Wildlife Environmental Review Map Service (WERMS): Background, database descriptions, and disclaimers

The Wildlife Environmental Review Map Service (WERMS) allows users to download a collection of spatial datasets that highlight critical wildlife resources for the environmental review process.

Below are instructions for connecting and downloading the data followed by a description of each dataset.

Connecting to WERMS via ArcGIS Desktop
To download WERMS data users need a copy of ArcGIS Desktop, a WERMS user account, and to follow the instructions below.
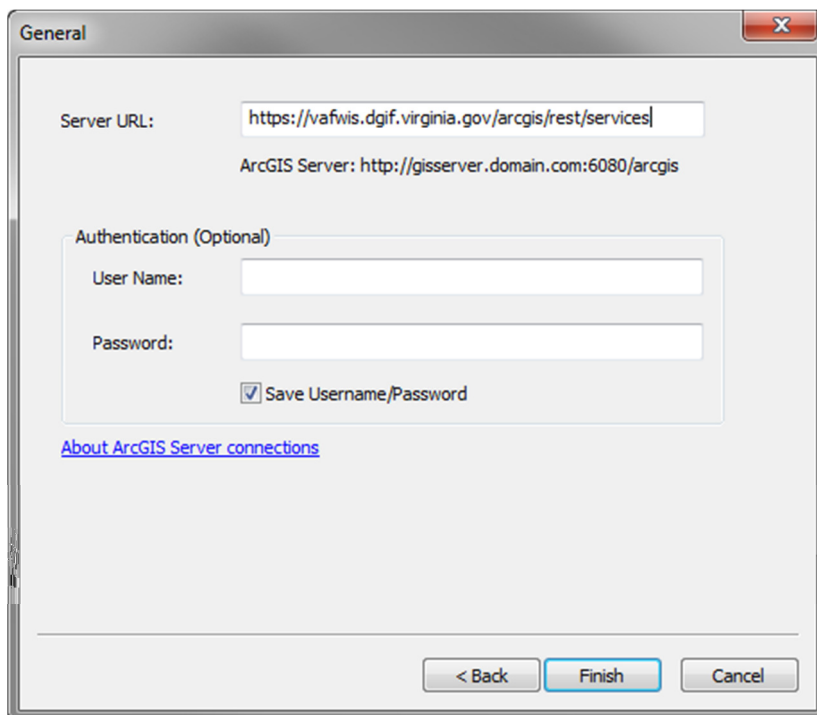
If an account is needed, contact Jay Kapalczynski to discuss subscription options. If a copy of ArcGIS Desktop is unavailable to the user, contact Jay to discuss alternatives.

Create a connection to WERMS ArcGIS Server (through ArcMap or ArcCatalog)
1) Open ArcMap or ArcCatalog
2) In the Catalog Tree expand GIS Servers and double-click "Add ArcGIS Server"

> ⊟ 🗐 GIS Servers
>   🗐 Add ArcGIS Server
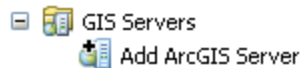
3) Make sure the "Use GIS services" option is selected.
4) Click Next.
5) Fill in the Server URL with the following:
   https://vafwis.dgif.virginia.gov/arcgis/rest/services
6) Fill in your WERMS Account credentials in User Name and Password text boxes.
7) Check "Save Username/Password".

8) Click Finish.

To download data in ArcGIS Desktop:
The full WERMS database file size is a little under 300 Mb. The service timeout is set to 15 minutes of download time.
To download:
1) Open ArcMap.
2) Either open the catalog window or click the add data button.
3) Navigate to the WERMS ArcGIS Server connection you created earlier.
4) Add the WERMS MapService.
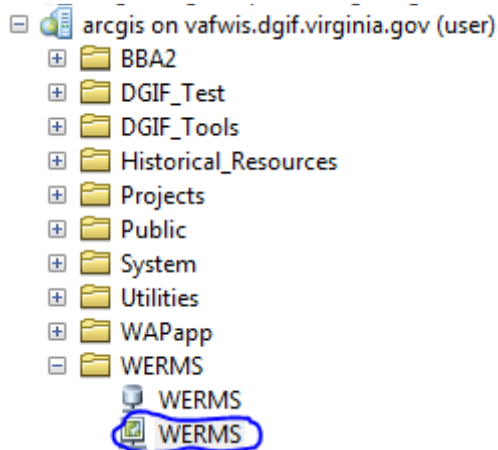
5) The service will be added, but layers will not appear if your scale is 1:100,000+. Zoom in to turn on the layers. **ArcMap must be at a scale of 1:100,000 or larger (ex: 1:80,000) to extract any or all features.**

6) Turn on the Distributed Geodatabase toolbar by navigating to Customize > Toolbars > Distributed Geodatabase.
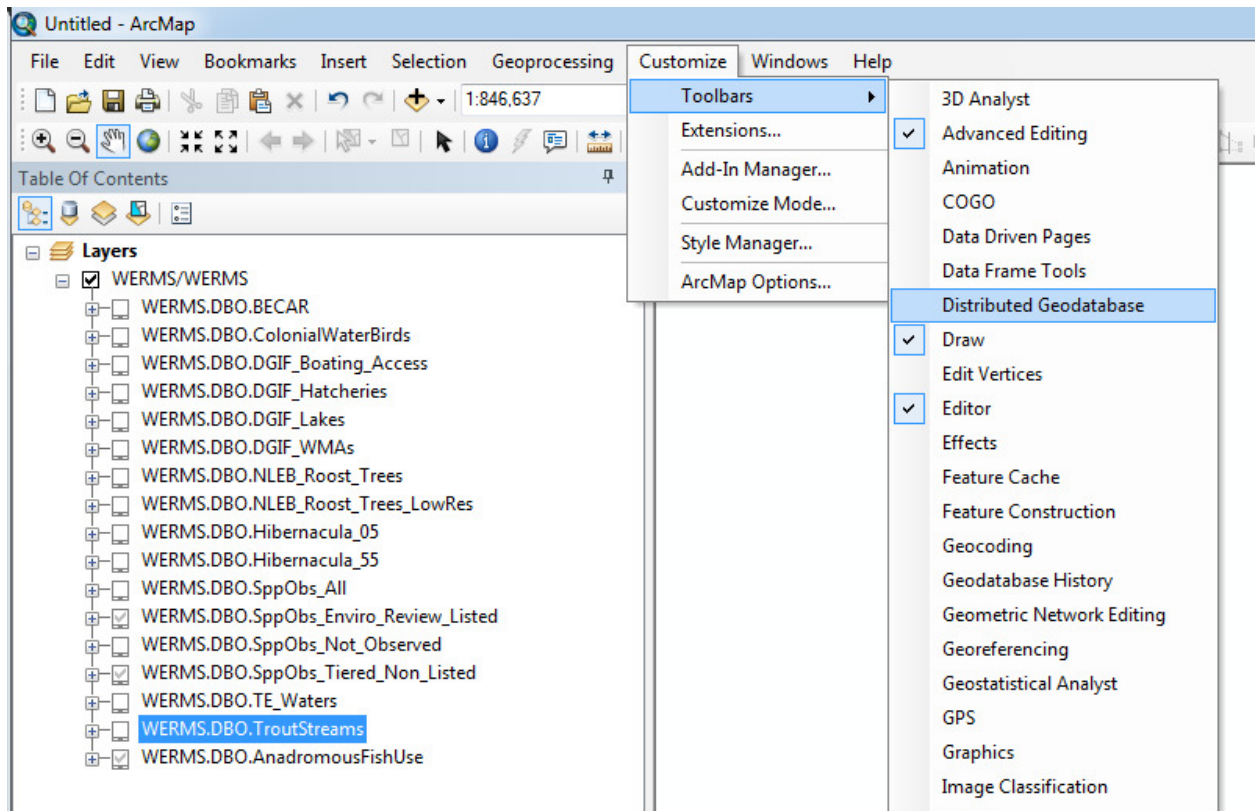
7) The toolbar will appear like the image below.

8) Click the Extract Data button (far right) to extract a copy of the data.

9) In the first screen of the Extract Data Wizard change the following settings.
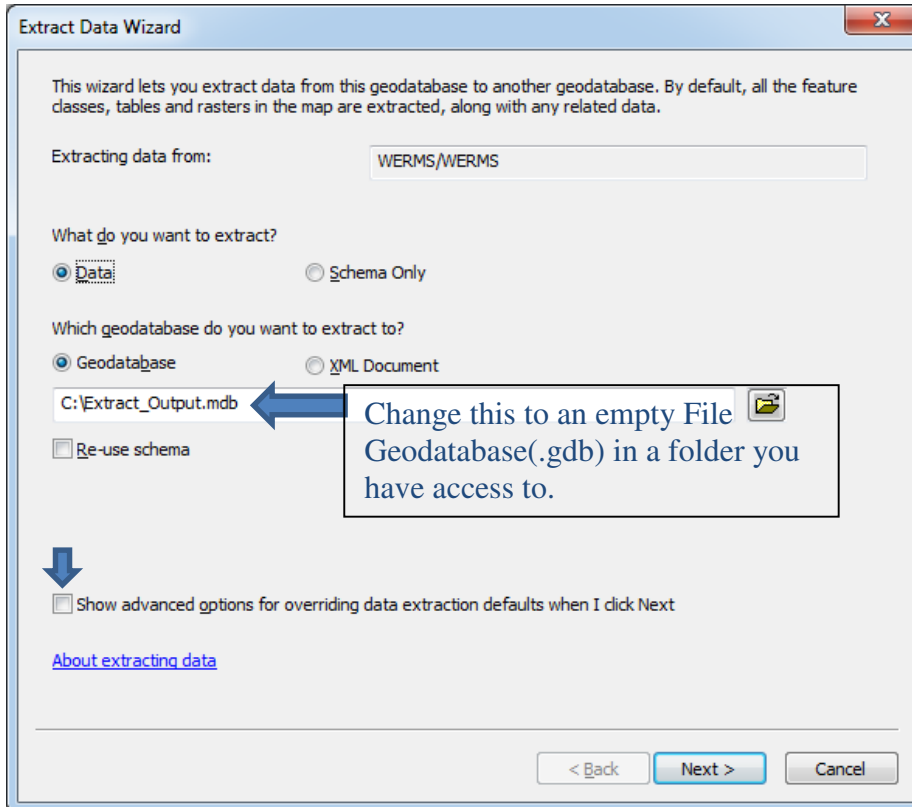
a. Change the "geodatabase you want to extract to" to a file Geodatabase (.gdb) in a easily accessible folder.
b. Check "Show advanced options for overriding data extraction defaults when I click Next".
c. It will look like the following image but with a custom geodatabase location:

Extract Data Wizard

This wizard lets you extract data from this geodatabase to another geodatabase. By default, all the feature classes, tables and rasters in the map are extracted, along with any related data.

Extracting data from: WERMS/WERMS

What do you want to extract?
◉ Data   ○ Schema Only

Which geodatabase do you want to extract to?
◉ Geodatabase   ○ XML Document

C:_scratch\WERMSFileGeodatabase.gdb

☐ Re-use schema

☑ Show advanced options for overriding data extraction defaults when I click Next

About extracting data

< Back   Next >   Cancel

  d. Click Next.
10) In the next screen, change the following options:
  a. To download all data, change "The current display extent" to "The full extent of the data".
  b. Click the "Include All" button to select all the layers for download.
  c. Do not change the feature class names.
  d. Check "Extract related data"

        e.   Click Next.
11) On the last screen select "No further action".
12) Click Finish.
13) The data will download to the selected File Geodatabase. This will take several minutes.

Connecting to WERMS through you web browser
View the service in a web browser by navigating to the URL below and logging in with WERMS credentials. This is generally less useful for the average user, but could be usefule to some of you.
https://vafwis.dgif.virginia.gov/arcgis/rest/services/WERMS/WERMS/MapServer/

WERMS Datasets
WERMS contains the following GIS Feature Classes (layers):
 Feature Class Description
 BECAR
 ColonialWaterBirds
 DGIF_Boating_Access
 DGIF_Hatcheries
 DGIF_Lakes
 DGIF_WMAs
 NLEB_Roost_Trees
 NLEB_Roost_Trees_LowRes
 Hibernacula_05
 Hibernacula_55
 SppObs_All
 SppObs_Enviro_Review_Listed
 SppObs_Not_Observed
 SppObs_Tiered_Non_Listed
 TE_Waters
 TroutStreams
 AnadromousFishUse

The layers are in the Virginia Lambert Conformal Conic projection. This is a standard projection used by many Virginia state agencies. Users should check for updates on a monthly basis. If new updates are available, they should be downloaded and used per the signed Data Use and Access Agreement.

Species Observation Database (SppObs)
To manage species occurrence information, DGIF maintains a database called Species Observation Database or SppObs. Within the Virginia Fish and Wildlife Information Service (https://vafwis.dgif.virginia.gov/fwis/), all Species Observation records are called "SppObs".

WERMS contains a full copy of SppObs plus three filtered SppObs layers to help users navigate more quickly.
-   *SppObs_All* is the full copy of all records in SppObs.
-   *SppObs_Enviro_Review_Listed* is filtered to include only federal or state listed (TE) species (threatened, endangered, species of concern, proposed, candidate, or collection concern) observed within the last 30 years are included. With the exception of bald eagle nest records, all point records have been randomly offset and buffered 800m. Line and polygon records are buffered 800m. Eagle nest points are buffered 200m.
-   *SppObs_Not_Observed* is a layer of observations in which the observer specifically noted an absence of a species at a location.
-   *SppObs_Tiered_Non_Listed* is a companion to the *SppObs_Enviro_Review_Listed layer*. This contains records of species of greatest conservation need or Tiered species that are not state or federally listed. Species of greatest conservation need or Tiered species were prioritized in Virginia's 2015 Wildlife Action Plan. This layer should be used in conjunction with the *SppObs_Enviro_Review_Listed* layer so that the species contained within will not need future state or federal protection. Records are not offset or buffered.

Sources of SppObs Data
While the predecessor of SppObs was a database of collections permit reports, the current SppObs contains more than two dozen independent and will add more in the future. Descriptions of the primary environmental review databases within SppObs are below:

Wildlife Management Area (WMA) Bird Surveys
From 2003 to 2007, DGIF biologists conducted bird surveys on a subset of DGIF's Wildlife Management Areas. Observations recorded during these standardized surveys are included in SppObs.

Rarebird
Bird observations are regularly listed by birders on various websites or email lists. These websites and email lists are monitored by DGIF biologists for information on rare, threatened or endangered species. Information on rare bird sightings are added when adequate information is available, including identification by a recognized expert and precise location description. Locations are digitized into points based on best available information.

Bald Eagle Nest Database
This is the results of an annual bald eagle nest survey conducted by the Center for Conservation Biology at the College of William and Mary/Virginia Commonwealth University (CCB) and others, along with other reported inland nests. Nests locations are marked on 1:24000 topographic maps during survey flights and later digitized as points. Unlike point locations for other listed species in *SppObs_Enviro_Review_ Listed*, bald eagle nest locations are not offset and are only buffered 200 meters. This is to ensure compliance with the Bald Eagle Protection Guidelines.
For 2009 and into the future, eagle nest locations were created and owned by CCB and incorporated into VAFWIS. Due to the data license, the 2009 CCB survey and onward are not available through WERMS. *SppObs_Enviro_Review_ Listed* continues to include older eagle nest locations as well as nests not within the CCB survey. All eagle nest locations are available in VDGIF's online Virginia Fish and Wildlife Information Service (VAFWIS). To obtain a GIS dataset of CCB's 2009+ bald eagle nest locations, contact the Center for Conservation Biology at: conbio@wm.edu or call 757-221-1645.

VDGIF staff incidental observations (ObsBook)
The Observation Book Program was started in 1995 for DGIF biologists to record incidental observations of wildlife. For instance, biologists driving to meetings or to field sites can record observations of wildlife that they see along the way. The information recorded includes point locations, habitats, time and date, whether breeding activity is observed, and the animal's current activity.

VDGIF Scientific Collections, TE, and Salvage permit data (Collections)
DGIFs' Collections Database was developed in 1991 to store annual reports by researchers with permits in Virginia Scientific Collection, Threatened and Endangered Species Collections, and Salvage Permit programs. Permits are issued to any person performing research activities whether the species is collected or not. In 1992, the database was expanded to include miscellaneous reports, staff field activities, and locations from a follow-up of the first VA Breeding Bird Atlas project. Records reported in peer-reviewed journals and museum records were also added.

Colonial Waterbird Locations (CWB), CWB2003, CWB2008, and CWB2013
Virginia's Colonial Waterbird Database contains records of Virginia's breeding waterbird species. First developed in 1989 to continue data compilation activities discontinued by the Cornell Lab of Ornithology, all Virginia-specific data compiled by Cornell were read into this application. Subsequent State-collected colonial waterbird records are entered as received.
The CWB2003 contains results of the 2003 survey conducted by CCB and partners. It included the eastern part of Virginia, generally east of I-95. The records were published in a 2004 report titled "Status and Distribution of Colonial Waterbirds in Coastal Virginia: 2003 Breeding Season".
The CWB2008 are the results of a 2008 survey conducted by CCB and partners. It only included the eastern part of Virginia, generally east of I-95 and did not include great blue heron colonies. These records were published in a 2009 report titled "Status and Distribution of Colonial Waterbirds in Coastal Virginia: 2008 Breeding Season".

PEFAnests
This database contains observations of peregrine falcon nests. These records are the results of collaboration between VDGIF and CCB. Many of the records are published in CCB's annual Virginia Peregrine Falcon Monitoring and Management Program: Year 20xx Report.

Caves
These are subterranean features that have been documented to be important to bats.

CAVES2017
These subterranean features have been documented to be important to bats. This is an updated version of the Caves database. Some of the observations in this database are duplicates of those in the Caves database and will be removed in the future. This dataset is also the basis of most of the records in the Hibernacula layers.

Incidentals
This database contains miscellaneous wildlife observations. All records in Incidentals have been reviewed and approved by a VDGIF biologist. Additionally, the FiesRareMammals source database is a compilation of incidental records compiled by VDGIF biologist Mike Fies related to a specific subset of mammals.

Survey Specific Databases
Several databases are the results of specific surveys. These include HotoppSnails, ThomaCrayfish, BogTurtle, BlackRail, and IBAsurveys (breeding birds). Many of these surveys were contracted or directed by VDGIF biologists.

Aquatics
Records from a database compiled by the VDGIF malacologist, Brian Watson. The records included in SppObs from this source database only include records which should not have come in from other sources, such as VDGIF biologist data. Data should not contain duplicates of collection report records.

Others
Databases such as WWSS, SNP, INSTAR, Golden-Winged Warblers, and Loggerhead
Shrike datasets are large compilations of records from specific groups which did not
come in via collections. WWSS is a VDGIF staff database for warmwater streams. SNP
is current only fish data collected by Shenandoah National Park staff. INSTAR holds
collections records for Virginia Commonwealth University. Golden-Winged Warblers,
and Loggerhead Shrike datasets are compilation of records put together by our DGIF
biologist from multiple survey sources.

Other WERMS Layers
BECAR - The Bald Eagle Concentration Areas and Roosts - is a feature class that delineates
important features used by bald eagles. Concentration areas are shorelines that have been
identified through surveys to support a high density of non-breeding bald eagles. Concentration
areas can be separated by season (summer and winter). Roost sites are sites that have been
documented as repeatedly used as night-time resting places for multiple bald eagles.

The *Colonial Water Birds* feature class comprises data from the CWB, CWB2003, CWB2008,
and CWB2013 databases in SppObs. While *EnviroReview Listed SppObs* contains the listed
species records from these databases, *Colonial Water Birds* includes all nest colony records.
Records are not offset or buffered, except when containing a listed species.

NLEB_Roost_Trees are locations for the Northern long-eared bat roost trees identified by
VDGIF biologists**.** They are buffered and offset in order to comply with the U.S Fish and
Wildlife Service Endangered Species Act Rule 4(d).

NLEB_Roost_Trees_LowRes are the centroids of the feature class above. They are included in
order to ease navigation of this dataset at low resolutions.

Hibernacula_05 and *Hibernacula_55* are locations of bat hibernacula identified by VDGIF
biologists for the Northern long-eared bat, Tri-colored bat, Little-brown bat, Virginia big-eared
bat, Gray bat, and Indiana bat. The locations have been offset and buffered in accordance with
the U.S Fish and Wildlife Service Endangered Species Act Rule 4(d). While the tri-colored and
little-brown bats do not fall under this rule, we have included them here in order to maintain
consistency across similar species.

Almost every hibernaculum in these layers has corresponding observations in SppObs.
Observations at these hibernacula can be identified by matching the txtFeatID with any SppObs
layer.

Gray bat, Indiana bat, and Virginia big-eared bat hibernacula in this layer are not meant to be
comprehensive.

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Disclaimer of Applicability of Data
The WERMS is constantly being updated and expanded. Information contained in the WERMS does not constitute an official opinion by the VDGIF, nor will it, by itself, meet any regulatory requirements. The information in the WERMS does not replace the need for conducting field work. The information must be used in consultation with appropriate federal, state, and local officials. The absence of data confirming the occurrence of a species within a geographic area does not constitute a negative declaration.

Further Information
For further information about WERMS and/or the datasets distributed through WERMS, please contact: For troubleshooting connections to the WERMS services and other technical questions please contact:

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