



FS R&D, Research Data Services

## **WRITING METADATA**

*How to write FGDC compliant metadata using Metavist*

# Metadata = Data Documentation

- What data were collected
- Why data were collected
- How data were collected
- Reliability of data
- Issues that should be accounted for when working with data
- How to get data
- Tools needed to work with the data

# Purpose of Metadata

- Primary
  - Guide for you to understand your data
    - Helps you remember what you and your team did
  - Guide for others to understand your data
    - Helps users today and 20 years from now be successful
- Secondary
  - Guide to other documentation in pub
    - Documentation not limited to formal metadata
  - Marketing for your data
    - Viewed by most Archive customers

# Writing Quality Metadata

- Complete and correct
  - Data are useless without proper documentation
  - This will help ensure data are used correctly
  - Other files or publications can be referenced
- Comprehensive and comprehensible
  - Should fully describe data
  - Should be understandable by non-experts
- Focus on the data
  - Describe the data – not the results of analysis
- Start early
  - Don't wait until paper is written to start writing the metadata – begin right away

# Metadata Standards

- CSDGM\*
  - Federal Geographic Data Committee (FGDC): Content Standard for Digital Geospatial Metadata
  - Designed for geospatial data
  - Mandatory for Federal use since 1994
- BDP\*
  - Biological Data Profile: formally approved by FGDC as a superset of CSDGM
  - Additional elements: Taxonomy, Methodology, Analytical tools
  - Works for nearly all geospatial / non-geospatial data
- ISO 19115 family
  - Designed for geospatial data; supersedes CSDGM
  - More complex, but also more flexible than CSDGM
  - BDP is approved part of standard

\* Use of “FGDC” from here on out refers to both CSDGM and BDP unless otherwise noted.

# Metadata Standards cont.

- EML
  - Ecological Metadata Standard
  - Originally developed for the ecology discipline
  - Used by Long Term Ecological Network
  - Crosswalk between BDP and EML in progress
- Others
  - Dublin core
  - ...

# Tools Used to Write FGDC Metadata

- **Metavist software (FS R&D: Dave Rugg)** ← Using in demo
  - Free! User friendly!
  - Requires some knowledge of FGDC standards
  - Works for geospatial and non-geospatial data
  - Works for CSDGM or BDP metadata
  - Generates XML file, can export as HTML
- **ArcCatalog**
  - For geospatial data only – doesn't understand BDP
  - May not be complete form of metadata
  - Default standard is ISO 19115, but knows CSDGM
- **Microsoft Word Form**
  - Easy to fill out
  - Requires no prior knowledge of FGDC standards
  - Works for all data except geospatial data
  - Works for CSDGM (except spatial sections) or BDP metadata

# FGDC Metadata - Main Sections

## 1. Identification

What data were collected, why collected, where collected, tools need to work with data

## 2. Data Quality

How data were collected, reliability of data, data omissions

## 3. Spatial Data Organization

## 4. Spatial Reference

## 5. Entity and Attribute

Description of all files, list and description of variables within each file

## 6. Distribution

How to get data, data formats

## 7. Metadata Reference

Metadata currentness, responsible party

# Metadata Example – using Metavist

## 1. Identification



Identification

Data Quality

Spatial Data Org

Spatial Reference

Entity &amp; Attribute

Distribution

Metadata Ref

## Citation for the data set

Author(s)

Verry, Elon S.

Publication Date

2018

Title

Marcell Experimental Forest daily streamflow data

Edit

## Abstract

This data publication contains daily streamflow data from 1961-2017 at the Marcell Experimental Forest (MEF) in Balsam Township, Itasca County, Minnesota. The data came from six peatland / upland forest watersheds instrumented for long-term hydrological and biogeochemical research. Data include daily streamflow for the following watersheds: S1 (1961-1981), S2 (1961-2017), S4 (1962-2017), S5 (1962-2017), and S6 (1976-2017).

What data were collected

## Purpose

The Marcell Experimental Forest was formally established in 1962. The MEF contains six watersheds (and other study sites), each consisting of an upland portion and a peatland that is the source of a stream leaving the watershed. The watersheds and environmental monitoring at the MEF are part of a long-term research program on the hydrology and biogeochemistry of watersheds with uplands and northern peatlands (Kolka et al. 2011).

Why data were collected

## Supplemental Information (Optional)

Additional information about the Marcell EF, its instrumentation, and data can be found at <https://www.nrs.fs.fed.us/ef/marcell/> and in Sebestyen et al. 2011.

Original metadata date was 02/22/2018. On 02/26/2018 we added additional supplemental files containing details about instrumentation. On 04/30/2018 we updated the instrumentation supplemental files and updated the metadata accordingly.

## Time Period of Content

Data is from: ☐ A single date  
☐ Multiple dates  
☒ A range of dates  
☐ Unknown

The calendar is: ☒ Gregorian  
☐ Geologic

When data were collected

Time Period(s)

begin: 1961 end: 2017

## Status

Progress

Planned  
In progress  
Complete

Updating

As needed

Metavist 2017 - \_metadata\_RDS-2018-0009.xml

FileOptionsHelp

Identification

Data Quality

Spatial Data Org

Spatial Reference

Entity & Attribute

Distribution

Metadata Ref

Basic InformationSpatial DomainKeywordsTaxonomyAccessAnalytical ToolsMiscellaneous

Description of Geographic Extent

The USDA Forest Service Marcell Experimental Forest (MEF) is an 1140-hectare tract of land located 40 kilometers north of Grand Rapids in Balsam Township, Itasca County, Minnesota, USA. The bounding coordinates are the maximum extents of western, eastern, northern, and southern corners of both the North and South Units of the Marcell Experimental Forest.

Watershed areas:  
S1 = 33.2 hectares (ha)  
S2 = 9.7 ha  
S4 = 34.0 ha  
S5 = 52.6 ha  
S6 = 8.9 ha

Where data were collected - description

Data Set G-Polygon(s) (optional)

AddEditDelete

Bounding Coordinates

West (Longitude):-93.44900

East (Longitude):-93.49200

North (Latitude):47.50000

South (Latitude):47.33000

Where data were collected - coordinates

Bounding Altitudes (optional)

Altitude Minimum:0.000

Altitude Maximum:0.000

Altitude Distance Units:



Identification

Data Quality

Spatial Data Org

Spatial Reference

Entity &amp; Attribute

Distribution

Metadata Ref

**Theme**

Thesaurus: ISO 19115 Topic Category; Keywords: environment; inlandWaters;  
Thesaurus: National Research & Development Taxonomy; Keywords: Ecology, Ecosystems, & Environment; Hydrology, watersheds, sedimentation; Natural Resource Management & Use; Water;  
Thesaurus: None; Keywords: forest hydrology; peatlands; streamflow;

Add

Edit

Delete

**Place**

Thesaurus: None; Keywords: Marcell Experimental Forest; Minnesota;

Add

Edit

Delete

**Stratum**

Add

Edit

Delete

**Temporal**

Add

Edit

Delete

**Keyword categories we use:**

1. ISO 19115
2. R&D taxonomy
3. Author choice
4. Place keywords



- Identification
- Data Quality
- Spatial Data Org
- Spatial Reference
- Entity & Attribute
- Distribution
- Metadata Ref

Basic Information Spatial Domain Keywords **Taxonomy** Access Analytical Tools Miscellaneous

### Keywords/Taxon

Add

Edit

Delete

### Taxonomic Classification

**For BDP metadata only:**  
**If applicable, include taxonomy for each species. We can auto-generate this using**  
**<https://www.itis.gov>**

Add

Edit

Delete

Import

Export

Clear All

### General Taxonomic Coverage (Optional)

## Taxonomic System

### Identification Reference

Add

Edit

Delete

### Classification System or Authority

Add

Edit

Delete

### Identifier (Optional)

Add

Edit

Delete

### Taxonomic Procedures

### Taxonomic Completeness

### Vouchers



Identification

Data Quality

Spatial Data Org

Spatial Reference

Entity &amp; Attribute

Distribution

Metadata Ref

Basic Information Spatial Domain Keywords Taxonomy **Access** Analytical Tools Miscellaneous**Access Constraints** *(Default is "None")*

None

**Use Constraints** *(Default is "None")*

These data were collected using funding from the U.S. Government and can be used without additional permissions or fees. If you use these data in a publication, presentation, or other research product please use the following citation:

Verry, Elon S.; Elling, Arthur E.; Sebestyen, Stephen D.; Kolka, Randall K.; Kyllander, Richard. 2018. Marcell Experimental Forest daily streamflow data. Fort Collins, CO: Forest Service Research Data Archive. <https://doi.org/10.2737/RDS-2018-0009>

**Point Of Contact (optional)**

Add

**Security Information (optional)****Security Classification System****Security Classification****Security Handling Description****Data citation****Data point of contact**

Metavist 2017 - \_metadata\_RDS-2018-0009.xml

File Options Help

Help / Examples

Basic Information Spatial Domain Keywords Taxonomy Access Analytical Tools Miscellaneous

**Analytical Tools**

Add Edit Delete

**For BDP metadata only:  
If applicable, include citation and details  
for tools needed to work with the data**

Tools, models, or statistical procedures that the data set is intrinsically bound to and are available for use in analyzing the data set. Examples include reconstructions of phylogenies, population viability analyses, community ordinations, most atmospheric and hydrologic transport analyses, and inferences on the effects of climate change on forest composition and productivity. Enough information should be included so that a potential data user can easily determine why they might wish to acquire the analytical tool, and the methodology to acquire it.

Identification

Data Quality

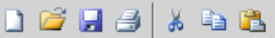
Spatial Data Org

Spatial Reference

Entity & Attribute

Distribution

Metadata Ref



Identification



Data Quality



Spatial Data Org



Spatial Reference



Entity &amp; Attribute



Distribution



Metadata Ref

Basic Information Spatial Domain Keywords Taxonomy Access Analytical Tools Miscellaneous

*Data Set Credit (optional)*

Clarence Hawkinson, Sandy Verry, Art Elling, Deacon Kyllander, and Carrie Dorance collected most of the data with the occasional assistance others during the duration of the studies. Funding for this project provided by USDA Forest Service, Northern Research Station.

Who funded this work,  
and other data credits

*Native Data Set Environment (optional)**Browse Graphics (optional)*

\\Supplements\\MEF\_map.jpg JPEG image file containing a map of the Marcell Experimental Forest which includes the location of the watersheds.

Important image/graphic(s)

Add

Edit

Delete

*Cross References (optional)*

Kolka, Randall K. Peatland biogeochemistry and watershed hydrology at the Marcell Experimental Forest  
Sebestyen, Stephen D. Long-term monitoring sites and trends at the Marcell Experimental Forest  
Verry, Elon S. Marcell Experimental Forest peatland and upland water table elevations

Publications that USE the data we  
are publishing, or are related

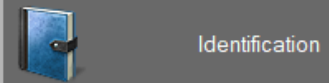
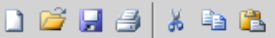
Add

Edit

Delete

# Metadata Example – using Metavist

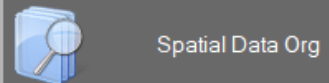
## 2. Data Quality



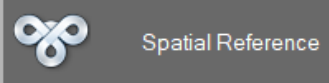
Identification



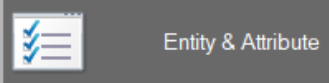
Data Quality



Spatial Data Org



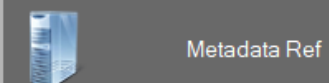
Spatial Reference



Entity &amp; Attribute



Distribution



Metadata Ref

Attribute Accuracy Consistency &amp; Completeness Positional Accuracy Lineage Cloud Cover

**Attribute Accuracy Report**

Descriptions of the accuracy of measurement of attribute values can be found in the Methodology section for each attribute measured. Streamflow is calculated from stage-discharge relationships for H-type flumes or v-notch weirs. Data resolution is considered to be 5% of total flow.

**Additional Information:**

The flumes at S1, S4N, S4S, and S5, where there were cutoff walls, were prone to occasional leaking under the walls. The flume approaches, which were supported atop small concrete pads in channels downstream of the walls, were also prone frost-heaving and settling. The flumes may also have frozen when propane heaters malfunctioned, causing icing in the approach and H-type facing (\\Supplements\\Photos\\S4\_xxxx\_cutting\_flow\_path.jpg), or freezing of floats in flume stilling wells. The flume structures were closely monitored during weekly or more frequent site visits to allow for the adjustment of flume approach elevations to maintain levelness, remove ice, or free floats. For these reasons and because flumes were less suitable than v-notch weirs for the long periods of low flow that occur at the MEF research watersheds, the flumes were eventually replaced with weirs, usually after a period of repeated breaches. During the early 1960s, the S2 weir was also prone to ice formation in the v-notch until an insulated wooden shelter with a heater was placed over the weir and v-notch before first freeze and removed after spring snowmelt. Now, all weirs are similarly covered and heated. If streamflow stopped and water levels dropped below a v-notch, a heater was turned off to conserve fuel until flow resumed. With flow resumption, a propane lamp was relit to prevent ice formation in a v-notch. The flumes were also enclosed and heated after the first several years of operation during the 1960s. Stages measurements were also affected by occasionally damming of flumes by beaver (Castor Canadensis), which was usually resolved by trapping and removal. Stream stages were adjusted for all periods in which it was known that stage measurements were affected.

**Quantitative Attribute Accuracy Assessment (Optional)****Accuracy of data**

Add

Edit

Delete



## Logical Consistency Report

not applicable

**Fidelity of the relationships  
in the data and tests used**

## Completeness Report

The headwater streams draining the MEF research watersheds may have prolonged periods of no flow, especially during winters when most water that would otherwise be available to streamflow is frozen. Once flow stops in winter, stripchart recorders are not operated until a weather forecast indicates a period of above freezing temperatures that may induce flow to resume. Therefore, there are sometimes no stripcharts for weeks of no flow. The last and first charts of the season were notated on stripcharts.

Some stage measurements are not available due to equipment malfunctions. Recorder malfunctions are uncommon, but when they happen, stream stage was estimated from precipitation records, bogwell records and streamflow from other watersheds. Recorder malfunctions included: incomplete records when clock-drives stopped or time-distorted records when clocks sped up or slowed down; indefinite marking due to ink splotches; incomplete records due to unreadable or incomplete ink traces on paper stripcharts; shifted pen markings of stage height that occurred when the pen or pen-drive was not working properly; and flat-lined or missing traces when float tapes jumped from pulleys.

There were some prolonged periods during which stream stages were not recorded at stream gages or otherwise not accurately recorded that are noted here:

S1: Streamflow was measured occasionally at a temporary wooden flume during 1960 (\\Supplements\\Photos\\S1\_1960\_temp\_flume.jpg) and an H-type flume with wood cutoff walls (\\Supplements\\Photos\\S1\_1961\_flume\_wood\_cutoff\_wall.jpg) was installed later that year. The whereabouts of those data currently are not known. After the installation of a flume, ice heaving of the approach and cutoff walls was an ongoing problem. The cutoff walls heaved during the winter of 1970 and streamflow measurements were curtailed until May 1970 when the walls were again driven into a cemented "ortstein" sand layer. The wood cutoff walls were replaced by manual driving of interlocking steel sheetpiling during October 1974 (\\Supplements\\Photos\\S1\_1974\_sheet\_pile\_driving.jpg). Ice damage continued to be a problem for unknown of the flume until streamflow measurements were discontinued and the

**Completeness of data:  
data omissions and why, how  
missing data are recorded, etc.**



- Identification
- Data Quality**
- Spatial Data Org
- Spatial Reference
- Entity & Attribute
- Distribution
- Metadata Ref

Attribute Accuracy Consistency & Completeness **Positional Accuracy** Lineage Cloud Cover

### Horizontal Positional Accuracy

#### Horizontal Positional Accuracy Report

#### Quantitative Horizontal Positional Accuracy Assessment (optional)

**Both tabs for spatial data:  
Positional Accuracy and Cloud Cover information**

Add

Edit

Delete

### Vertical Positional Accuracy

#### Vertical Positional Accuracy Report

#### Quantitative Vertical Positional Accuracy Assessment (optional)

Add

Edit

Delete

Metavist 2017 - \_metadata\_RDS-2018-0009.xml

File Options Help

Help / Examples

Attribute Accuracy Consistency & Completeness Positional Accuracy **Lineage** Cloud Cover

Identification

Data Quality

Spatial Data Org

Spatial Reference

Entity & Attribute

Distribution

Metadata Ref

**Methodology**

Field: Streamflow:Streamflow has been measured at as many as seven stream gages. Streamflow currently is measured at five 120-degree v-notch weirs that replaced earlier H-type flu

For BDP metadata only:  
How data were collected  
(thorough and understandable)

Add Edit Delete

**Source Information**

Citation(s) for data/info  
from other sources

Add Edit Delete

**Process Step**

StreamflowData Collection and Conversion:In the Grand Rapids Forestry Sciences Lab, corrections to time and stage (to weekly point gage measurements; Brakensiek et al. 1979) were

Post-collection data processes

Add Edit Delete

Methodology

Information about a single step of field and/or laboratory work

Methodology Type

Field

Methodology Description

Streamflow:

Streamflow has been measured at as many as seven stream gages. Streamflow currently is measured at five 120-degree v-notch weirs that replaced earlier H-type flumes or weirs. The v-notch and flume bottoms were set to the elevations of the stream channels that drained bogs. Pools were excavated behind the stream gages and channels were contoured downstream to create a hydraulic drop. Stream gages at the outlets of the S2 and S4 watersheds are downstream from the peatlands. By contrast, stream gages and weir pools at the outlets of the S5 and S6 watersheds are adjacent to the bogs and pooled water backs into the bogs as water levels rise.

Stream Gages:

The watersheds have single channel outlets where streamflow is monitored, except the S4 watershed, which has 2 outlets (S4N and S4S). The S4 watershed sits atop the continental divide of the Mississippi and Hudson Bay drainages. Surface water flows from two outlets at 428 m above mean sea level and streamflow is measured at both outlets. Streamflow from the two stream gages is summed to report streamflow for the entire S4 watershed.

The S2 stream gage was always a v-notch weir with concrete cutoff walls and the S1 stream was always a flume. Before being replaced with v-notch weirs and

Methodology Citation

Brakensiek, Donald L., Osborn, Herbert B., Rawls, Walter J.: Field manual for research in agricultural hydrology

Johnson, Edward A., Dils, Robert E.: Outline for compiling precipitation, runoff, and ground water data from small watersheds

Methodology Identifier (optional)

Add

Edit

Delete

Add

Edit

Delete

OK

Cancel

How data were collected, methodology citations, methodology keywords

Process Step

Process Description

Streamflow

Data Collection and Conversion:

In the Grand Rapids Forestry Sciences Lab, corrections to time and stage (to weekly point gage measurements; Brakensiek et al. 1979) were directly annotated on stripcharts. Starting during 2002, stripcharts were scanned using a SummaSketch III Professional Digitizing Pad and corrected values on stripcharts were digitized using Sigma Scan software (Copyright © Systat Software, Inc.). Sub-daily stage data were saved as text (.prn or .csv) files for each day. The sub-daily files for a water year (March 1 to Feb 28 or 29) were compiled into a spreadsheet (.xlsx format) using macros (VBA, Visual Basic) in Microsoft Excel and streamflow was calculated for each stage measurement using stage-discharge relationships. The areas in polygons that corresponded to each breakpoint data interval were calculated to determine the streamflow per time interval. Sub-daily estimates of streamflow were summed for each day and daily specific discharge is reported in units of cubic feet per second (CFS), centimeters per day (cm/d), and liters per second (L/s).

Here are the equations used for the conversions:  
CFS = (L/s) \* 0.035315  
L/s = (CFS) \* 28.31685

Source(s) Used Citation Abbreviation(s)

Post-collection data process steps, sources used, sources produced

Source(s) Produced Citation Abbreviation(s)

Process Contact (optional)

Add

Process Date

☒ Unknown

☐ Not complete

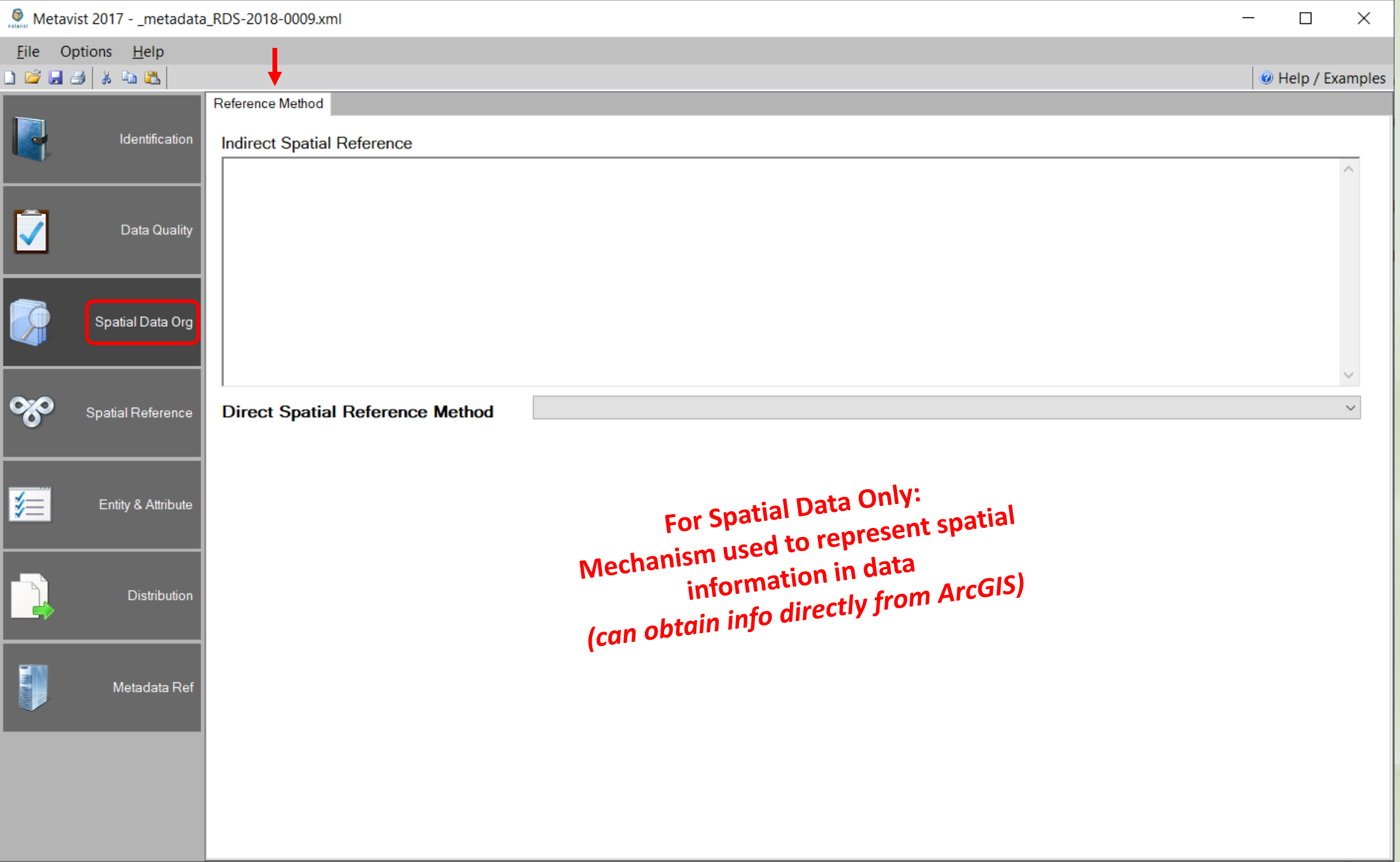
☐ Specify date

OK

Cancel

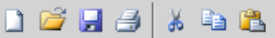
# Metadata Example – using Metavist

## 3. Spatial Data Organization



# Metadata Example – using Metavist

## 4. Spatial Reference



Identification

Data Quality

Spatial Data Org

**Spatial Reference**

Entity & Attribute

Distribution

Metadata Ref

## Horizontal Coordinate System Definition

## Vertical Coordinate System Definition

## Horizontal Coordinate System Definition:

☐ Geographic ☐ Planar ☐ Local ☒ No Definition

## Geographic

Latitude Resolution

0.00000000

Longitude Resolution

0.00000000

Geographic Coordinate Units

## Planar

## Local

Local Description

Local Georeference Information

## Geodetic Model

Horizontal Datum Name

Ellipsoid Name

Semi-major Axis

6,378,137.0000

Denominator of Flattening Ratio

298.25722210

**For Spatial Data Only:**  
Reference frame for, and the means  
to encode, coordinates in data  
(can obtain info directly from ArcGIS)

# Metadata Example – using Metavist

## 5. Entity and Attributes

Metavist 2017 - \_metadata\_RDS-2018-0009.xml

File Options Help

Help / Examples

Detailed Descriptions Overview Descriptions Information

### Overview Description(s)

Daily streamflow = data containing average daily streamflow for the specified stream gage in the Marcell Experimental Forest. Measurements began in the early 1960's for all of these weirs. The following supplemental files are also available for download: \Supplements\ Chart\_digitizing\_instructions\_2008.pdf. Adobe Acrobat PDF file containing digitization instruction

Add Edit Delete

Entity & Attribute

Distribution

Metadata Ref

List all files in data package and fully define every variable within each file

\* To keep things simple we typically do not use the Detail Description section unless data are spatial.

## Entity and Attribute Overview

Daily streamflow = data containing average daily streamflow for the specified stream gage in the Marcell Experimental Forest. Measurements began in the early 1960's for all of these weirs.

Date = Date of observation. The date format is yyyy-mm-dd.

Watershed = Text identifier for the location of the observation (S1, S2, S4N, S4S, S5, S6).

Flow (CFS) = daily streamflow in cubic feet per second (CFS)

Flow (cm/d) = daily streamflow in centimeters per data (cm/d)

Flow (L/s) = daily streamflow in liters per second (L/s)

Provide a summary of the information contained in a dataset.

For field/lab data sets: this explains what was measured, but not how it was measured.

It is not critical to have great depth in the Overview - the citations you provide below will do that.

**Describe files and each variable (include units)**

**\*Depending on complexity, variable descriptions can be provided in a separate file**

## Entity and Attribute Detail Citation

none provided

**Citation for publication associated with these data, and any other references noted in variable descriptions**

Provide reference(s) to complete descriptions of entity types, attributes, and attribute values.

Citations will be simple text, not the Citation Information format used elsewhere in the metadata.

Add

Edit

Delete

OK

Cancel

# Metadata Example – using Metavist

## 6. Distribution

## Distributors

## Distributors

Distributor, organization: USDA Forest Service, Research and Development

Add

Edit

Delete

**Information about data distributor,  
data formats, and data access**

Distribution

Metadata Ref

**Distribution Information**

**Distributor** | Ordering | Prerequisites & Availability

Organization : USDA Forest Service, Research and Development **Edit**

Resource Description

RDS-2018-0009

**Distribution Liability**

Metadata documents have been reviewed for accuracy and completeness. Unless otherwise stated, all data and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. However, neither the author, the Archive, nor any part of the federal government can assure the reliability or suitability of these data for a particular purpose. The act of distribution shall not constitute any such warranty, and no responsibility is assumed for a user's application of these data or related materials.

OK Cancel

**Contact Information**

The primary contact is a(n): ☐ Person ☒ Organization

Contact Person (Optional)

**Contact Organization** USDA Forest Service, Research and Development

Contact Position (Optional) Research Data Archivist

**Contact Address** mailing and physical: Fort Collins

Add Edit Delete

**Contact Voice Telephone** see Contact Instructions

Contact TDD/TTY Telephone (Optional)

Contact Fax Telephone (Optional)

Contact E-Mail Address (Optional)

Hours of Service (Optional)

Contact Instructions (Optional) This contact information was current as of April 2018. For current information see Contact Us page on: <https://doi.org/10.2737/RDS>.

OK Cancel

**Distribution information**

**Distribution Information**

Distributor **Ordering** Prerequisites & Availability

**Standard Order Process**

Digital Form: 3 digital form Fees: None

Add Edit Delete

**Custom Order Process**

OK Cancel

**Standard Order Process**

**Format** ☐ Non-Digital ☒ Digital

**Digital Form**

Digital Format: ASCII  
Digital Format: PDF  
Digital Format: JPG

Add Edit Delete

**Fees** None

**Digital Form**

**Digital Transfer Information**

**Format** ASCII ASCII file, formatted for text attribute, declared format

**Format Modifiers (optional)**

Format Version ☒ Number ☐ Date Version Date

Version Number see Format Specification Year 2020 Month Day

**Format Specification (optional)**

Comma-delimited ASCII text file (CSV)

**Digital Transfer option**

Online media: <https://doi.org/10.2737/RDS-2018-0009>

Add Edit Delete

**ASCII File Structure**

Delete File Structure Edit

**Format Information Content (optional)**

**File Decompression Technique**

Files zipped with 7-Zip 16.04

**Transfer Size (optional)**

0.00

OK Cancel

Description of file formats  
and how to access data

# Metadata Example – using Metavist

## 7. Metadata Reference

Metavist 2017 - \_metadata\_RDS-2018-0009.xml

File Options Help

Metadata Information Extensions Constraints & Security

**Metadata Standard's Name:**  
FGDC Biological Data Profile of the Content Standard for Digital Geospatial Metadata

**Version of Standard:** FGDC-STD-001.1-1999 *Choose metadata standard*

**Metadata Creation/Update Date:**  
Monday , April 30, 2018

**Metadata Contact:**  
Dr. Randy Kolka or Stephen Sebestyen **Edit Contact**

**Metadata Review Date (Optional)**  
☐ Thursday , September 3, 2020

**Metadata Future Review Date (Optional)**  
☐ Thursday , September 3, 2020

**Contact Information**

The primary contact is a(n): ☒ Person ☐ Organization

**Contact Person**  
Contact Organization (Optional): USDA Forest Service, North Central Research Station  
Contact Position (Optional):

**Contact Address**  
mailing and physical: Grand Rapids  
Add Edit Delete

**Contact Voice Telephone**  
Randy: 218-326-7100, Stephen: 218-326-7108

**Contact TDD/TTY Telephone (Optional)**

**Contact Fax Telephone (Optional)**

**Contact E-Mail Address (Optional)**  
Randy: rkolka@fs.fed.us, Stephen: ssebestyen@fs.fed.us

**Hours of Service (Optional)**

**Contact Instructions (Optional)**

OK Cancel

**Metadata Ref**

*Who to contact if there are questions*

# Metavist – File Options

Metavist 2017 - \_metadata\_RDS-2018-0009.xml

File Options Help

- New Ctrl+N
- Open Ctrl+O
- Close
- Save Ctrl+S
- Save As Ctrl+Shift+S
- Print Ctrl+P
- Export As HTML
- Exit

Basic Information Spatial Domain Keywords Taxonomy Access Analytical Tools Miscellaneous

Citation for the data set

Author(s) Verry, Elon S. Publication Date 2018

Title Marcell Experimental Forest daily streamflow data Edit

**Abstract**  
This data publication contains daily streamflow data from 1961-2017 at the Marcell Experimental Forest (MEF) in Balsam Township, Itasca County, Minnesota. The data came from six peatland / upland forest watersheds instrumented for long-term hydrological and biogeochemical research. Data include daily streamflow for the following watersheds: S1 (1961-1981), S2 (1961-2017), S4 (1962-2017), S5 (1962-2017), and S6 (1976-2017).

**Purpose**  
The Marcell Experimental Forest was formally established in 1962. The MEF contains six watersheds (and other study sites), each consisting of an upland portion and a peatland that is the source of a stream leaving the watershed. The watersheds and environmental monitoring at the MEF are part of a long-term research program on the hydrology and biogeochemistry of watersheds with uplands and northern peatlands (Kolka et al. 2011).

**Supplemental Information (Optional)**  
Additional information about the Marcell EF, its instrumentation, and data can be found at <https://www.nrs.fs.fed.us/ef/marcell/> and in Sebestyen et al. 2011.  
Original metadata date was 02/22/2018. On 02/26/2018 we added additional supplemental files containing details about instrumentation. On 04/30/2018 we updated the instrumentation supplemental files and updated the metadata accordingly.

**Time Period of Content**

Data is from: ☐ A single date ☐ Multiple dates ☒ A range of dates ☐ Unknown

The calendar is: ☒ Gregorian ☐ Geologic

Time Period(s) begin: 1961 end: 2017

**Status**

Progress: ☐ Planned ☒ In progress ☐ Complete

Updating: As needed

Metavist saves file as XML,  
but can export to HTML

# Metadata – HTML view

## Marcell Experimental Forest daily streamflow data

### Metadata:

- [Identification Information](#)
- [Data Quality Information](#)
- [Entity and Attribute Information](#)
- [Distribution Information](#)
- [Metadata Reference Information](#)

#### Identification Information:

##### Citation:

##### Citation Information:

Originator: Verry, Elon S.

Originator: Elling, Arthur E.

Originator: Sebestyen, Stephen D.

Originator: Kolka, Randall K.

Originator: Kyllander, Richard

Publication Date: 2018

##### Title:

Marcell Experimental Forest daily streamflow data

Geospatial Data Presentation Form: tabular digital data

##### Publication Information:

Publication Place: Fort Collins, CO

Publisher: Forest Service Research Data Archive

Online Linkage: <https://doi.org/10.2737/RDS-2018-0009> 

##### Description:

##### Abstract:

This data publication contains daily streamflow data from 1961-2017 at the Marcell Experimental Forest (MEF) in Balsam Township, Itasca County, Minnesota. The data came from six peatland / upland forest watersheds instrumented for long-term hydrological and biogeochemical research. Data include daily streamflow for the following watersheds: S1 (1961-1981), S2 (1961-2017), S4 (1962-2017), S5 (1962-2017), and S6 (1976-2017).

##### Purpose:

The Marcell Experimental Forest was formally established in 1962. The MEF contains six watersheds (and other study sites), each consisting of an upland portion and a peatland that is the source of a stream leaving the watershed. The watersheds and environmental monitoring at the MEF are part of a long-term research program on the hydrology and biogeochemistry of watersheds with uplands and northern peatlands (Kolka et al. 2011).

##### Supplemental Information:

Additional information about the Marcell EF, its instrumentation, and data can be found at <https://www.nrs.fs.fed.us/ef/marcell/> and in Sebestyen et al. 2011.

Original metadata date was 02/22/2018. On 02/26/2018 we added additional supplemental files containing details about instrumentation. On 04/30/2018 we updated the instrumentation supplemental files and updated the

**Data publication access:**

<https://doi.org/10.2737/RDS-2018-0009>

# Metadata Example – using Word Template

<https://www.fs.usda.gov/rds/archive/metadata>

*(Word Template does not contain spatial sections)*

# METADATA DOCUMENT

## 1. IDENTIFICATION INFORMATION

### *Citation for Data Publication*

*Originators (author names, please include middle initial):*

*Title:*

*Data Presentation Form (tabular digital data, raster digital, database, document...):*

*Publication Place:*

*Publisher:*

### *Description of Data Publication*

*Abstract (narrative summary of data):*

*Purpose (why data were collected):*

*Supplemental Information (other important info):*

### *Time Period of Content*

*Beginning Date:*

*Ending Date:*

*Other:*

### *Status*

*Progress (in progress, complete):*

*Maintenance and Update Frequency (as needed, none planned, annually...):*

**Description of Geographic Extent (description of where data were collected):**

**Bounding Coordinates**

**West Bounding Coordinate:**

**East Bounding Coordinate:**

**North Bounding Coordinate:**

**South Bounding Coordinate:**

**Coordinates Unit:**

**Bounding Altitudes**

**Minimum Altitude:**

**Maximum Altitude:**

**Altitude Distance Units (feet, meters):**

**Theme Keywords**

(for more info see: [https://www.fs.usda.gov/rds/archive/submitdata/Keywords\\_for\\_FS-RDA\\_archive.pdf](https://www.fs.usda.gov/rds/archive/submitdata/Keywords_for_FS-RDA_archive.pdf))

**Author's choice Keywords:**

**ISO 19115 Keywords:**

**R&D Taxonomic Keywords:**

**Place Keywords (include state(s) if applicable):**

**Use Constraints (any constraints with sharing these data?):**

***Point of Contact (for data)***

***Contact Organization:***

***Contact Person:***

***Contact Position:***

***Contact Address:***

***Contact Voice Telephone(s):***

***Contact Email Address:***

***Data Set Credit (who funded this work?):***

***Native Data Set Environment (software, operating system, etc. - if important):***

***Cross-References (citations for publications that USE or are related to Data Publication, please include DOI/URL)***

***Complete Citation(s):***



## 2. DATA QUALITY INFORMATION

### *Attribute Accuracy*

*Attribute Accuracy Report (assessment of how “true” attributes values are):*

*Logical Consistency Report (methods used to check for inconsistencies):*

*Completeness Report (info about omissions, selection criteria ...):*

### *Lineage- Methodology (how data were collected or obtained, steps in field or laboratory work...)*

*Methodology Keywords:*

*Methodology Description:*

*Methodology Citations (publications that describe methods or are referenced in methods, please include DOI/URL)*

*Complete Citation(s):*

*Source Citations (if any data were obtained from another source please provide: source citation, description of data obtained, and where data were obtained)*

*Complete Citation(s) and Data Obtained:*

### *Lineage- Process Steps (steps or data manipulations applied after data collection, or modifications made to source data)*

*Process Descriptions (include dates):*

### 3. ENTITY AND ATTRIBUTE INFORMATION

*Overview description of variables in each data set (literally need a list and description of variables in each file and be sure to include units - this can also be done in a spreadsheet):*

*Citation(s) that contain data summary or details about these variables:*

### 4. DISTRIBUTION INFORMATION

*Data type (need a list and description of all file formats used)*

*(Example: CSV = comma-delimited ASCII text file)*

*Format Names and Description:*

### 5. METADATA REFERENCE INFORMATION

*Metadata Contact (who to contact if there are questions about the metadata)*

*Contact Organization:*

*Contact Person:*

*Contact Position:*

*Contact Address:*

*Contact Voice Telephone(s):*

*Contact Email Address:*