­­­­NPS Metadata Template (2024)­­­

Purpose and Introduction

Metadata is key component of a data package, as it helps others to understand your data and assess whe­ther it’s a good fit for a particular purpose. This template can help organize all the bits of information that must come together to create metadata inside of your data package. Overall guidance on metadata and data packages can be found on the Data Publication Best Practices SharePoint.

Data Package Title

(Include **what, where,** and **when**. E.g. “Monthly Water Quality Data from Horsetooth Reservoir, Colorado: 2010-2019”)

|  |
| --- |
| Western Prairie Fringed Orchid Monitoring Data for the National Park Service Heartland Inventory and Monitoring Network: 1993 - 2022 |

Metadata Filename

(Similar to Data Package Title, should be informative. Be sure it ends in **\_metadata** to comply with data package specifications. This will become the file name of your .xml. Example: RMNP\_Mammals\_2020\_metadata)

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| --- |
| NPS-metadata\_template-Orchid.docx |

Data Files, Names, and Descriptions

(List your data files, give them an informative name and description. Descriptions should be unique and about 10 words long)

|  |  |  |
| --- | --- | --- |
| **Data File**  **(e.g. SEUG\_crustClassData.csv)** | **Informative Name**  **(e.g. SEUG LTVM Biocrust Data)** | **Description**  **(e.g. Biological soil crust development class data)** |
| HtlnWpfoYearCounrUnit.csv | HTLN WPFO population count per unit | Heartland I&M Network Western Prairie Fringed Orchid population count by unit totals for each year |
| HtlnWpfoSoilProbe1\_2007\_2014.csv | HTLN WPFO Soil Probe 1 | Soil moisture is captured every 2 hours by soil probe starting in unit A from 2007 to 2014. The Decagon Devices Em50 with the EC-TM sensors at: moisture at 5cm, 10cm, 20cm, and 40cm depths; temperature at 5cm and 20cm depths; and a rain gage was used. Soil moisture sensor is only in unit A. |
| HtlnWpfoSoilProbe2\_2015\_2022.csv | HTLN WPFO Soil Probe 2 | Soil moisture is captured every 2 hours by soil probe starting in unit A from 2015 to 2022. The Decagon Devices Em50 with 5TM moisture and temperature sensors at 5, 10, 20, 30, and 40cm depths was used. Soil moisture sensor is only in unit A. |
| HtlnWpfoPopData.csv | HTLN WPFO population data | Heartland I&M Network Western Prairie Fringed Orchid population data |
| HtlnWpfoVegProfile.csv | HTLN WPFO Vegetation Profile | Heartland I&M Network Western Prairie Fringed Orchid vegetation profile data table. Sites 1 to 6 are for unit A and site 7-9 are for unit C. Vegetation profile has been done in 2007 – 2015 and 2017-2022. |
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Taxonomic Information

(List the data file(s) with your taxonomic information, including the scientific name field within that data file. We suggest using [DarwinCore](https://dwc.tdwg.org/terms) for column names, such as “scientificName”. If your data package does not have taxonomic data, skip this step.)

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| **Data File**  **(e.g. qry\_Export\_AA\_VegetationDetails.csv)** | **Scientific Name Column**  **(e.g. scientificName)** |
| Single species – Western Prairie Fringed Orchid | *Platanthera praeclara* |

Geographic Information

(List the data file(s) that contain geographic information. Please ensure your geographic information is in **decimal degrees**. If your coordinates are in UTMs, the the [convert\_utm\_to\_ll()](https://nationalparkservice.github.io/QCkit/reference/convert_utm_to_ll.html) function in [QCkit](https://nationalparkservice.github.io/QCkit/) can help. If your data package does not have geographic information, you can skip this step.)

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| **Data File**  **(e.g. qry\_Export\_AA\_points.csv)** | **Decimal Latitude Column**  **(e.g. decimalLatitude)** | **Decimal Longitude Column**  **(e.g. decimalLongitude)** | **Site Name Column** **(e.g. Point\_ID)** |
| None CUI species |  |  | Do not use centroid. If not bounding box of PIPE then use VC point |

Content Units

(These are the park units where data were collected. If the data package includes data from more than one park, they can all be listed. For instance, if data were collected in all network park units, each unit should be listed separately rather than by the network code.)

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| PIPE |

Producing Units

(This is the unit(s) responsible for generating the data package. It may be a single park (ROMO) or a network (ROMN). It may be identical to the units listed in the previous step, overlapping, or entirely different.)

|  |
| --- |
| HLTN |

Data Collection Status

Ongoing  Complete

Timeframe

|  |  |
| --- | --- |
| **Begin Date** | **End Date (leave empty for ongoing)** |
| 1993 |  |

Abstract

(Include what, why, where, when, and how.)

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| The Heartland Inventory and Monitoring Network in cooperation with Pipestone National Monument conducts annual monitoring of the western prairie fringed orchid (*Platanthera praeclara*) a federally threatened plant at Pipestone National Monument. The orchid indicators that will be measured include number of flowering plants, plant height, and flower number. Plant height of flowering plants serves as an indicator of general population health. Plant height and flower number may serve as indicators of plant physiological condition. These indicators of plant condition are measured in relation to precipitation, soil moisture, prescribed fire, and plant community structure. Precipitation and soil moisture are measured to understand plant-soil relationships. Plant community structure, which is strongly related to fire in tallgrass prairies, may correspond with establishment site availability, nutrient availability, light availability, and soil moisture retention. Finally, plant phenology is monitored in order to relate precipitation, soil moisture, and prescribed fires to particular orchid life-stages.  There are two primary objectives for monitoring the western prairie fringed orchid at Pipestone National Monument:   1. Track temporal and spatial changes in the abundance and vigor (height and flower amount) of the flowering orchids at Pipestone National Monument. 2. Track changes of orchid habitat and structure. |

Methods

(Describes the data creation methods. Includes enough detail for future users to correctly use the data. Be specific about the study design and field and lab methods for collecting and processing the data. Protocol can be cited. It may also be appropriate to cite the datasets that were ingested to generate the data package, software (e.g. R), packages (e.g. dplyr, ggplot2) or custom scripts.)

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| At the beginning of June, an area where orchids are known to occur is inspected twice weekly by park staff to inquire about the orchid stage status. Orchids have been observed to bloom as early as mid-June, but flowering more typically begins during July. Monitoring trips are scheduled to coincide with peak flowering.  The orchid census survey is conducted in all established search units. Each unit is swept for flowering orchids by a crew of 3 - 9 individuals standing side-by-side and roughly 2 meters apart. The search crew begins at one corner of the unit and moves in a straight line (following the search unit boundary) through the area until the search unit is covered. The boundary of the searched area is marked at regular intervals with tall wire flags. On the return sweep, flags are retrieved, and new flags are placed along the opposite boundary of the area searched. The pace of searching should be reasonably slow so that flowering orchids can be seen in the vegetation. Avoiding foot-dragging and limiting crowding around plants minimizes trampling.  When an orchid is encountered during the census survey the crew stops, the orchid heights and flower position is recorded, as well as other attribute information, such as orchid condition.  Following the census survey, vegetation profile data are collected at specific sites in the orchid units. At least two observers navigate to the vegetation profile sites. At each site, one observer holds the cover board, while the second observer estimates the cover of vegetation using a modified Daubenmire cover class scale at three distances (1m, 5m, and 15m) south of the site in overlapping 0.5m height intervals. This information is documented on a field sheet.  Soil moisture is captured every 2 hours by soil probe starting in 2007. From 2007 - 2014 the Decagon Devices Em50 with the following sensors: moisture at 5cm, 10cm, 20cm, and 40cm depths; temperature at 5cm and 20cm depths; and a rain gage was used. Data was inconsistent with this device for multiple reasons. Some of which are short life of batteries, rain events knocking the rain gage out, and animal/insect destruction. In 2015 the Decagon Devices Em50 with 5TM moisture and temperature sensors at 5, 10, 20, 30, and 40cm depths was installed. |

Creators

**(These are the people who will show up as authors in the dataset citation.** These are the individuals who have provided intellectual or other significant contributions to the creation of this dataset, much like the authors of a research paper. Valid EML requires at least one person with a **creator** role.)

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| --- | --- | --- | --- | --- | --- | --- |
| **First Name** | **Middle Initial** | **Last Name** | **Organization** | **Email address** | **ORCID ID (optional)** | **Role in project** |
| Jennfier |  | Haack-Gaynor | NPS HTLN | Jennifer\_Haack@nps.gov | 0000-0003-4497-5128 | Creator |
| Craig |  | Young | NPS | Craig\_Young@nps.gov | 0000-0002-1687-8825 | Creator |
|  |  |  |  |  |  |  |
| Brian |  | Witcher | NPS | brian\_witcher@nps.gov |  | Creator |
| Mike |  | DeBacker | NPS; HTLN | mike\_debacker@nps.gov |  |  |
| Gary |  | Sullivan | NPS |  |  |  |
| Rodney |  | Rovang | NPS |  |  |  |

Other personnel names and roles

(Who should a data user contact with questions about these data? You **must** enter a person or organization name to serve as the **contact** for this dataset. If this is the same person as the creator, list that person twice. You may also list other personnel who participated in the project (such as field crew, lab tech, data entry etc.) Persons serving more than one role are listed on separate lines. Other roles (e.g. Field Technician) will be listed as associated parties to the data. Their specific role (e.g. “Field Tech” will also be listed in metadata))

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| --- | --- | --- | --- | --- | --- | --- |
| **First Name** | **Middle Initial** | **Last Name** | **Organization** | **e-mail address** | **ORCID ID (optional)** | **Role in project** |
| Jennifer |  | Haack-Gaynor | NPS HTLN | Jennifer\_Haack@nps.gov | 0000-0003-4497-5128 | Contact |
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Dissemination Level

(Select a Dissemination Level based on the CUI status of your dataset. This is a required step. You can choose from one of five dissemination codes. Watch out for the spaces!)

PUBLIC *(Does NOT contain CUI.)*

FED ONLY *(Contains CUI. Only federal employees should have access.)*

FED CON *(Contains CUI. Only federal employees and federal contractors should have access.)*

NOCON *(Contains CUI. Federal, state, local, or tribal employees may have access, but contractors cannot.)*

DL ONLY *(Contains CUI. Should only be available to a named list of individuals.)*

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| **DL ONLY Names** |
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More information about these codes can be found at: <https://www.archives.gov/cui/registry/limited-dissemination>).

Intellectual Rights Statement

(The EMLeditor tool can assist in modifying the intellectual rights statement that is embedded in metadata. Government works shared with the public are usually public, i.e. public domain, or CC0, and anything with CUI should be set to ‘restricted’.)

Public *(Does not contain CUI. The intellectual rights will read: “This work is in the public domain. There is no copyright or license.”)*

CC0 *(Does not contain CUI. The intellectual rights will read: “The person who associated a work with this deed has dedicated the work to the public domain by waiving all of his or her rights to the work worldwide under copyright law, including all related and neighboring rights, to the extent allowed by law. You can copy, modify, distribute and perform the work, even for commercial purposes, all without asking permission.”)*

Restricted (*Contains CUI.*)

Keywords

(List keywords below and separate with commas. Using keywords from a controlled vocabulary (CV) will improve the future discovery and reuse of your data. The LTER CV is a good source for keywords. Access the LTER CV [here](http://vocab.lternet.edu/vocab/vocab/index.php). Also, please determine one or two keywords that best describe your park, station, and/or project (e.g., Trout Lake Station, NTL LTER).)

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| Monitoring; Heartland Network; National Park Service; NPS; long-term monitoring; orchid; Western Prairie Fringed Orchid; HTLN; Platanthera praeclara; plant; Federally Threatened; T&E; Sensitive |

Data Table(s)

(Provide a Table Name, Table Description, and description of each column in your data table):

* **Column Name**: This name must be exactly as it appears in the dataset. Please avoid special characters (like & or \), dashes and spaces. Underscores are permissible. Do not begin a column name with a number.
* **Description**: Please give a specific definition of the column name. This can be lengthy.
* **Class:** Column class. Valid options are **numeric**, **categorical**, **character**, and **date**.
* **Unit:** Identify units for all numeric variables. Please avoid special characters and describe units in this pattern: e.g., microSiemenPerCentimeter, microgramPerLiter, absorptionPerMolePerCentimeter
* **Date Time Format**: Please tell us exactly how the date and time is formatted: e.g. mm/dd/yyyy hh:mm:ss plus the time zone and whether or not daylight savings was observed. ISO 8601 date format of YYYY-MM-DD or YYYY-MM-DD hh:mm:ss is preferred.
* **Missing Value Code**: If a code for ‘no data’ is used, please specify: e.g., -99999
* **Missing Value Code Explanation**: Definition of missing value code.

**Table name:** HtlnWpfoYearCounrUnit

**Table description:** Heartland I&M Network Western Prairie Fringed Orchid population count by unit totals for each year

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| **Column name** | **Description** | **Class** | **Unit** | **Date Time Format** | **Missing Value Code** | **Missing Value Code Explanation** |
| YEAR\_ | Year | categorical |  |  |  |  |
| CountOfPopUnit | Total number of orchids for that unit for that year | numeric |  |  |  |  |
| UnitCode | Code for the search unit | categorical |  |  |  |  |
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**Table name:** HtlnWpfoSoilProbe1\_2007\_2014.csv

**Table description:** Soil moisture is captured every 2 hours by soil probe starting in unit A from 2007 to 2014. The Decagon Devices Em50 with the following sensors: moisture at 5cm, 10cm, 20cm, and 40cm depths; temperature at 5cm and 20cm depths; and a rain gage was used.

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| **Column name** | **Description** | **Class** | **Unit** | **Date Time Format** | **Missing Value Code** | **Missing Value Code Explanation** |
| MeasurementTime | Date and Time (24-hour) when the sensor measurement was taken. | date |  | Mm/dd/yyyy hh:mm |  |  |
| 5cmDepthMoisture | Port 1 EC-TM Moisture/Temp m3/m3 VWC: water content/temp probe at a depth of 5cm that is using the straight volumetric water content units meter cubed/meter cubed. | numeric | m³/m³ VWC |  | blanks | Sensor probe stopped working (usually due to battery, weather or animal issues) |
| 5cmDepthTemp | Port 1 EC-TM Moisture/Temp C: water content/temp probe at a depth of 5cm that is documenting temperature in degrees Celsius. | numeric | Celsius |  | blanks | Sensor probe stopped working (usually due to battery, weather or animal issues) |
| 10cmDepthMoisture | Port 2 EC-5 Moisture/Temp m3/m3 VWC: Soil moisture probe with 5 cm sensor length at a depth of 10cm that is using the straight volumetric water content units meter cubed/meter cubed. | numeric | m³/m³ VWC |  | blanks | Sensor probe stopped working (usually due to battery, weather or animal issues) |
| 20cmDepthMoisture | Port 3 EC-TM Moisture/Temp m3/m3 VWC: water content/temp probe at a depth of 20cm that is using the straight volumetric water content units meter cubed/meter cubed. | numeric | m³/m³ VWC |  | blanks | Sensor probe stopped working (usually due to battery, weather or animal issues) |
| 20cmDepthTemp | Port 3 EC-TM Moisture/Temp C: water content/temp probe at a depth of 20cm that is documenting temperature in degrees Celsius. | numeric | Celsius |  | blanks | Sensor probe stopped working (usually due to battery, weather or animal issues) |
| 40cmDepthMoisture | Port 4 EC-5 Moisture/Temp m3/m3 VWC: Soil moisture probe with 5 cm sensor length at a depth of 40cm that is using the straight volumetric water content units meter cubed/meter cubed. | numeric | m³/m³ VWC |  | blanks | Sensor probe stopped working (usually due to battery, weather or animal issues) |
| RainGage(mm) | Rain gage with 1mm tip resolution (fills to 1mm then counts measurement then empties water to fill again. Does not document frozen water (ice/snow). Don't know if I would trust all the data from rain gage. | numeric | mm |  | blanks | Sensor probe stopped working (usually due to battery, weather or animal issues) |
|  |  |  |  |  |  |  |

**Table name:** HtlnWpfoSoilProbe2\_2015\_2022.csv

**Table description:** Soil moisture is captured every 2 hours by soil probe starting in unit A from 2015The Decagon Devices Em50 with 5TM moisture and temperature sensors at 5, 10, 20, 30, and 40cm depths was used.

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| --- | --- | --- | --- | --- | --- | --- |
| **Column name** | **Description** | **Class** | **Unit** | **Date Time Format** | **Missing Value Code** | **Missing Value Code Explanation** |
| Timestamps | Date and Time (24-hour) when the sensor measurement was taken. | date |  | Mm/dd/yyyy hh:mm |  |  |
| 5cmDepth\_m3WaterContent | Port 1 5TM Moisture/Temp m3/m3 VWC: water content/temp probe at a depth of 5cm that is using the straight volumetric water content units meter cubed/meter cubed. | numeric | m³/m³ VWC |  |  |  |
| 5cmDepth\_CSoilTemperature | Port 1 5TM Moisture/Temp C: water content/temp probe at a depth of 5cm that is documenting temperature in degrees Celsius. | numeric | Celsius |  |  |  |
| 10cmDepth\_m3WaterContent | Port 2 5TM Moisture/Temp m3/m3 VWC: Soil moisture probe with 5 cm sensor length at a depth of 10cm that is using the straight volumetric water content units meter cubed/meter cubed. | numeric | m³/m³ VWC |  |  |  |
| 10cmDepth\_CSoilTemperature | Port 2 5TM Moisture/Temp C: water content/temp probe at a depth of 10cm that is documenting temperature in degrees Celsius. | numeric | Celsius |  |  |  |
| 20cmDepth\_m3WaterContent | Port 3 5TM Moisture/Temp m3/m3 VWC: water content/temp probe at a depth of 20cm that is using the straight volumetric water content units meter cubed/meter cubed. | numeric | m³/m³ VWC |  |  |  |
| 20cmDepth\_CSoilTemperature | Port 3 5TM Moisture/Temp C: water content/temp probe at a depth of 20cm that is documenting temperature in degrees Celsius. | numeric | Celsius |  |  |  |
| 30cmDepth\_m3WaterContent | Port 4 5TM Moisture/Temp m3/m3 VWC: Soil moisture probe at a depth of 30cm that is using the straight volumetric water content units meter cubed/meter cubed. | numeric | m³/m³ VWC |  |  |  |
| 30cmDepth\_CSoilTemperature | Port 4 5TM Moisture/Temp C: water content/temp probe at a depth of 30cm that is documenting temperature in degrees Celsius. | numeric | Celsius |  |  |  |
| 40cmDepth\_m3WaterContent | Port 5 5TM Moisture/Temp m3/m3 VWC: Soil moisture probe with 5 cm sensor length at a depth of 40cm that is using the straight volumetric water content units meter cubed/meter cubed. | numeric | m³/m³ VWC |  |  |  |
| 40cmDepth\_CSoilTemperature | Port 5 5TM Moisture/Temp C: water content/temp probe at a depth of 40cm that is documenting temperature in degrees Celsius. | numeric | Celsius |  |  |  |
| PrimaryKeyID | Just a primary key ID field |  |  |  |  |  |

**Table name:** HtlnWpfoVegProfile.csv

**Table description:** Heartland I&M Network Western Prairie Fringed Orchid vegetation profile data table. Sites 1 to 6 are for unit A and site 7-9 are for unit C. Vegetation profile has been done in 2007 – 2015 and 2017-2022.

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| **Column name** | **Description** | **Class** | **Unit** | **Date Time Format** | **Missing Value Code** | **Missing Value Code Explanation** |
| Year | Year the data was sampled in | date |  | yyyy |  | No data collected in 2016 |
| Site | Veg Profile site ID (1-9). | categorical |  |  |  |  |
| ObserverDistance | Distance the observer is from the profile board in meters. | categorical | meters |  |  |  |
| HeightInterval | The height interval on profile board that the cover is being observed for. | categorical | meters |  |  |  |
| Cover | The vegetation profile cover class value (0-7). Modified-Daubenmire cover value scale used to estimate horizontal vegetation | categorical |  |  |  |  |
| PercentRangeOfCover | Range of cover percent | categorical | Percent cover |  |  |  |
| PercentClassMidpt | Cover class midpoint as percent | categorical | percent |  |  |  |
|  |  |  |  |  |  |  |

**Table name:** HtlnWpfoPopData.csv

**Table description:** Heartland I&M Network Western Prairie Fringed Orchid population data, 1993 - 2022

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| **Column name** | **Description** | **Class** | **Unit** | **Date Time Format** | **Missing Value Code** | **Missing Value Code Explanation** |
| ID | Auto number identifier. It has no meaning except to be unique for each record. For indexing only | character |  |  |  |  |
| YEAR | Year the plant survey took place in | date |  | yyyy |  |  |
| PLANTID | Plant ID the identifier given to each plant for any given year. This is unique within any given year but is not unique when looking at multiple years of data. | character |  |  |  |  |
| PHENOLOGY | Was the plant vegetative only or was it reproductive (produces flowers). | categorical |  |  |  |  |
| PopUnit | The search unit the plants were surveyed in | categorical |  |  |  |  |
| HEIGHTCM | Height in cm of the plant from ground base to the very top of the plant. | numeric | Centimeters cm |  | Blank or -1 | Either data was missing due to a glitch in the device collecting the field information. Or a flower stalk was produced but an accurate height measurement could not be obtained because the plant was damaged by animal or other means. |
| FLOWERPOSI | Number of flowers the plant produced | numeric |  |  | Blank or -1 | Either data was missing due to a glitch in the device collecting the field information. Or a flower stalk was produced but an accurate flower count could not be obtained because the plant was damaged by animal or other means. |
| HeightInfl | Height in cm of the plant from the ground base to where the base of the inflorescence starts. | numeric | Centimeters cm |  | Blank or -1 | Either data was missing due to a glitch in the device collecting the field information. Or a flower stalk was produced but an accurate height measurement could not be obtained because the plant was damaged by animal or other means. |
| FlwrStage | What stage the flower was in at the time of sampling. Only started collecting this observation in 2012 | categorical |  |  |  |  |
| FlwrCond | What condition the flower was in at the time of sampling. Only started collecting this observation in 2012 | categorical |  |  |  |  |
| COMMENTS | Any notes about the plant | character |  |  |  |  |
| TypeFlower | Plant flower type (all flowers aborted, vegetative plant, flowers produced, all flowers browsed off) at the time of survey. | categorical |  |  |  |  |
| GPS\_Date | The date the survey took place. | date |  | mm/dd/yyyy |  |  |
| GPS\_Time | The time the survey took place. First documented in 2001. 12-hour time | date |  | Hh:mm:ss am/pm |  |  |
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(Copy this table to document more than one data table.)

Categorical Variables (Catvars)

(Describes categorical variables of a data table (if any columns are classified as categorical in table attributes).)

* **Attribute Name**: Column name
* **Code**: Categorical variable
* **Definition :** Definition of categorical variable

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| **Attribute** | **Code** | **Definition** |
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Data Release Report (DRR)

(Indicate whether there is an associated DRR with your data package.)

No  Yes, it already exists  Yes, plan to generate one with the Data Strike Team

(If you have a DRR and there is an existing reference for it on DataStore, fill out the table below. Otherwise, you can skip this step.)

|  |  |
| --- | --- |
| **DRR Title** | **DRR Reference Number (from DataStore)** |
|  |  |

Additional notes and comments

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| The location information was removed. The location should just be referenced to the park as a whole. That being stated the park is not that large and this is a very showy plant because of that and the date and time (short flowering window) is why it is marked as CUI. |