

EnviroAtlas: Using Web Services



www.epa.gov/enviroatlas

Why are web services important?

1. All EnviroAtlas data layers are available as web services. This means that users can display EnviroAtlas maps in other online or desktop applications without having to download the data.
2. Users can bring known web services into the EnviroAtlas Interactive Map to display them with EnviroAtlas data layers.
3. Using web services, EnviroAtlas can display relevant maps from other data sources in its Interactive Map. This lets us bring in useful information such as EPA Impaired Waters data and

In this quick web services guide, we'll show you how to do items 1 and 2 above.

EnviroAtlas web services can be accessed from the Interactive Map

1. How to use EnviroAtlas web services in other online applications

The screenshot displays the EnviroAtlas Interactive Map interface. On the left, there is a sidebar with 'EnviroAtlas Data' and a search bar for 'Search All Layers'. Below this, various data categories are listed, including Carbon Storage, Crop Productivity, Ecosystem Markets, Energy Potential, and Engagement with Outdoors. The 'Engagement with Outdoors' section is expanded, showing layers like 'Big game hunting recreation demand (day trips per year)'. The main map area shows a geographical view of the Rocky Mountains region, with labels for Helena, Salt Lake City, and Utah. On the right, a 'Layer List' panel is open, displaying a list of layers. The layer 'Big game hunting recreation demand (day trips per year)' is selected, and a context menu is open over it, showing options such as 'Transparency', 'Draw Layer On Top', 'Change Appearance', 'Remove Layer', 'Map Description', 'Data Fact Sheet', 'Access Web Service', 'Metadata/Download', and 'Open Attribute Table'. A green arrow points to the 'Access Web Service' option in the menu.

1. Click on the three dots to the right of a layer name in the Layer List .
2. Select *Access Web Service*.

Layer: Big game hunting recreati... x +

enviroatlas.epa.gov/arcgis/rest/services/National/National2016_master/MapServer/13

ArcGIS REST Services Directory [Login](#) | [Get Token](#)

[Home](#) > [services](#) > [National](#) > [National2016_master \(MapServer\)](#) > [Big game hunting recreation demand \(day trips per year\)](#) [Help](#) | [API Reference](#)

[JSON](#)

Layer: Big game hunting recreation demand (day trips per year) (ID: 13)

Name: Big game hunting recreation demand (day trips per year)

Display Field: HUC_12

Type: Feature Layer

Geometry Type: esriGeometryPolygon

Description: Full Metadata This map illustrates the number of day trips per year demanded for big game hunting by individuals over the age of 18 within each subwatershed (12-digit HUC) for 2010-2011.

Definition Expression: N/A

Copyright Text: EnviroAtlas

Default Visibility: false

MaxRecordCount: 1000

Supported Query Formats: JSON, AMF, geoJSON

Min Scale: 0

Max Scale: 0

Supports Advanced Queries: true

Supports Statistics: true

Has Labels: false

Can Modify Layer: true

Can Scale Symbols: false

EnviroAtlas web services are organized into multiple folders based on the data type and when they were created.

You can navigate back to the full map service to get grouped layers. It will show (Map Server) at the end.

National/National2016_ x + v
https://enviroatlas.epa.gov/arcgis/rest/services/National/National2016_master/MapServer

ArcGIS REST Services Directory [Login](#) | [Get Token](#)

[Home](#) > [services](#) > [National](#) > [National2016_master \(MapServer\)](#) [Help](#) | [API Reference](#)

[JSON](#) | [SOAP](#)

National/National2016_master (MapServer)

View In: [ArcGIS JavaScript](#) [ArcGIS Online map viewer](#) [Google Earth](#) [ArcMap](#) [ArcGIS Explorer](#)

View Footprint In: [ArcGIS Online map viewer](#)

Service Description: [Full Metadata](#) This EnviroAtlas web service supports research and online mapping activities related to EnviroAtlas (<https://www.epa.gov/enviroatlas>). This web service includes layers depicting EnviroAtlas national metrics mapped at the 12-digit HUC within the conterminous United States. EnviroAtlas allows the user to interact with a web-based, easy-to-use, mapping application to view and analyze multiple ecosystem services for the conterminous United States as well as detailed metrics for select communities. Additional descriptive information about each attribute in this web service can be found in its associated EnviroAtlas Fact Sheet (<https://www.epa.gov/enviroatlas/enviroatlas-fact-sheets>).

Map Name: EnviroAtlas Master Web Service for National

[Legend](#)

[All Layers and Tables](#)

[Dynamic Legend](#)

[Dynamic All Layers](#)

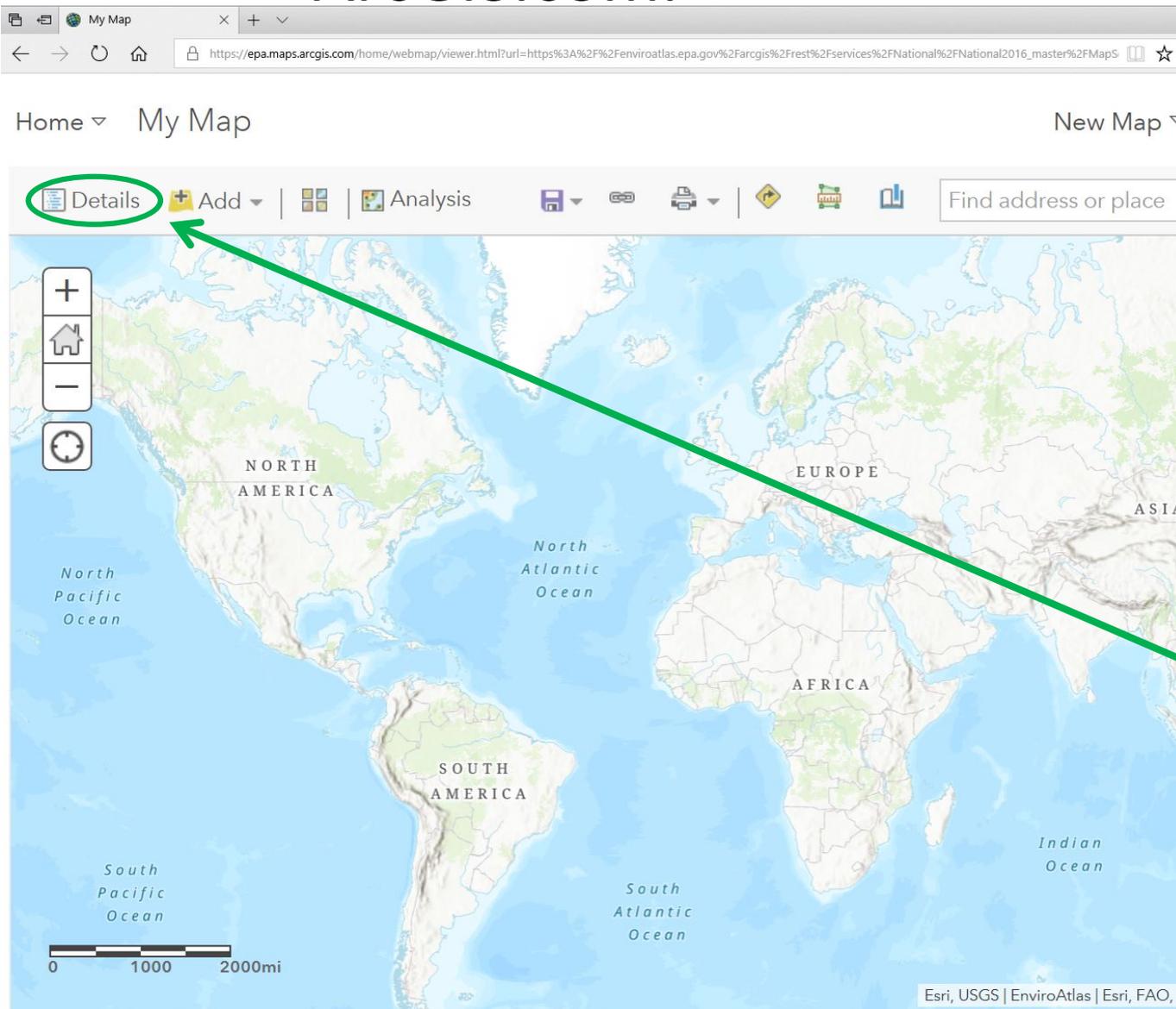
Layers:

- [Acres of land enrolled in CRP](#) (0)
- [Acres of pollinated crops with no nearby pollinator habitat](#) (1)
- [Agricultural water use \(million gallons/day\)](#) (2)
- [Annual oxidized nitrogen dry deposition \(kg/ha\)](#) (3)

In this example, we'll start at the MapServer level. Select how you want to view the map service.

Currently, EnviroAtlas web services work best in ArcGIS.com and desktop GIS.

We will go through an example using ArcGIS.com.

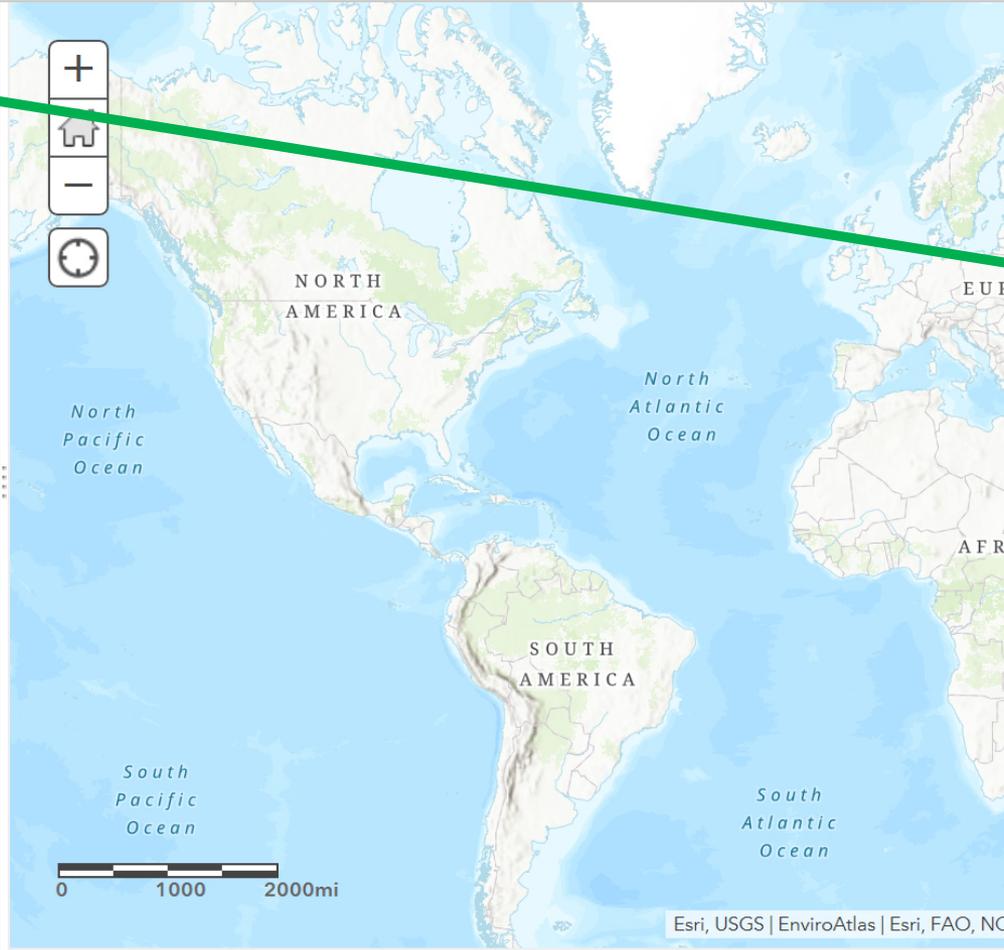


When you first open the map service in ArcGIS.com, none of the layers are turned on.

To turn on the layers, you need to open the map **Details**.

Show Contents of Map

- Contents
- National2016 master
 - Acres of land enrolled in CRP
 - Acres of pollinated crops with no nearby pollinator habitat
 - Agricultural water use (million gallons/day)
 - Annual oxidized
- [Trust Center](#) [Contact Esri](#)
[Report Abuse](#) [Contact Us](#)



Once the map **Details** tab is open, click on **Show Contents of Map**.

My Map

https://epa.maps.arcgis.com/home/webmap/viewer.html?url=https%3A%2F%2Fenviroatlas.epa.gov%2Farcgis%2Frest%2Fservices%2FNational%2FNational2016_master%2FMapServer&source=sd

Home ▾ My Map

Details Add ▾ Basemap Analysis Save Share Print ▾ Directions Measure Bookmarks

About Content Legend

Contents

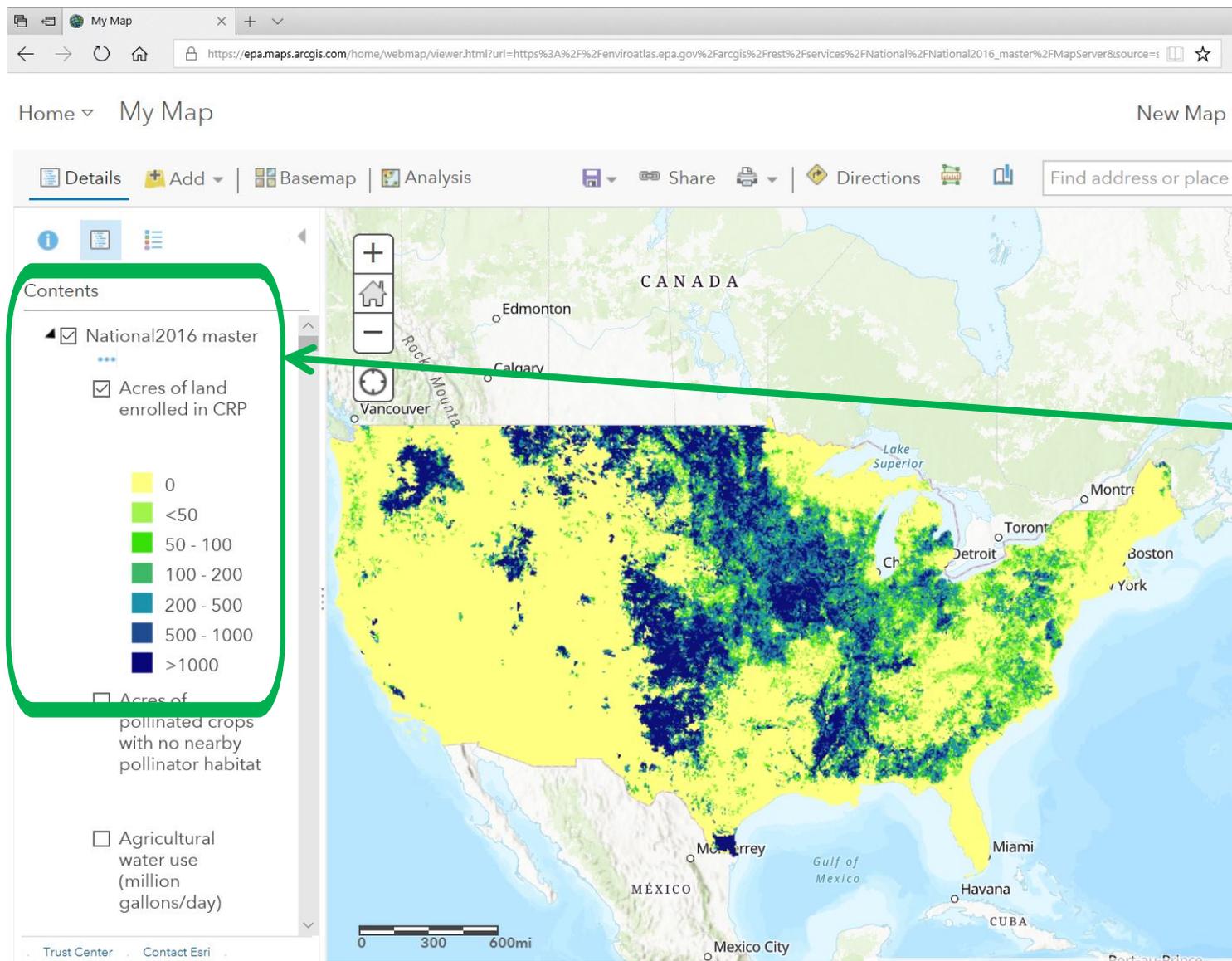
- National2016 master
- Acres of land enrolled in CRP
- Acres of pollinated crops with no nearby pollinator habitat
- Agricultural water use (million gallons/day)
- Annual oxidized nitrogen dry deposition (kg/ha)
- Annual oxidized nitrogen wet deposition (kg/ha)
- Annual reduced nitrogen dry deposition (kg/ha)
- Annual reduced nitrogen wet deposition (kg/ha)
- Annual sulfur dry deposition (kg/ha)
- Annual sulfur wet deposition (kg/ha)
- Area of solar energy (km²)
- Average annual daily potential solar energy (kWh/m²/day)
- Average annual daily potential wind energy

Map showing world map with labels: NORTH AMERICA, SOUTH AMERICA, AFRICA, ASIA, ANTARCTICA, North Atlantic Ocean, South Atlantic Ocean, Indian Ocean, Southern Ocean.

Scale: 0 1000 2000mi

Click on the name of the MapServer to expand the Table of Contents.

As you can see, no layers are currently turned on.



Select a layer to view.

Make sure to check all the levels of the table of contents that lead to your layer. Otherwise, the layer cannot display.

Click the layer name to view the legend.

Select the "Add" button to view additional data with your current map.

As an example, lets add another map service to this map.

To do this, select **Add Layer from Web**.

Riparian (MapServer) x + v

https://www.fws.gov/wetlands/arcgis/rest/services/Riparian/MapServer

Home > services > **Riparian (MapServer)**

[JSON](#) | [SOAP](#) | [WMS](#)

Riparian (MapServer)

View In: [ArcGIS JavaScript](#) [ArcGIS Online map viewer](#) [Google Earth](#) [ArcMap](#) [ArcGIS Explorer](#)

View Footprint In: [ArcGIS Online map viewer](#)

Service Description: This data set represents the extent, approximate location and type of riparian habitats in the areal extent of riparian habitats as defined by A System For Mapping Riparian Areas in the United States (USFW the National mapping program because of the limitations of aerial imagery as the primary data source used to complexity of the riparian data the riparian data only display at 1:250,000 scale and greater. For wetland inform

Map Name: Layers

[Legend](#)

[All Layers and Tables](#)

[Dynamic Legend](#)

[Dynamic All Layers](#)

Layers:

- [Riparian](#) (0)
- [Riparian Mapping Areas](#) (1)

Description: This data set represents the extent, approximate location and type of riparian habitats in the west of riparian habitats as defined by A System For Mapping Riparian Areas in the United States (USFWS 2009). Ce mapping program because of the limitations of aerial imagery as the primary data source used to detect riparia riparian data the riparian data only display at 1:250,000 scale and greater. For wetland information visit www.f

Copyright Text: U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands_team@fws.g

Spatial Reference: 102100 (3857)

Single Fused Map Cache: false

Initial Extent:

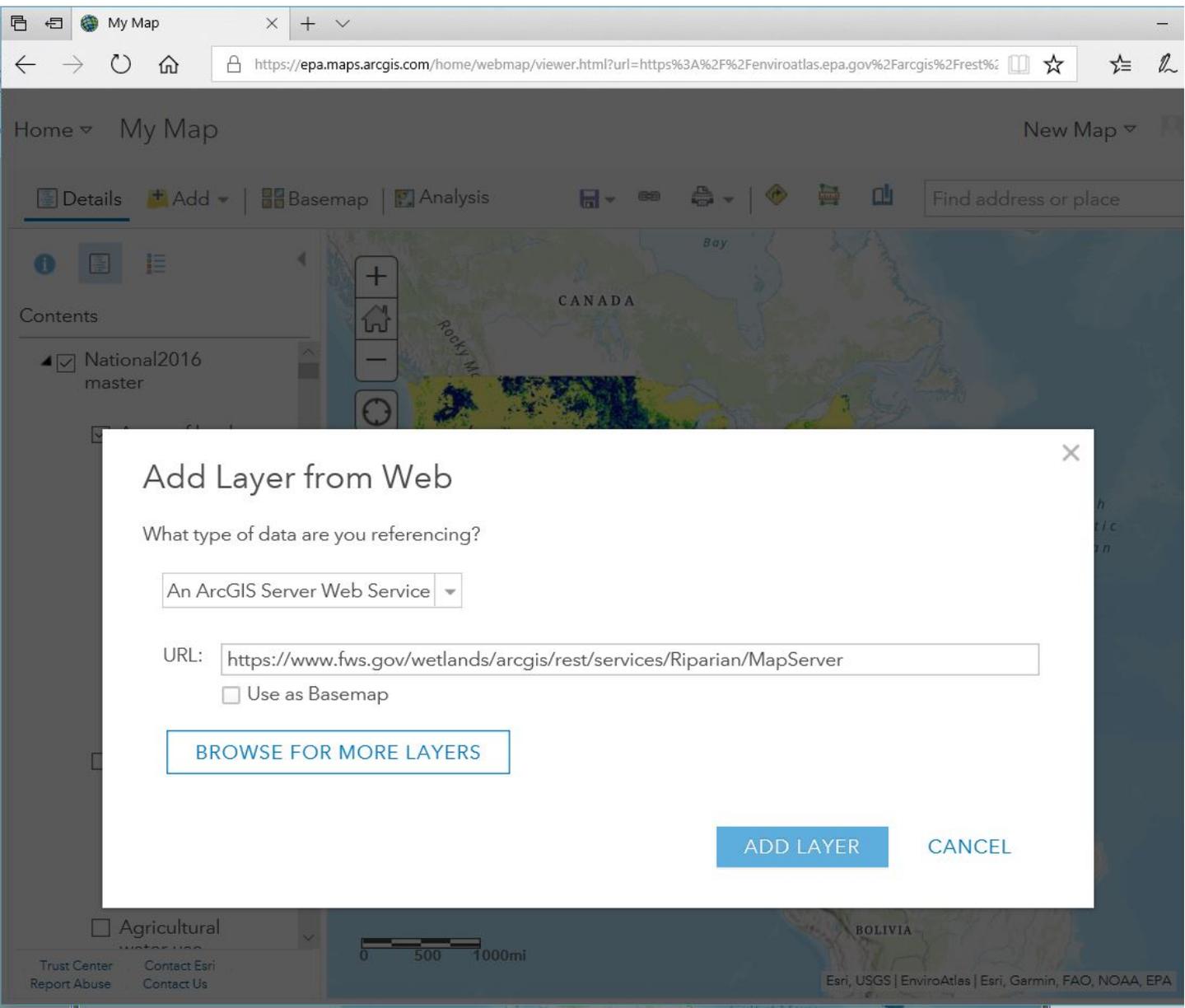
XMin: -145.4116661796265
YMin: 35.16462115009984
XMax: -46.27135381303533
YMax: 57.313139652989676
Spatial Reference: 102100 (3857)

Full Extent:

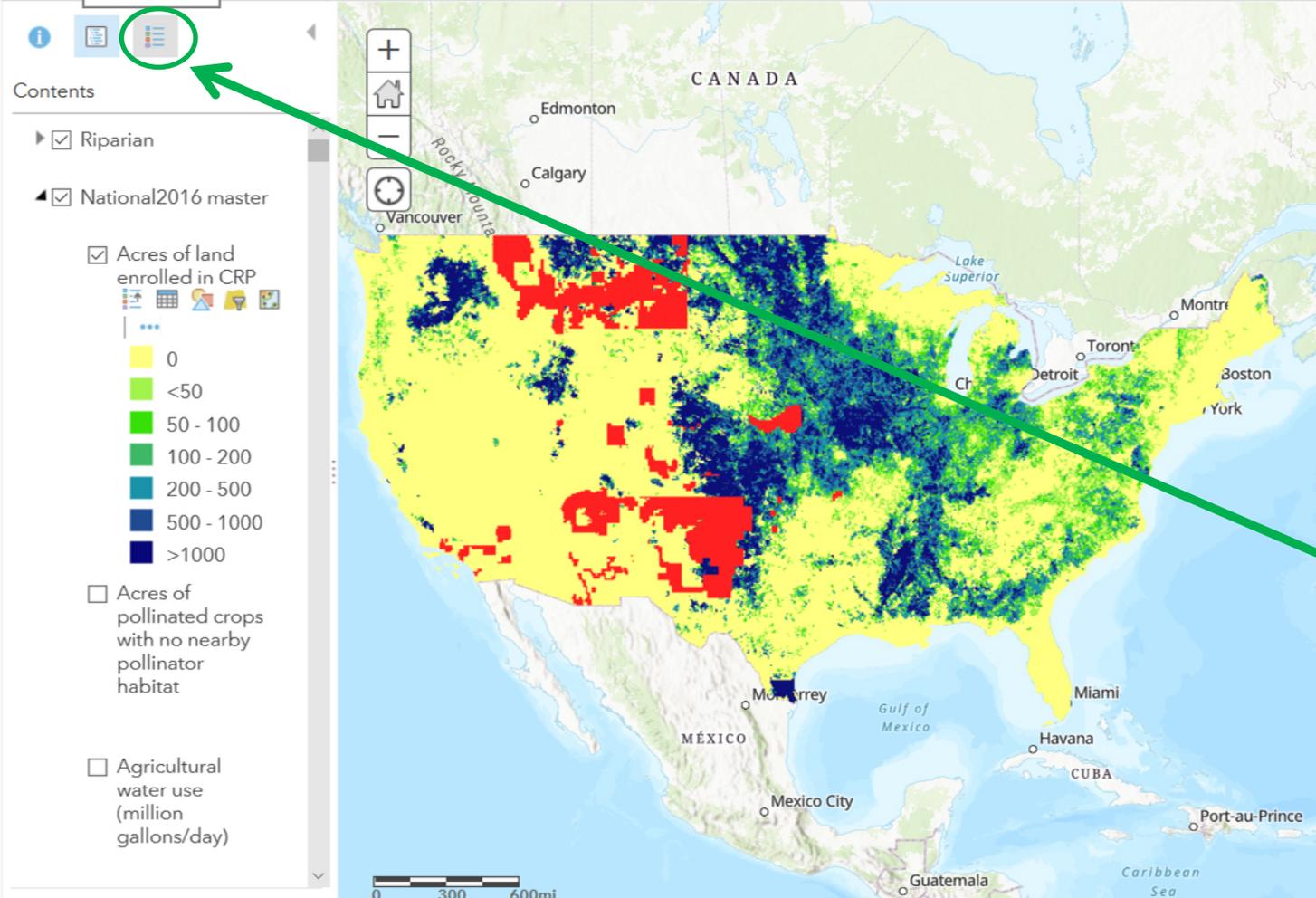
XMin: -1.3302787955400001E7
YMin: 3675659.403499998
XMax: -1.05058023078E7

For this example, we will use map services provided by the **U.S. Fish and Wildlife Service**

To add the Riparian layer to the EnviroAtlas map of Acres of land enrolled in CRP, **Copy the entire url address of the MapServer.**

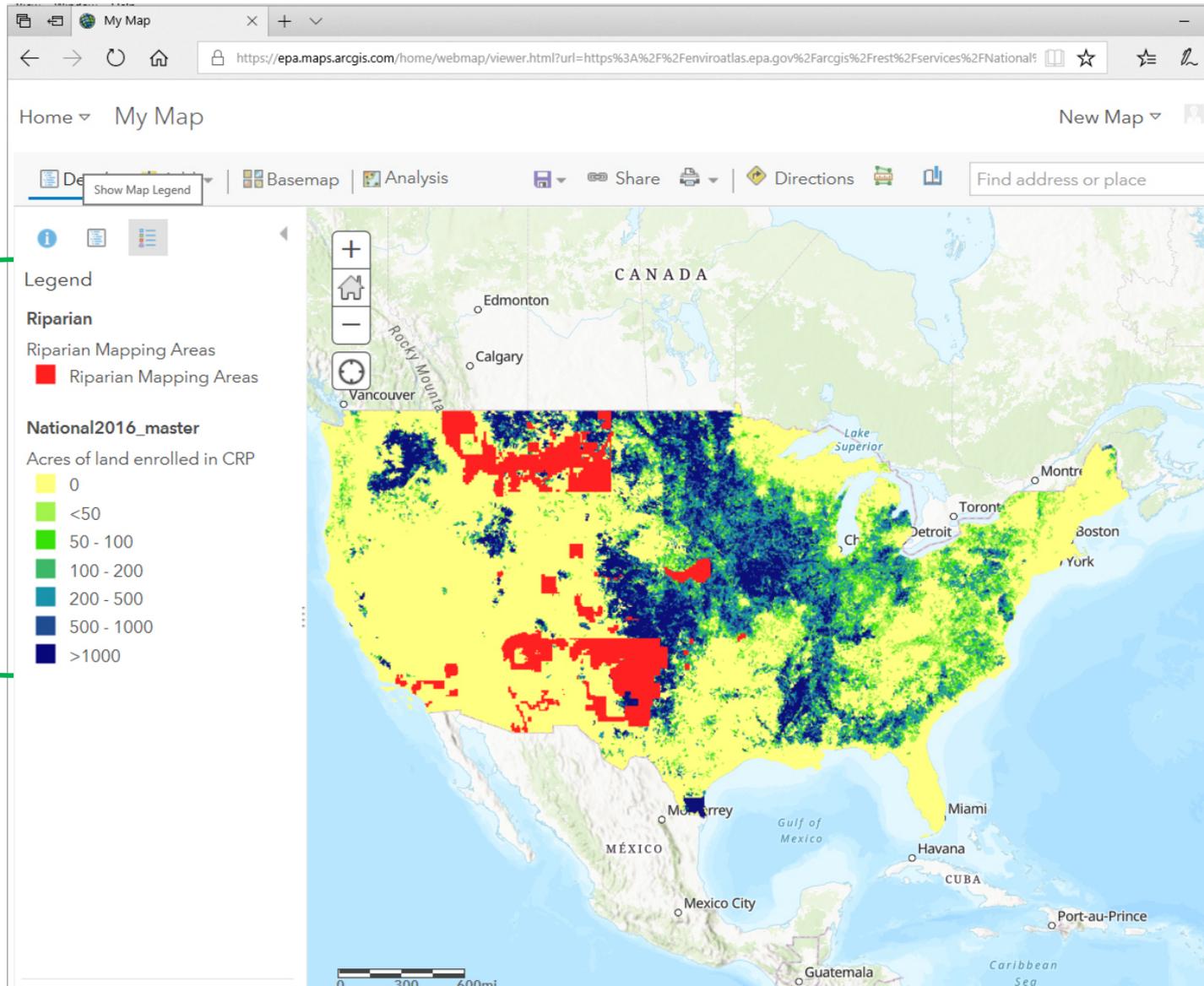


Paste the url for the Riparian MapServer into the "**Add Layer from Web**" box. Click **Add Layer**.



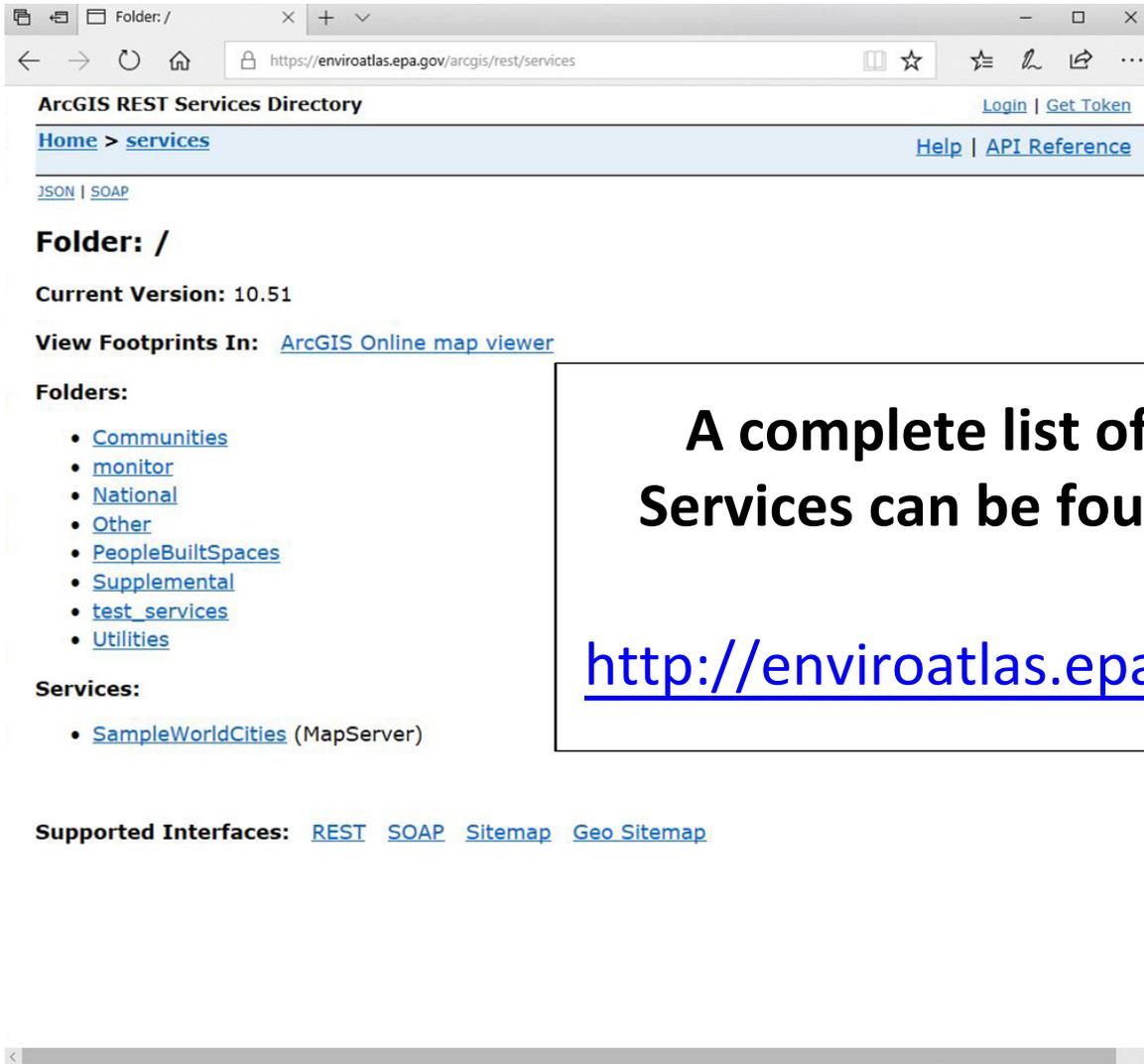
Once the layer has been added to the map, it will show up in the map table of contents.

To view the legend, click **Show Map Legend**.



The legend shows all the layers that are turned on from the various map servers.

For a desktop GIS, you would use a process similar to the one just shown.



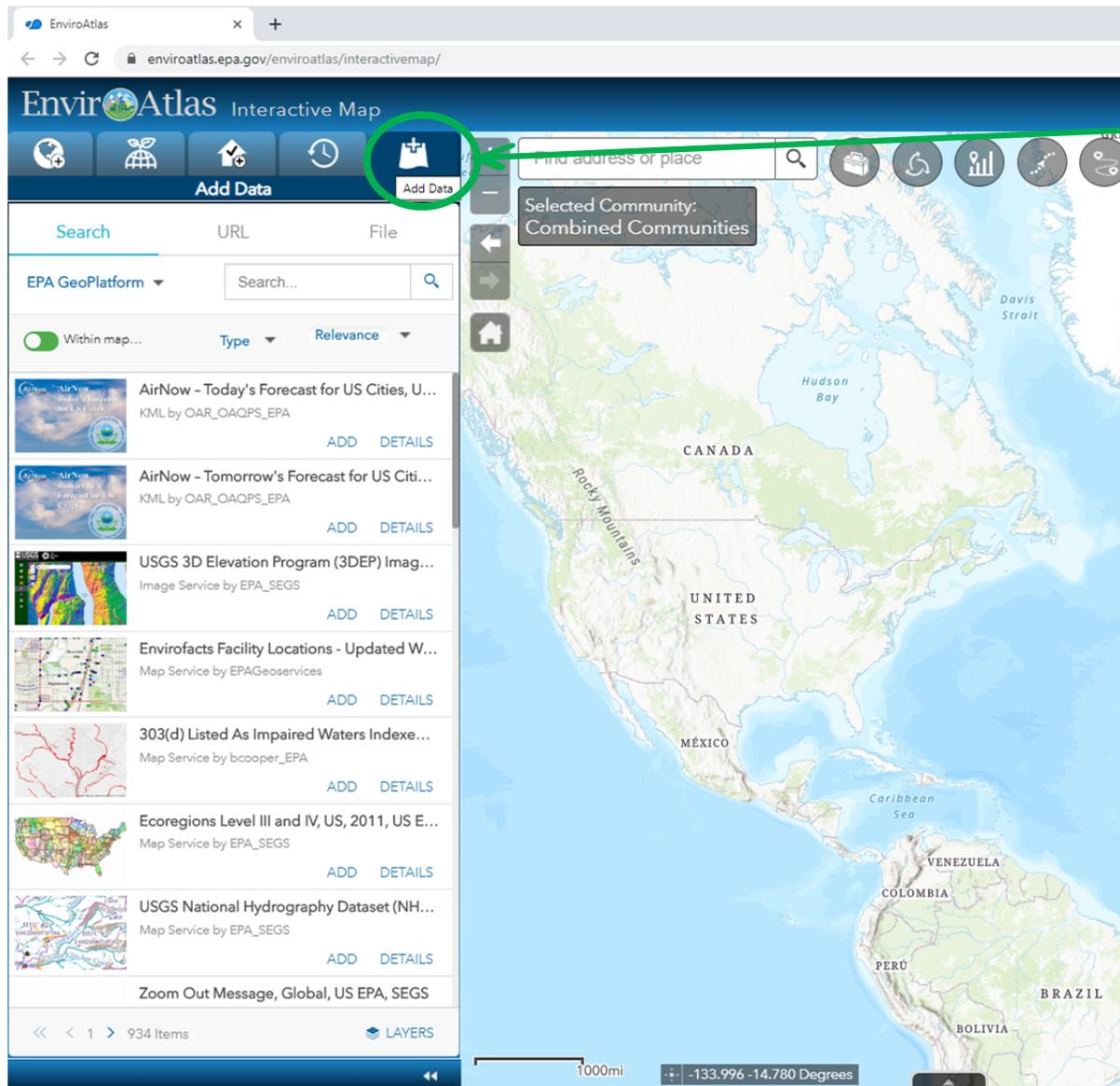
The screenshot shows a web browser window displaying the ArcGIS REST Services Directory. The address bar shows the URL <https://enviroatlas.epa.gov/arcgis/rest/services>. The page title is "ArcGIS REST Services Directory" and it includes links for "Login", "Get Token", "Home", "services", "Help", and "API Reference". The current version is 10.51. A list of folders is provided, including "Communities", "monitor", "National", "Other", "PeopleBuiltSpaces", "Supplemental", "test_services", and "Utilities". A single service, "SampleWorldCities (MapServer)", is listed under the "Services:" section. Supported interfaces include "REST", "SOAP", "Sitemap", and "Geo Sitemap".

A complete list of the EnviroAtlas Web Services can be found at the following url:

<http://enviroatlas.epa.gov/arcgis/rest/services>

Next we'll show how EnviroAtlas users can bring in external web services and use their own data in the EnviroAtlas Interactive Map.

First, open the EnviroAtlas Interactive Map: <https://enviroatlas.epa.gov/enviroatlas/interactivemap/>



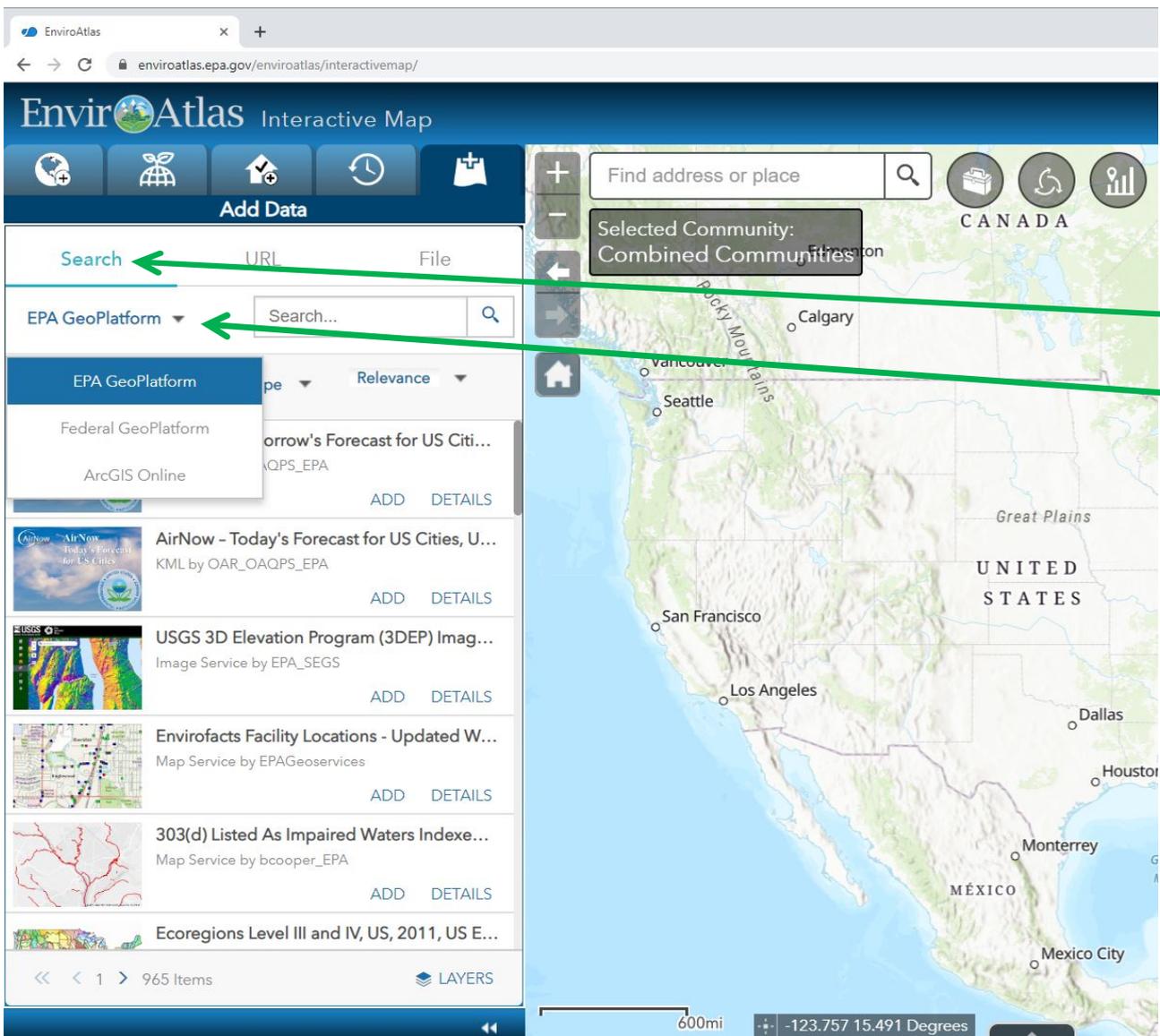
The **Add Data** function allows users to easily bring outside data into the EnviroAtlas mapping application.

Users can **search** for and **add** available web services, input a known **URL**, or **add** their own local data.

Note: Data added to the Interactive Map are available only for that map session and are not saved in EnviroAtlas.

To search for data and add data to the map:

1. Click the **Search** link
2. Click the **arrow** next to **EPA GeoPlatform** and select from the drop-down menu which platform you want to search
 - a. **EPA Geoplatform** -Content provided by EPA
 - b. **Federal GeoPlatform** - Content from the Federal Government
 - c. **ArcGIS online** - Largest, most content options



The screenshot shows the EnviroAtlas Interactive Map interface. The main map displays the United States with numerous green and yellow circular markers representing AirNow monitoring sites. The left sidebar contains an 'Add Data' tab with a search bar and a list of data layers. A green arrow points from the 'REMOVE' button in the list to the text on the right.

Search	URL	File
ArcGIS Online	airnow	
<input checked="" type="checkbox"/> Within map...	Type	Relevance
AirNow Monitoring Site Data (Latest hour ...)	Feature Service by OAR_OAQPS_EPA	ADD DETAILS
AirNow Monitoring Site Data (Latest hour ...)	Feature Service by OAR_OAQPS_EPA	ADD DETAILS
AirNow Monitoring Site Data (Latest hour ...)	Feature Service by OAR_OAQPS_EPA	ADD DETAILS
AirNow AQI Contours (Last 24 hours - Oz...)	Feature Service by HSACadmin	ADD DETAILS
AirNow - Tomorrow's Forecast for US Citi...	KML by OAR_OAQPS_EPA	ADD DETAILS
AirNow - Today's Forecast for US Cities, U...	KML by OAR_OAQPS_EPA	REMOVE DETAILS
AirNow Monitoring Site Data (Last 24 hou...)	Feature Service by OAR_OAQPS_EPA	ADD DETAILS
AirNow Monitoring Site Data (Last 24 hou...)	Feature Service by OAR_OAQPS_EPA	ADD DETAILS

In this example, the added AirNow dataset can be seen on the map.

If you no longer need a map, use the **Remove** option.

Adding web services from a URL (like the previous ArcGIS online example) and uploading your own local data are also available from the *Add Data* tab.