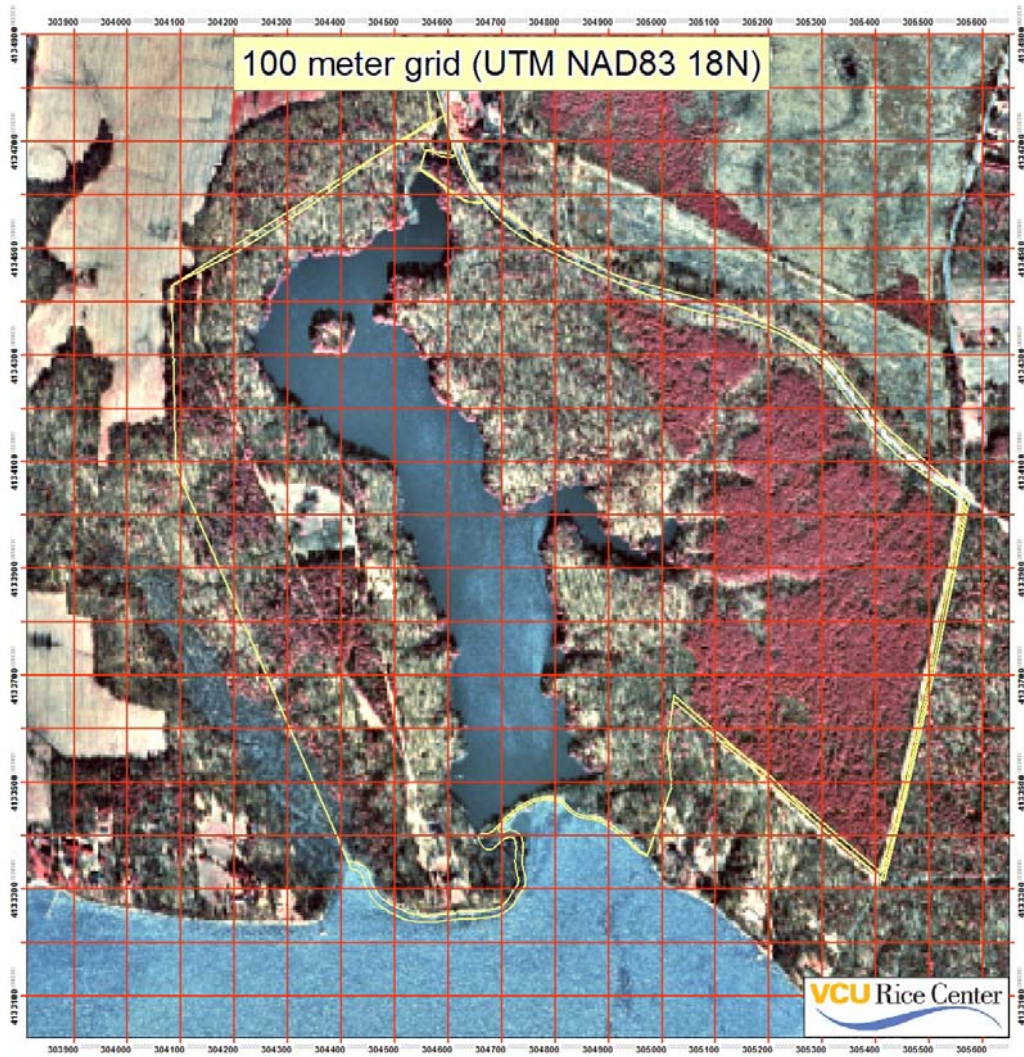
Databases

Databases for pictures, references, species lists, and other items will be placed online for the general public and for researchers to view. A weather station will be deployed in 2006 and those data will be available through the Rice Center Data web site. A project research database will be used to track and manage projects at the Rice Center. Locations of projects will be mapped and recorded in this database. Short project descriptions will be available to the general public but will not display any data for a particular project. A public taxonomic database will be available online to allow VCU faculty and staff along with the public to view a species list for the Rice Center. Each species occurrence will be connected to the Integrated Taxonomic Information System (IT IS, US Department of Agriculture).

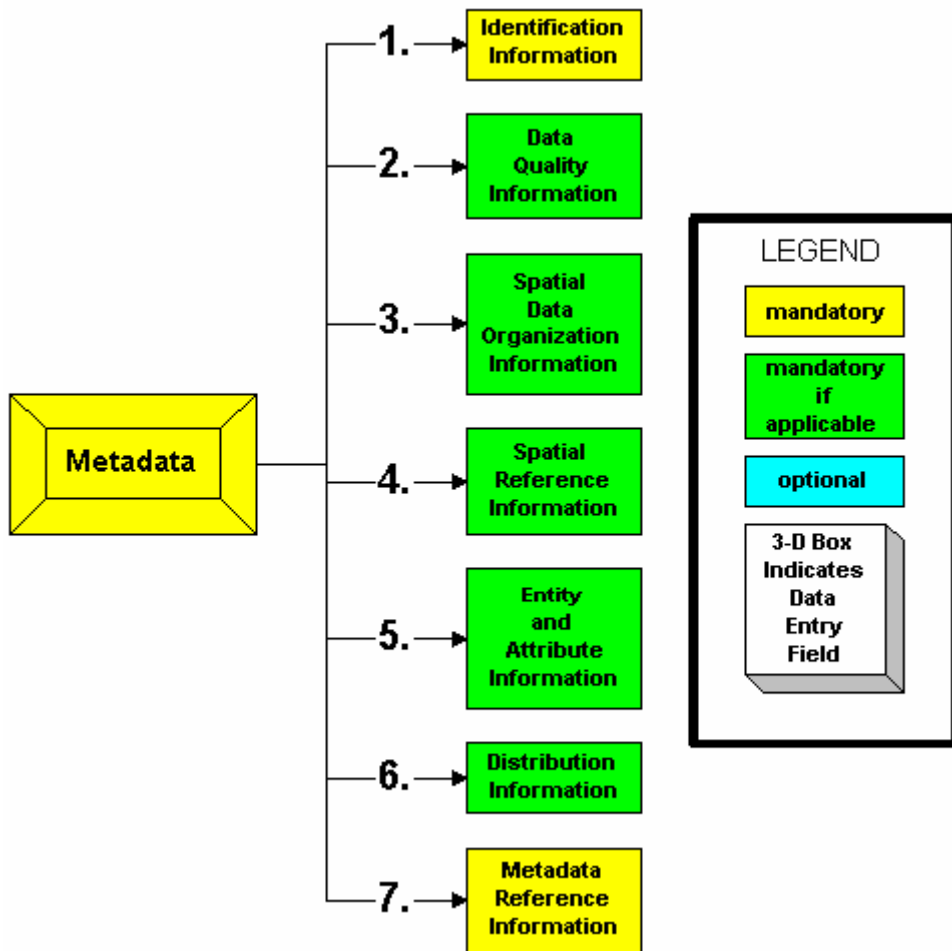
Project Management

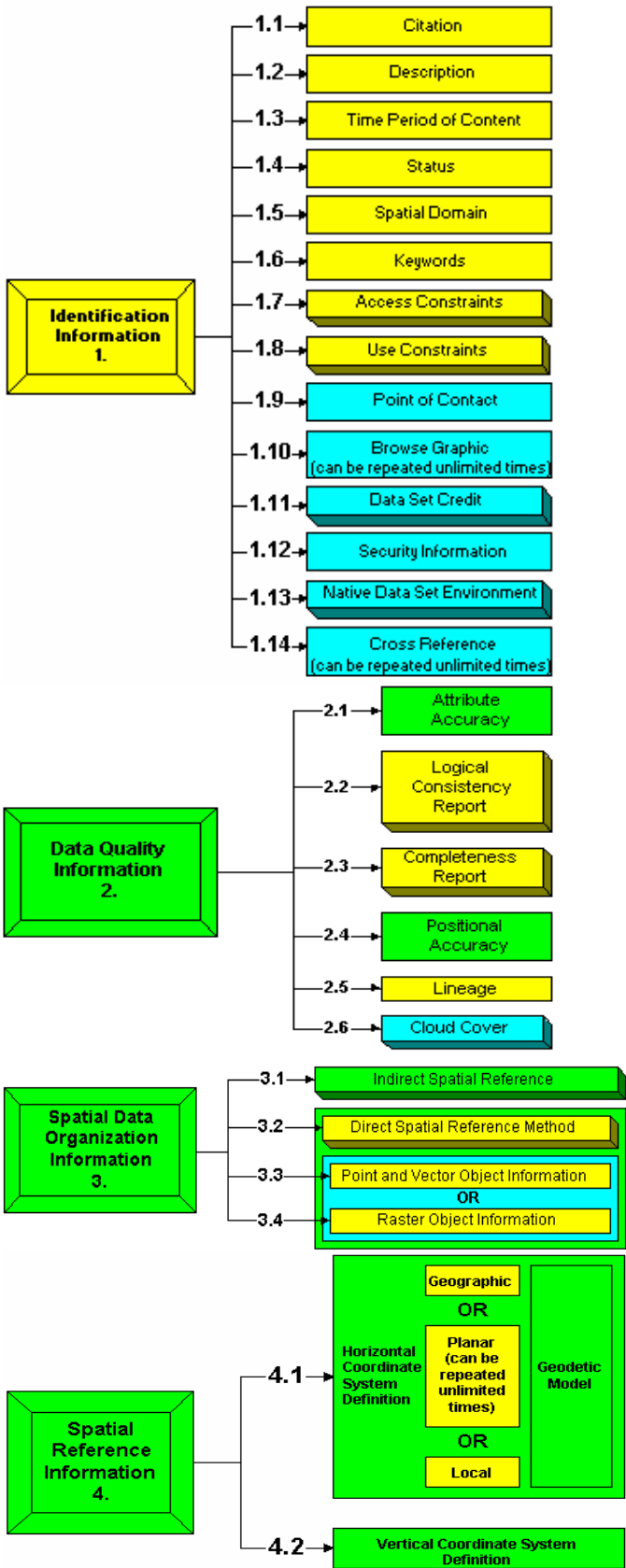
Projects will be managed using geographic information systems design and approach. Project location will be overlaid and a map produced to allow researchers to better determine any potential impact of their research to other projects. Project location will be digitized or global positioning systems units will be used to locate study areas. The Rice Center has been divided into 100 meter grids (UTM, NAD83) to facilitate project management (Figure 1).

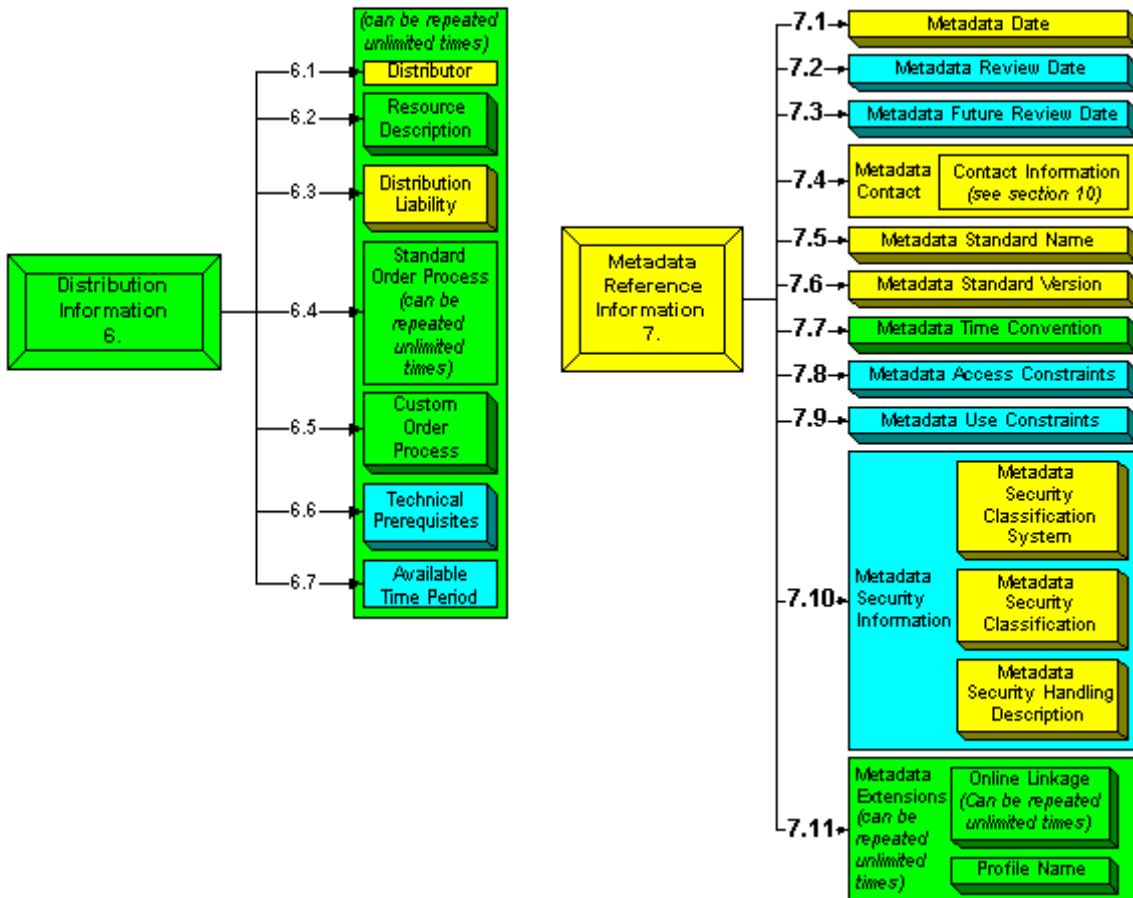
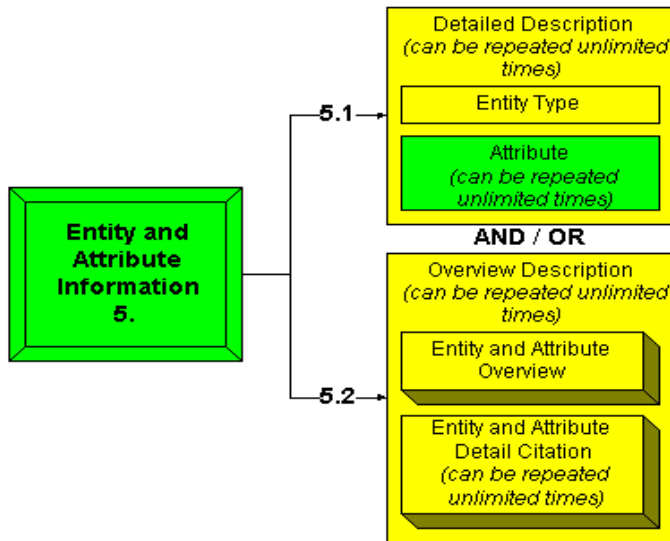
Figure 1. 100 meter grid overlaid on digital orthophotography of the Rice Center.



Appendix I Metadata Workflow







Appendix II Metadata format

Identification_Information:

Citation:

Citation_Information:

Originator:

Publication_Date:

Title:

Geospatial_Data_Presentation_Form:

Online_Linkage:

Description:

Abstract:

Purpose:

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date:

Currentness_Reference:

Status:

Progress:

Maintenance_and_Update_Frequency:

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate:

East_Bounding_Coordinate:

North_Bounding_Coordinate:

South_Bounding_Coordinate:

Keywords:

Theme:

Theme_Keyword_Thesaurus:

Theme_Keyword:

Use_Constraints:

Data_Quality_Information:

Lineage:

Process_Step:

Process_Description:

Source_Used_Citation_Abbreviation:

Process_Step:

Process_Description: Dataset copied.

Source_Used_Citation_Abbreviation:

Process_Step:

Process_Description:

Source_Used_Citation_Abbreviation:

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method:

Point_and_Vector_Object_Information:

SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type:
Point_and_Vector_Object_Count:
Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name:
Universal_Transverse_Mercator:
UTM_Zone_Number:
Transverse_Mercator:
Scale_Factor_at_Central_Meridian
Longitude_of_Central_Meridian:
Latitude_of_Projection_Origin:
False_Easting:
False_Northing:
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method:
Coordinate_Representation:
Abscissa_Resolution:
Ordinate_Resolution:
Planar_Distance_Units:
Geodetic_Model:
Horizontal_Datum_Name:
Ellipsoid_Name:
Semi-major_Axis:
Denominator_of_Flattening_Ratio:
Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label:
Attribute:
Attribute_Label: FID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: Shape
Attribute_Definition: Feature geometry.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Coordinates defining the features.
Attribute:
Attribute_Label: AREA
Distribution_Information:
Resource_Description: Downloadable Data

Standard_Order_Process:
 Digital_Form:
 Digital_Transfer_Information:
 Transfer_Size: 10.351
Metadata_Reference_Information:
 Metadata_Date: 20041209
 Metadata_Contact:
 Contact_Information:
 Contact_Organization_Primary:
 Contact_Organization: The organization responsible for the metadata
information.
 Contact_Person: The person responsible for the metadata information.
 Contact_Address:
 Address_Type: The mailing and/or physical address for the organization
or individual.
 City: The city of the address.
 State_or_Province: The state or province of the address.
 Postal_Code: The ZIP or other postal code of the address.
 Contact_Voice_Telephone:
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial
Metadata
 Metadata_Standard_Version:
 Metadata_Time_Convention:
 Metadata_Extensions:
 Online_Linkage:
 Profile_Name: ESRI Metadata Profile