

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

The Wildlife Environmental Review Map Service (WERMS) is a collection of spatial datasets published through an ArcGIS Server map/feature/geodata service (currently hosted on an ArcGIS 10.3 server instance) specifically to provide information on critical wildlife resources for the environmental review process. The feature service allows users to view, query, and analyze the data in an ESRI client, such as ArcMap or ArcGIS Explorer. The map service and geodata service allow for users to extract a copy for their own use. There is not an application or client specifically associated with WERMS, but rather it is a data compilation and delivery mechanism.

### **WERMS Datasets**

WERMS contains the following GIS Feature Classes (layers):

#### **Feature Class Description**

SppObs EnviroReview Listed  
BECAR  
T&E Waters  
Trout Streams (CWSS)  
Anadromous Fish Use  
Colonial Water Birds  
SppObs Tiered not listed  
DGIF Hatcheries  
DGIF Boat Access  
DGIF WMAs  
DGIF Lakes  
Hibernacula\_05  
Hibernacula\_55  
NLEB\_Roost\_Trees  
NLEB\_Roost\_Trees\_LowRes  
SppObs All Observations  
SppObs Not Observed

The data are in the Virginia Lambert Conformal Conic projection. This is the standard projection used by many Virginia state agencies. It is expected that users will check WERMS at least once per month for updates. If new updates are available, they should be downloaded and used per the signed Data Use and Access Agreement.

Most datasets have a singular theme and are fairly self-explanatory. These include: *TE waters*, *Trout streams (CWSS)*, *Anadromous Fish Use*, *DGIF Hatcheries*, *DGIF Boat Access*, *DGIF WMAs*, and *DGIF Lakes*, as these have been used in the past. *BECAR* or bald eagle concentration areas and roosts is a newer dataset that delineates bald eagle features that were part of the Species Observation database in the past. *Colonial Water Birds* also contain features traditionally part of the Species Observations Database. Feature classes based on DGIF's Species Observation Database (SppObs) require some background. These datasets include *EnviroReview Listed SppObs*, and *Tiered SppObs not listed*.

### Species Observation Database (SppObs)

To better manage species occurrence information, DGIF maintains a single database structure to store all observation data called Species Observation Database or SppObs. Historically, DGIF's primary species observation database was Collections. Within the Virginia Fish and Wildlife Information Service (<http://vafwis.org/fwis/>), all Species Observation records are called "SppObs". More than two dozen independent datasets (including Collections) were merged to form SppObs, with other separate databases to be included (or independently identified) 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 listservers. These websites and listservers are monitored by DGIF biologists for information on rare, threatened or endangered species. Information on rare bird sightings are extracted 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 database stores 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 *EnviroReview Listed SppObs*, bald eagle nest locations are not offset and are only buffered 200 meters. This is to ensure compliance with the Bald Eagle Protection Guidelines (<http://www.dgif.virginia.gov/wildlife/laws/baldeagleguidelines.pdf>).

For 2009 and into the future, eagle nest locations were created and owned by CCB and incorporated into VAFWIS. Due to data licensing, the CCB 2009 and future nest location data will not be distributed through WERMS. *EnviroReview Listed SppObs* 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](mailto:conbio@wm.edu) or call 757-221-1645.

#### VDGIF staff incidental observations (ObsBook)

The Observation Book Program was started in 1995 as a way for DGIF biologists to record incidental observations of wildlife while performing their routine duties. 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 what the animals are doing. Thousands of observations have been reported by DGIF personnel so far, and reports continue to be submitted.

#### VDGIF Scientific Collections, TE, and Salvage permit data (Collections)

DGIFs' Collections Database was originally developed in 1991 as a means of storing information reported annually by researchers under the Commonwealth's Scientific Collection, Threatened and Endangered Species Collections, and Salvage Permit programs. These permits are issued to any person performing research activities, whether the species is actually being collected or not. After the first year, the information in the database was expanded to include location data from miscellaneous reports, staff field activities, and more detailed locations from a follow-up of the Breeding Bird Atlas project. Records reported in peer-reviewed journals and museum records were also added.

#### Colonial Waterbird Locations (CWB), CWB2003, and CWB2008

Virginia's Colonial Waterbird Database contains information on Virginia's breeding waterbird species. This application was 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 bird monitoring data are entered annually or as received. The CWB2003 contains results of the 2003 survey conducted by CCB and partners. This survey only included the eastern part of Virginia, generally east of I-95. These data 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. This survey only included the eastern part of Virginia, generally east of I-95 and did NOT include great blue heron colonies. These data 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.

#### Incidentals

This database contains miscellaneous wildlife observations. These records can be from various sources. All records have been reviewed and approved by a VDGIF biologist. In

addition, 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 wildlife 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 which should have been reported in a collection report is not included so as to minimize the potential for duplication.

#### Others

Databases such as WWSS, SNP, and INSTAR 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.

The *EnviroReview Listed SppObs* feature class is a subset of SppObs records. 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. All buffered features were merged to create a single polygon feature class. A spatial view was used to relate the observation, species, and geographic information.

The Bald Eagle Concentration Areas and Roosts – *BECAR* 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, CWB2008 and CWB2003 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.

The *Tiered SppObs not listed* feature class is a companion dataset to *EnviroReview Listed SppObs*. This feature class comprises SppObs records that contain species of greatest conservation need or Tiered species that are not state or federally listed and therefore not presented in *EnviroReview Listed SppObs*. Species of greatest conservation need or Tiered species were prioritized in Virginia's Wildlife Action Plan. While many of these species have state or federal listing status, many are not listed. Hence this dataset along with *EnviroReview Listed SppObs* provides a comprehensive record of all Tiered species observations. It is hoped that this feature class will be used in environmental reviews and planning so that the Tiered

species contained within will not need future state or federal protection. Records are not offset or buffered.

*NLEB\_Roost\_Trees* are locations for the Northern long-eared bat roost trees identified by VDGIF biologists that are **not in SppObs**. 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 hibernacula identified by VDGIF biologists for the Northern long-eared bat, Tri-colored bat, and Little-brown bat that are not in SppObs. 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. You can filter on the fields *SppBova* or *COMMON\_NAME* if you are only interested on a subset of these species.

We expect to include NLEB Roost Trees and Hibernacula in SppObs in the future, but will maintain separate these separate feature classes as well in order to maintain ease of use.

### **Disclaimer of Liability**

Neither the Virginia Department of Game & Inland Fisheries (VDGIF) nor the contributors to the Wildlife Environmental Review Map Service (WERMS) shall be held liable for any improper or incorrect use of the information contained herein and assume no responsibility for the use of the information. In no event shall the VDGIF or the contributors to the WERMS be liable for any direct, indirect, or incidental damages arising in any way out of the use of this service. This disclaimer of liability applies to any damages or injury, including but not limited to those caused by any failure of performance, error, omission, defect, delay in operation or transmission, computer virus, alteration or use of record.

### **Disclaimer of Accuracy of Data**

No warranty expressed or implied is made regarding the accuracy, adequacy, completeness, reliability, or usefulness of any information contained herein. The VDGIF provides these data on an "as is" basis. All warranties of any kind, express or implied, including but not limited to fitness for a particular use, freedom from computer viruses, and non-infringement of proprietary rights are disclaimed. Information is added and changed periodically, and data may become out-of-date quickly. It is recommended that the user not let a significant period of time elapse between obtaining and using the information.

### **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.

## Connecting to WERMS via Rest EndPoint

<https://vafwis.dgif.virginia.gov/arcgis/rest/services/WERMS/WERMS/MapServer/>

## Connecting to WERMS via ArcGIS Explorer

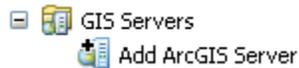
**(ESRI BUG WILL NOT WORK with secured services)**

## Connecting to WERMS via ArcGIS Desktop

In order to consume the data available through WERMS, you ought to follow the instructions provided herein. The service is currently being made available through ArcGIS Server 10.3.

Create a connection to the ArcGIS Server (through ArcMap or ArcCatalog)

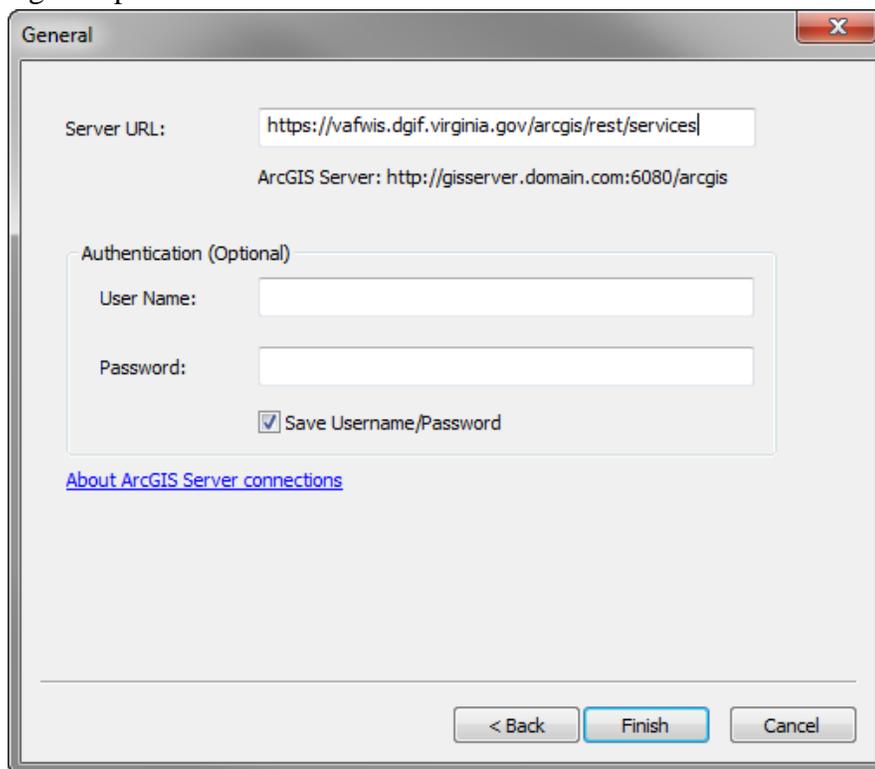
- 1) In the Catalog Tree expand GIS Servers and double-click “Add ArcGIS Server”



- 2) Make sure the “Use GIS services” radial is selected and click Next
- 3) Fill in the Server URL with the following:

<https://vafwis.dgif.virginia.gov/arcgis/rest/services>

Fill in the User Name and Password using the login credentials provided to you when you signed up for WERMS. Ensure “Save Username/Password” is checked. Click Finish.



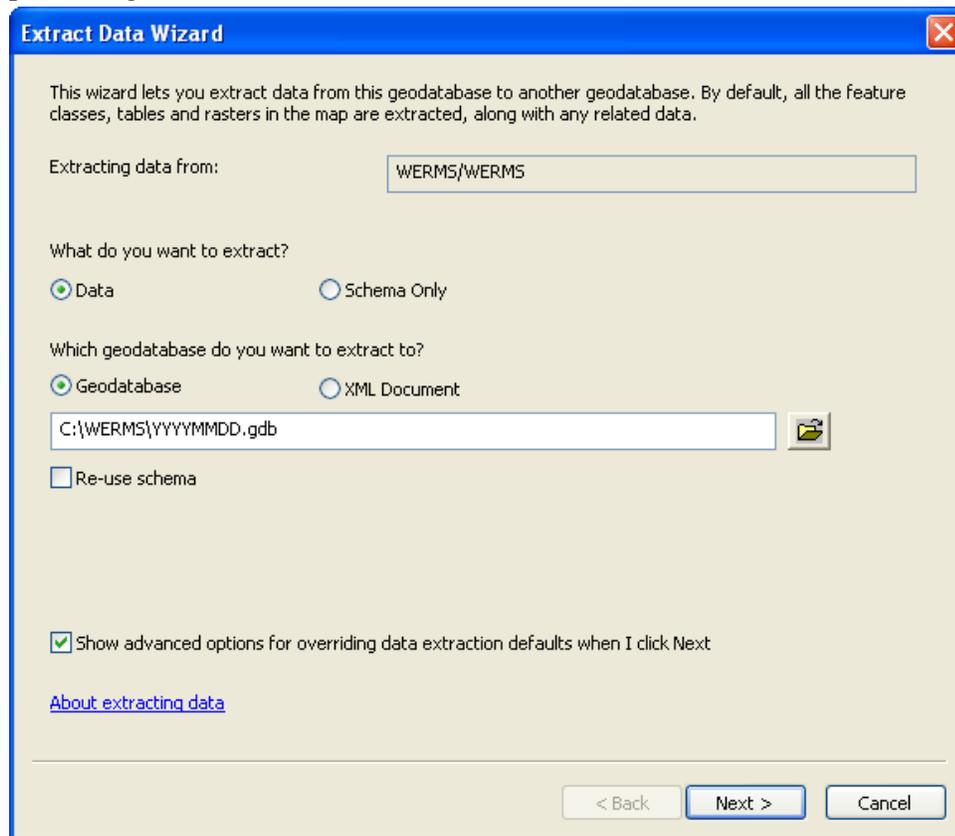
## To make a local copy of the data:

- 1) In ArcMap add the WERMS Map Service (this one:  WERMS).
- 2) Turn on the Distributed Geodatabase toolbar. It should appear like this:



3) Click the Extract Data button on the far right of the toolbar in order to get a local copy of the data.

- a. Within the wizard, make sure to create a copy of the geodatabase in a location accessible to you. You should name the geodatabase something intuitive. Ensure that the geodatabase is a file geodatabase (.gdb extension), as problems with personal geodatabases have been encountered.



- b.
- c. **THIS MAY cause an error...if so skip...** In order to change the field names (to remove the preceding “WERMS.DBO.”) for every feature class, you ought to check the “Show advanced options...” button. On the next screen you can manually rename each feature class within the Target Name field. This also allows you to only extract desired data layers using the Include field.

### 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:

Jay Kapalczynski  
GIS Manager  
Virginia Dept. of Game and Inland Fisheries  
7870 Villa Park Drive Suite 400 Henrico VA 23228  
Voice – 804-367-6796  
Jay.Kapalczynski@dgif.virginia.gov