Title:

Authors:

Author Affiliations:

Corresponding Author:

Open Research statement:

### Class I. Data Set Descriptors

1. Data set identity: Title or theme of data set
2. Data set identification code: Database accession numbers or site-specific codes used to uniquely identify data set
3. Data set description
   * + 1. Originators: Names and address of principal investigators associated with data set

2. Abstract: Descriptive abstract summarizing research objectives, data contents (including temporal, spatial, and thematic domain), context and potential uses of data set. This abstract can be a maximum of 350 words.

1. Key words/phrases: Location (spatial scale), time period and sampling frequency (temporal scale), theme or contents (thematic scale)

### Class II. Research origin descriptors

1. Overall project description: *[Note: This section may be essential if data set represents a component of a larger or more comprehensive database; otherwise, relevant items may be incorporated into II.B.]*
   1. Identity: Project title or theme
   2. Originators: Names and addresses of principal investigators associated with project
   3. Period of study: Date commenced, date terminated, or expected duration
   4. Objectives: Scope and purpose of research program
   5. Abstract: Descriptive abstract summarizing broader scientific scope of overall research project
   6. Sources of funding: Grant and contract numbers, names, and addresses of funding sources
2. Specific subproject description
   1. Site description
      1. Site type: Descriptive (e.g., short-grass prairie, blackwater stream, etc.)
      2. Geography: Location (e.g., latitude/longitude), size
      3. Habitat: Detailed characteristics of habitats sampled
      4. Geology, landform: Soils, slope/elevation/aspect, terrain/physiography, geology/lithology
      5. Watersheds, hydrology: Size, boundaries, receiving streams, etc.
      6. Site history: Site management practices, disturbance history, etc.
      7. Climate: Descriptive summary of site climatic characteristics
   2. Experimental or sampling design
      1. Design characteristics: Description of statistical/sampling design
      2. Permanent plots: Dimension, location, general vegetation characteristics (if applicable).
      3. Data collection period, frequency, etc.: Information necessary to understand temporal sampling regime
   3. Research methods
      1. Field/laboratory: Description or reference to standard field/laboratory methods
      2. Instrumentation: Description and model/serial numbers
      3. Taxonomy and systematics: References for taxonomic keys, identification, and location of voucher specimens, etc.
      4. Permit history: References to pertinent scientific and collecting permits
      5. Legal/organizational requirements: Relevant laws, decision criteria, compliance standards, etc.
   4. Project personnel: Principal and associated investigator(s), technicians, supervisors, students

### Class III. Data set status and accessibility

1. Status
   1. Latest update: Date of last modification of data set
   2. Latest archive date: Date of last data set archival
   3. Metadata status: Date of last metadata update and current status
   4. Data verification: Status of data quality assurance checking
2. Accessibility
   1. Storage location and medium: Pointers to where data reside (including archival required by the ESA Open Research policy and redundant archival sites)
   2. Contact persons: Name, address, phone, email
   3. Copyright restrictions: Whether copyright restrictions prohibit use of all or portions of the data set
   4. Proprietary restrictions: Any other restrictions that may prevent use of all or portions of data set
      1. Release date: Date when proprietary restrictions expire
      2. Citation: How data may be appropriately cited
      3. Disclaimer(s): Any disclaimers that should be acknowledged by secondary users
   5. Costs: Costs associated with acquiring data (may vary by size of data request, desired medium, etc.)

### Class IV. Data structural descriptors

1. Data set file
   1. Identity: Unique file names or codes
   2. Size: Number of records, record length, total number of bytes, etc.
   3. Format and storage mode: File type (e.g., ASCII, binary, etc.), compression schemes employed (if any), etc.
   4. Header information: Description of any header data or information attached to file [Note: may include elements related to variable information (IV.B.); if so, could be linked to appropriate section(s)]
   5. Alphanumeric attributes: Mixed, upper, or lower case
   6. Special characters/fields: Methods used to denote comments, flag modified or questionable data, etc.
   7. Authentication procedures: Digital signature, checksum, actual subset(s) of data, and other techniques for assuring accurate transmission of data to secondary users
2. Variable information
   1. Variable identity: Unique variable name or code
   2. Variable definition: Precise definition of variables in data set
   3. Units of measurement: Units of measurement associated with each variable
   4. Data type
      1. Storage type: Integer, floating point, character, string, etc.
      2. List and definition of variable codes: Description of any codes associated with variables
      3. Range for numeric values: Minimum, maximum
      4. Missing value codes: Description of how missing values are represented in data set
      5. Precision: Number of significant digits
   5. Data format
      1. Fixed, variable length
      2. Columns: Start column, end column
      3. Optional number of decimal places
3. Data anomalies: Description of missing data, anomalous data, calibration errors, etc.

### Class V. Supplemental descriptors

1. Data acquisition
   1. Data forms or acquisition methods: Description or examples of data forms, automated data loggers, digitizing procedures, etc.
   2. Location of completed data forms
   3. Data entry verification procedures: Procedures employed to verify that digital data set is free of errors
2. Quality assurance/quality control procedures: Identification and treatment of outliers, description of quality assessments, calibration of reference standards, equipment performance results, etc.
3. Related materials: References and locations of maps, photographs, videos, GIS data layers, physical specimens, field notebooks, comments, etc.
4. Computer programs and data-processing algorithms: Description or listing of any algorithms used in deriving, processing, or transforming data
5. Archiving
   1. Archival procedures: Description of how data are archived for long-term storage and access
   2. Redundant archival sites: Locations and procedures followed
6. Publications and results: Electronic reprints, lists of publications resulting from or related to the study, graphical/statistical data representations, etc.
7. History of data set usage
   1. Data request history: Log of who requested data, for what purpose, and how data set was actually used
   2. Data set update history: Description of any updates performed on data set
   3. Review history: Last entry, last researcher review, etc.
   4. Questions and comments from secondary users: Questionable or unusual data discovered by secondary users; limitations or problems encountered in specific applications of data; unresolved questions or comments

Literature Citations