

CRITICAL HABITAT SPATIAL DATA STANDARDS

IMPLEMENTATION AND METADATA INSTRUCTIONS

(Last updated June 3, 2020)

***NOTE ON FINAL CRITICAL HABITAT DATA SETS:** Final critical habitat shapefiles should contain ONLY records with a “STATUS” of “FINAL”. No “EXCLUDED” or “VACATED” records should be in the final critical habitat shapefile.

Refer to the zip folder titled “CritHab_Implementation_Support_Package” for additional information on these procedures and requirements, available on the Confluence [Critical Habitat Data Imports](#) page.

These instructions address 1) Shapefile format guidelines; 2) FGDC compliant metadata implementation with the use of a template and; 3) Guidelines for submission of your spatial data to ECOS. The template is designed for use in text editor, like Notepad++, or the [USGS Metadata Wizard](#). This is a “living document” and subject to periodic updates, it is suggested that you verify that you are using the latest version of this document, available on the [Critical Habitat Data Imports](#) page.

There is a zip archive on the [Critical Habitat Data Imports](#) page, named ‘CritHab_Implementation_Support_Package’, containing pre-attributed blank shapefiles, metadata templates, and this Critical Habitat data standards document.

It is recommended that you project a copy of your working data to this standard and copy and paste the features to a copy of the blank shapefile. When the attributes have been populated with the necessary information and metadata created, your data will be ready to share with ECOS.

Note: It is helpful to install Notepad++ available on FWS Apps-to-Go, which will allow you to view the metadata in its native xml format.

1 Shapefile Requirements

1.1 Spatial Data Set Projection (Critical Habitat Geospatial Data Standard 9):

It is suggested that you use the blank shapefile, projected to **Geographic Coordinate System--World--WGS 1984 datum (GCS_WGS_1984)**, to create your Critical Habitat shapefile. If, however, your working data is in a different projection, you must project your shapefile to this projection, taking care to follow the naming convention in section **1B** below.

The following ArcGIS **Geographic Coordinate System Transformations** should be used for data stored in the NAD 83 datum:

In Alaska, the contiguous United States and Puerto Rico:	NAD_1983_To_WGS_1984_5
In Hawaii and the Pacific Islands:	NAD_1983_To_WGS_1984_3

1.2 Shapefile Naming Convention (Standard 6):

1.2.1 *Single Species Format:*

- **<CH-STATUS>_<SCIENTIFIC_NAME>_<PUB_DATE>** (Example: FCH_Astragalus_magdalenae_var_peirsonii_20110524)
 - <CH-STATUS>: Either **FCH** (final critical habitat), **PCH** (proposed critical habitat).
 - <SCIENTIFIC_NAME>: The first 50 characters of the scientific name, or the whole name if it's less than 50 characters. If there is a variety or subspecies, include it and precede it with '**var**' or '**ssp**', respectively.
 - <PUB_DATE>: In the format **YYYYMMDD**
- **<CH-STATUS>_<SCIENTIFIC_NAME>_Multiple** (Example: FCH_Adenophorus_periens_Multiple)
 - <CH-STATUS>: Either **FCH** (final critical habitat), **PCH** (proposed critical habitat).
 - <SCIENTIFIC_NAME>: The first 50 characters of the scientific name, or the whole name if less than 50 characters. If there is a variety or subspecies, include it and precede it with '**var**' or '**ssp**', respectively.
 - Multiple: For those species with **multiple**, active rulings. For example, *Adenophorus periens* has active FCH designated on 20120918 **and** 20160330. *Units from different designations can be specified in the attribute table.*
NOTE: Under most circumstances, species that fall in this naming convention exist on the main Hawaiian Islands.

1.2.2 *Multiple Species Format*: <CH-STATUS>_Multiple_<GEOGRAPHIC_AREA>_<PUB_DATE>

- <GEOGRAPHIC_AREA>: Include a 50 character or less description of the area represented by the critical habitat shapefile; for example, state (CALIFORNIA), a county (SAN_BERNARDINO), or a Region (R8).
 - Example: FCH_Multiple_Riverside_20110524

1.2.3 *Line and Polygon Shapefiles*: If both line and polygon shapefiles are submitted, the naming convention is the same except that the shapefile name must be appended with “LINE” or “POLY” as appropriate.

- Example: FCH_Astragalus_magdalenae_var_peirsonii_20110524_POLY(_LINE)
- Example: FCH_Multiple_Riverside_20110524_POLY(_LINE)

Note: Shapefiles provided in both formats will be converted to a single polygon for service on the ArcGIS Online map service. This is to reduce confusion on the web service. The original ‘line’ and ‘polygon’ shapefiles will be retained for users to download.

Note: ECOS no longer houses NMFS-only data. However, FWS/NMFS species data are still housed. Follow the naming conventions above and use the appropriate ‘Joint’ metadata template in the ‘CritHab_Implementation_Support_Package’ folder.

1.3 Attribute Names (Standard 7):

1.3.1 - Single Species Critical Habitat:

The attributes listed in the table below are required in your shapefile:

Attribute Name	Type	Value Required for single species	Value Required for multiple species	Valid Values	Description
COMNAME	Text(200)	Yes	No	Open text	Legal common name of species
Note: Enter “No common name” in the case that there is no legal common name for the species.					
SCINAME	Text(200)	Yes	No	Open text	Binomial or trinomial scientific name

SPCODE	Text (4)	Yes	No	Open text	Unique Species Code referencing the species for the critical habitat being submitted
Note: Available from ECOS at http://ecos.fws.gov/tess_public/pub/listedSpecies.jsp					
VIPCODE	Text (3)	Yes	No	Open text	Unique Population Code referencing the species for the critical habitat being submitted
Note: Available from ECOS at http://ecos.fws.gov/tess_public/pub/listedSpecies.jsp					
UNIT	Text (20)	No	No	Open text	Critical Habitat unit code
SUBUNIT	Text (20)	No	No	Open text	Critical Habitat subunit code
UNITNAME	Text (50)	No	No	Open text	Critical Habitat unit name
SUBUNITNAM	Text (50)	No	No	Open text	Critical Habitat subunit name
STATUS	Text (10)	Yes	Yes	Domain Values	Critical Habitat Status
				FINAL	Final Critical Habitat
				PROPOSED	Proposed Critical Habitat
				EXCLUDED	Excluded (4A3 or 4B2)
				VACATED	Vacated by Court Order
LEADOFFICE	Text (10)	Yes	Yes	Open text	Lead Office Cost Center
COOPOFFICE	Text (25)	No	Yes	Open text	Cooperating Office Cost Center
Note: Enter "None" if there is no cooperating office. If there are more than one, use field COOPOFMORE					
COOPOFMORE	Text (225)	Yes	Yes	Open text	Additional Cooperating Office Cost Center codes
Note: List each office, separated by a comma. Example: FF01EWF00,FF01EOF00,FF01EIF00					
FEDREG	Text (10)	Yes	Yes	See below	Federal Register ID

Note: Use format: <Volume Number>FR<First Page Number>. Example: 60FR26255					
PUBDATE	Text (8)	Yes	Yes	Use format: YYYYMMDD	Federal Register publication date
EFFECTDATE	Text (8)	Yes	Yes	Use format: YYYYMMDD	Effective date for Critical Habitat designation
VACATEDATE	Text (8)	No	Yes	Use format: YYYYMMDD	Date Critical Habitat designation vacated
ACCURACY	Text (50)	No	No	Domain Values	Accuracy Items or Concerns
				Temporal Adjustment	Data is dependent on temporal factors
				Seasonal Adjustment	Data is dependent on seasonal factors
				Tidal Adjustment	Data is dependent on tidal fluctuations
				Historical Adjustment	Reference feature missing, Streams change, Political Boundaries change, etc ...
				Source Adjustment	Source data is inconsistent or coarse
				Other	Other Accuracy concerns

1.4 Multiple Species Spreadsheet (Standard 8):

If a shapefile contains multiple species, a spreadsheet must also be submitted. The naming convention is the same as that of the multiple species shapefile. Each species in the shapefile should have its own row in the spreadsheet, beginning with Row 2. Specific column headers should be entered in Row 1, Columns A, B, C, and D. The attribute names are: **COMNAME**, **SCINAME**, **SPCODE**, and **VIPCODE**. These are the same as the first four attributes in the Single Species shapefile - refer to the above table for more information.

1.5 Geometry Validation (Standard 13):

In ArcToolbox, run the “Check Geometry” tool, which creates a report of the geometry problems in a feature class, or the “Repair Geometry” tool, which reports and also fixes the geometry problems. These tools are in: **ArcToolbox > Data Management Tools > Features.**

1.6 To submit your data set to ECOS:

1.6.1 Create zip file for distribution

Using Windows 7 compression (select files, right mouse click “Send to” > “Compressed (zip) folder”), or a compression utility, create a zip file of the shapefile for distribution. In the case of a multiple species shapefile, be sure to include the spreadsheet that you created in Step 1C. For the zip file name, use the same naming convention as the shapefile name, described in Step 1.2.

1.6.2 Submit the zip file of the shapefile to ECOS

The spatial data should be submitted as soon as possible, but no later than 3 days before the critical habitat becomes effective.

For more information about submitting Critical Habitat spatial data via shapefile, contact:

ECOS Help Desk (ecos-supports@fws.gov / 970-266-2999)

2 Metadata Implementation Guidelines (Standards 14 & 15)

2.1 Obtain Template:

The templates and these instructions are available on the [Critical Habitat Data Imports](#) page. Make a copy of the metadata templates (e.g. CritHab_Final_MetadataTemplate.xml & CritHab_Proposed_MetadataTemplate.xml) to edit for import. You can put it where you want and name it what you want. Open up the appropriate template in Notepad++.

2.2 Global Replacements:

Most offices should only ever need to do this step once. When you first obtain this template, you will need to incorporate your office information into it. Then save the template and use that revised version for all future critical habitats, unless your office information changes. It is a good idea to create a document with these 19 variables beforehand that you can copy and paste from. Use “Edit”>“Replace”>“Replace all” in Notepad++ to replace the variables in your local template with the correct values. All fields requiring updating will be marks as ‘**todo_**’ and can be searched with that prefix and ensuring the search parameter isn’t set to entire words or something to that effect.

2.2.1 Do these 10 global replacements:

<u>Parameter</u>	<u>Example of Replacement</u>	<u>Notes</u>
todo_FieldOffice	Kentucky Fish and Wildlife Office	
todo_Contact_Tiltle	GIS Branch Chief	
todo_Contact_StreetAddress	330 W. Broadway, Suite 265	
todo_Contact_City	Frankfort	
todo_Contact_State	KY	
todo_Contact_Zipcode	40601	
todo_Contact_PhoneNumber	502-695-0468	
todo_Contact_Fax	502-695-1024	Leave blank if none available.
todo_Contact_Email	jennifer_garland@fws.gov	
todo_Contact_ContactInstructions	Email, fax, or telephone	Any special instructions to a reader.

2.2.2 Save this local template.

2.2.3 Make a copy of your local template. Do these 10 global replacements which are specific to each critical habitat. Replace the following 10 items with the appropriate data in the working copy of your local template:

<u>Parameter</u>	<u>Replacement Example</u>	<u>Notes</u>
todo_COMNAME	Zuni bluehead sucker	If none, replace with “No Common Name”.
todo_SCINAME	Catostomus discobolus yarrow	
todo_ShapefileName	FCH_Catostomus_discobolus_yarrowi_20160607	
todo_placeKeyword	New Mexico	
todo_FedReg_Vol	81	
todo_FedReg_Page	36762	The page number that the rule starts on.
todo_PublicationDate	20160607	Format: YYYYMMDD
todo_CreateDate	20160711	Format: YYYYMMDD
todo_TodaysDate	20160711	Format: YYYYMMDD

Note: Copy the entire <srcinfo> to </srcinfo> to cite additional resources used to create the shapefile (e.g. NHD flowlines).

```
<srcinfo>
  <srccite>
    <citeinfo>
      <origin>United States Geological Survey</origin>
      <pubdate>2014</pubdate>
      <title>National Hydrography Dataset Flowlines</title>
      <geoform>Vector Digital Data Set</geoform>
      <onlink>http://nhd.usgs.gov</onlink>
    </citeinfo>
  </srccite>
  <typesrc>Digital Resources</typesrc>
</srccitea>nhd_flowline_g</srccitea>
```

<srctr>The NHDFlowline Feature Class consists of NHD linear features of type stream/river, canal/ditch, pipeline, artificial path, coastline, connector. The National Hydrography Dataset (NHD) is a feature-based database that interconnects and uniquely identifies the stream segments or reaches that make up the nation's surface water drainage system. NHD data was originally developed at 1:100,000-scale and exists at that scale for the whole country. This high-resolution NHD, generally developed at 1:24,000/1:12,000 scale, adds detail to the original 1:100,000-scale NHD. (Data for Alaska, Puerto Rico and the Virgin Islands was developed at high-resolution, not 1:100,000 scale.) Local resolution NHD is being developed where partners and data exist. The NHD contains reach codes for networked features, flow direction, names, and centerline representations for areal water bodies. Reaches are also defined on waterbodies and the approximate shorelines of the Great Lakes, the Atlantic and Pacific Oceans and the Gulf of Mexico. The NHD also incorporates the National Spatial Data Infrastructure framework criteria established by the Federal Geographic Data Committee. The NHDFlowline Feature Class consists of NHD linear features of type stream/river, canal/ditch, pipeline, artificial path, coastline, connector.</srctr>

</srcinfo>

2.2.4 Save and Close.

2.3 Delete the “ShapefileName.shp.xml” file of your shapefile:

Note: This cleans out any existing metadata, and should avoid the potentially lengthy “Geoprocessing History” in your metadata.

2.4 Set Metadata Style

2.4.1 Initialize ArcCatalog.

2.4.2 From the “Customize” pull-down menu select “ArcCatalog Options...” Select the “Metadata” tab and select “FGDC CSDGM Metadata” from the “Metadata Style” pull-down menu.

2.5 Import Metadata:

Note: Import the metadata file to the shapefile before completing the rest of the edits.

2.5.1 In Search, type ‘import metadata’.

2.5.2 For “Source Metadata” browse to the .xml file that you edited.

2.5.3 For “Import Type” use the dropdown box to select “FROM_FGDC”.

2.5.4 For “Target Metadata” browse to the critical habitat shapefile.

2.5.5 The “Enable automatic updates” button should be left on.

2.5.6 Click “OK”.

2.5.7 Click on your shapefile name again and the new metadata will be visible.

2.6 Check Attribute Definitions:

Before you begin editing, look at the second-to-last section, “Fields and Subtypes”. Verify that the “Field Description” is correct for all of the attributes. If not, note which ones need to be corrected when you start editing.

2.7 Edits in ArcCatalog:

After the “Import” window closes, click on the “Edit” button under the “Description” tab. This will open the editor (in the same window). There are 3 to 5 more areas which will need to be edited in the metadata tool. All of the data is accessed by clicking on one of the “pages” along the left side of the window.

2.7.1 Title Edits

- Click on the “Item Description” page.
- Click inside the Title box and change the Title to be in the format: Final Critical Habitat for Zuni bluehead sucker (*Catostomus discobolus* yarrow).

2.7.2 Process Step

- In the “Resource” section, click on the “Lineage” page, then click on the “Process Step” down arrow.
- Fill in the “Process Description” box with a description of the procedures that you went through and the data that you used to create this critical habitat layer. The Process Description should include information such as the data resolution, the horizontal accuracy of the data and the methodology used to achieve this accuracy, the temporal validity of the data, and specific field collection methodology for the features.
- Make sure that you overwrite these phrases: **todo ProcessingStep** & **todo ProcessingStep PerformedOn**.

2.7.3 Geographic Extent - In the “Resource” section, click on the “Extents” page. There will probably be two Extent values (The shapefile inherits the extent of the original dataset that the template is derived from.) Click on the “Extent” down arrows and then the “Bounding Box” down arrows to determine which bounding box is correct for your data set. The default bounding box in the template is 000,000,000,000. Delete the default bounding box by clicking the red X to the right of “Extent”.

2.7.4 Attribute Information - If you find any attribute impo

- In the “Resource” section, click on the “Fields” page. Click on “Details”.
- Click on the “Attribute:” down arrow for each attribute that needs to be edited.
- Edit the value(s) that are incorrect.

2.7.5 Geoprocessing History

In the “Resource” section, click on the “Geoprocessing History” page. There may be a lot of data there that you don’t particularly want in your metadata, especially if you didn’t do Step 2.3. You can’t delete it in the ArcCatalog editor, but it can be removed by installing and using the tools available at ArcGIS Online. Here are some examples: [Clear Geoprocessing History](#) by lwrogers_UW; [Remove Metadata Geoprocessing History](#) by Chris_Fox.

2.7.6 Save

When you are done, click “Save”. The editor will close automatically.

2.8 Check/Review Metadata