

# NGDA Dataset Report

**Official NGDA Title:** U.S. Geological Survey Gap Analysis Program Species Ranges

**Metadata Record Title:** U.S. Geological Survey Gap Analysis Program Species Ranges

**A-16 NGDA Theme:** Biota

## Executive NGDA Theme Champion(s):

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## Metadata:

**Registration Status:** Complete

**Registered on** 12/10/2014

**GeoPlatform Link\*:** <https://www.geoplatform.gov/node/243/dc9cd4ca-7061-4e7f-944e-c93277e99ad3>

**Data.gov Metadata Link\*:** <http://catalog.data.gov/harvest/object/3960de4d-608b-42de-9a65-934a5579f83d/html>

\*If the metadata has been updated and reharvested after publication of this report, the link may no longer be valid. The dataset may be searched for manually in Data.gov or GeoPlatform.gov.

# NGDA Lifecycle Maturity Assessment (LMA) Report

## Time Frame:

Baseline assessment responses include dataset activities from 2008 to 2015. GAP began its focus on developing national-level datasets in 2008.

## LMA Submission:

**Status:** Complete

**Date:** 10/22/2015

**Extension Requested:** Yes

## LMA Reviewer(s):

**Supervisor:** Sky Bristol

**Theme Lead:** Did not review

**Executive Champion:** Did not review

**SAOGI\*:** Did not review

**Other:** Did not review

## LMA Verifier:

**Name:** Sky Bristol

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## Attachments:

To get access to any attachments referenced in the report, email the LMA Help Desk at [NGDA\\_LMA\\_help@fgdc.gov](mailto:NGDA_LMA_help@fgdc.gov). Please use the subject "Dataset Report Attachment(s)" and indicate the associated official NGDA title.

\*Senior Agency Official for Geospatial Information (SAOGI)

## Lifecycle Maturity Assessment (LMA) Summary

### Overall Maturity:

**Managed; Predictable**

General Questions: 72%

**Mature; Consistent**

Stage 4 - Access: 75%

**Mature; Consistent**

Stage 1 - Define/Plan: 78%

**Mature; Consistent**

Stage 5 - Maintain: 28%

**Planned; Initial Development**

Stage 2 - Inventory/Evaluate: 100%

**Optimized; Established**

Stage 6 - Use/Evaluate: 77%

**Mature; Consistent**

Stage 3 - Obtain: 60%

**Managed; Predictable**

Stage 7 - Archive: 33%

**Transition; Transformation**

### NGDA Dataset Maturity Definitions:

How To Calculate Maturity: [https://www.geoplatform.gov/sites/default/files/How\\_to\\_Calculate\\_Maturity.pdf](https://www.geoplatform.gov/sites/default/files/How_to_Calculate_Maturity.pdf)

Maturity	Maturity Characteristics for All Lifecycle Stages
Optimized; Established Rank = 5	Dataset meets virtually all business needs of all users. The dataset is considered authoritative by owners and secondary users. It is curated across all stages of the approved lifecycle. Future needs are defined on a regular basis and resources for addressing both current and future business requirements are available.
Mature; Consistent Rank = 4	Dataset meets all the business needs of the primary owner and most of the secondary users. The dataset is curated and used as authoritative by the primary owner. Dataset is used widely by secondary users actively engaged in sustaining the dataset. Future needs are identified and steps are planned to address these. All stages are supported and reviewed on a recurring basis. The dataset is well managed in relation to the approved lifecycle.
Managed; Predictable Rank = 3	Dataset meets a significant number of the business needs of the primary owner and is widely used as an authoritative resource by secondary users. Benchmark activities are occurring in at least four of the approved lifecycle stages. Management practices in relation to the approved lifecycle is moderate but consistent. Dataset is integrating changing business requirements in lifecycle stages impacting overall maturity.
Transition; Transformation Rank = 2	Dataset meets business needs of the primary owner and has moderate use by secondary users. Benchmark activities are occurring in at least three stages. Efforts to integrate funding, include partners, and obtain data are not supported in a sustained manner. Management practices in relation to the stages of the approved lifecycle is limited.
Planned; Initial Development Rank = 1	Dataset limited in meeting business needs of the primary owner. Benchmark activities in the approved lifecycle are just starting to consider secondary uses, partnerships are forming to support additional dataset uses. Dataset development is in a very early stage. Minimal or limited management against the benchmarks in the approved lifecycle.
No Activity Rank = no activity	Dataset meets project or local business needs of the primary owner, secondary or additional uses or users were not considered, not recognized as an authoritative data or is part of a similar dataset. Not managed to any of the benchmarks in the approved lifecycle.

## General Questions for All Stages

1) Is there a recurring process to obtain funding for all lifecycle stages of this dataset?

**Answer:** Funding support exists but is not adequate to meet known requirements, most lifecycle stages are supported.

**Justification Comment:**

**Attachment(s):** 0

Funding for the development of the Gap Analysis Program (GAP) species ranges comes through the Core Science Systems Mission Area of USGS. This is one of four key datasets necessary for the gap analysis. Species ranges for all taxa being analyzed are nearly complete, but we are working on improving the maintenance, use (access), and archiving aspects of the lifecycle.

Currently the Core Science Analytics, Synthesis and Libraries (CSAS&L) program (under which GAP species range data development is located) is undertaking several program planning activities that will help CSAS&L more adequately meet the requirements of the Maintain, Use/Evaluate, and Archive stages. These planning activities will address known needs for a proper data repository solution, as well as the need for Data Management Plans that will address several of the required activities in the Maintain through Archive lifecycle stages.

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2) Is there a process in place to ensure that open government and transparency guidelines are followed in all lifecycle stages for this dataset?

**Answer:** Process established, significant portions of the documentation is complete.

**Justification Comment:**

**Attachment(s):** 0

The species ranges are being shared openly with the public through an online viewer, data downloads, and webservice (<http://gapanalysis.usgs.gov/species/viewer/>). We are in the process of changing the archiving of the completed species ranges which will require some modification of the access point for the data. The methods used to create the ranges are well documented (<http://gapanalysis.usgs.gov/wp-content/uploads/2013/09/GAPSpeciesRangemetadata.pdf>) in the metadata and species specific metadata will be implemented soon.

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3) Are there processes and tools in place so that staff are sufficiently knowledgeable to ensure a continuity of the dataset for all stages of the lifecycle, especially during staffing transitions?

**Answer:** Processes and tools to ensure dataset continuity are defined and beginning to be implemented.

**Justification Comment:**

**Attachment(s):** 0

The species ranges mapping effort has been a long-term effort with sufficient institutional to successfully weather several staffing transitions. The central database design and common spatial framework across models provides for continuity. We are now in the process of developing a more stable archive for the completed species ranges, which will further enhance continuity.

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## STAGE 1 - Define/Plan

4) Are user and business requirements defined and formalized?

**Answer:** A recurring process exists for gathering partners/ stakeholders requirements is in place and is in the beginning stages of implementation.

**Justification Comment:**

**Attachment(s):** 0

The Gap Analysis Program is a mature program with a highly focused stakeholder community. The requirements were defined by the conservation and academic community in the early stages with individual state and regional efforts. A 2008 program review recommended getting the national datasets and analysis should be the priority. Since that time we have focused on that task and species distribution models for the native terrestrial vertebrate species nearly complete. Upon

completion of the national analyses, additional analyses and required enhancements to species ranges will be defined by stakeholders.

5) How are partners/stakeholders involved in the requirements collection process?

**Answer:** A recurring process exists for gathering partners/ stakeholders requirements is in place and is in the beginning stages of implementation.

**Justification Comment:**

**Attachment(s):** 0

The Gap Analysis Program is a mature program with a highly focused stakeholder community. The requirements were defined by the conservation and academic community in the early stages with individual state and regional efforts. Those stakeholders defined the requirements through innovation and research and development. The state projects showed the limits of the technology and a series of annual meetings to showcase the methods the approaches being tested and successfully applied. Successes from the early projects were used to identify the most meaningful approaches for the regional and national effort. Upon completion of the national analyses, additional analyses and required enhancements to species ranges will be defined by stakeholders.

6) Is there a quality assurance process for the dataset?

**Answer:** Process established, significant portions of the documentation is complete.

**Justification Comment:**

**Attachment(s):** 0

Each species range is reviewed by two wildlife biologists before being made available to the public. The models are based on literature review and descriptions of habitat affinities by species. In the metadata, data constraints and appropriate uses of the data are summarized.

7) Is there a process to evaluate the sensitivity, privacy, and confidentiality of this dataset?

**Answer:** Sensitivity, privacy, and confidentiality evaluations fully implemented, reviewed and updated on a recurring basis.

**Justification Comment:**

**Attachment(s):** 0

The species ranges do not involve any sensitive data with respect to personal information.

There are individual animal species in the database for which over-harvest in the wild is an issue. In those cases the species ranges are not published online.

8) Are defined data standards used in collecting, processing, and/or rendering the data?

**Answer:** Standards being implemented.

**Justification Comment:**

**Attachment(s):** 0

The methods for the species distribution modeling (including developing species ranges) and the standards are described in the Gap Analysis Handbook from 2007 (this will be shared via email since it exceeds the upload limitations of this survey tool). That handbook was revised in 2007. While most of the process is the same, the move to a national extent means that handbook needs to be revised to reflect changes made to accommodate the new extent and changing technology. The species list used are based on the taxonomic authorities - Amphibians and Reptiles - Crother 2008 ([https://ssarherps.org/wp-content/uploads/2014/07/HC\\_37\\_6thEd.pdf](https://ssarherps.org/wp-content/uploads/2014/07/HC_37_6thEd.pdf)), Mammals - Wilson and Reeder 2005 (<http://vertebrates.si.edu/msw/mswCFApp/msw/index.cfm>) , Birds - American Ornithological Union's 2008 checklist (<http://www.aoucospubs.org/doi/pdf/10.1525/auk.2008.9708>) and linked to the Intergrated Taxonomic Information System codes.

## STAGE 2 - Inventory/Evaluate

9) Is there a process for determining if data necessary to meet requirements already exist from other sources (either within or outside the agency) before collecting or acquiring new data?

**Answer:** Process for determining appropriate data is being reused fully implemented, reviewed, and updated on a regular basis.

**Justification Comment:****Attachment(s):** 0

There are species ranges that have been developed by NatureServe and Birds of North America, and other sources at a course scale, but there is no other comprehensive and consistently developed source of national species ranges based on 12 digit hydrologic units. The consistency and scale are necessary to support a meaningful national gap analysis.

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**STAGE 3 - Obtain****10)** Is there a process for obtaining data in relation to this dataset?**Answer:** Process is being implemented.**Justification Comment:****Attachment(s):** 0

A database file for the individual species ranges is available for download from the National Gap Analysis program's website. The hydrologic dataset that the database file links to is also provided for download, with instructions for how to create the linkage between the database file and the geodatabase ([https://s3.amazonaws.com/GapFTP/Nat\\_Ranges\\_Ancillary/GAP\\_Species\\_Range\\_Tutorial.pdf](https://s3.amazonaws.com/GapFTP/Nat_Ranges_Ancillary/GAP_Species_Range_Tutorial.pdf)). With those data and the instructions a typical GIS technician can recreate a species range. There are performance issues with the species viewer that we are working to make the access to the data more direct, but all of the data are available for download.

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**11)** Is the metadata in a FGDC endorsed geospatial metadata standard?**Answer:** Metadata is available in a format endorsed by the FGDC but does not fully describe the information needed to make the dataset discoverable, accessible, and usable.**Justification Comment:****Attachment(s):** 0

The species ranges are described in a common FGDC Metadata record. We are working to embed species specific metadata in each species range dataset.  
<http://catalog.data.gov/dataset/u-s-geological-survey-gap-analysis-program-species-ranges03d09>

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**12)** How complete is the geographic coverage as defined in the requirements for the dataset?**Part 1 Answer:** Business requirement targets are being attained, cyclic updates being assessed.**Part 2 Answer:** Dataset presently about 75% complete per current requirement.**Justification Comment:****Attachment(s):** 0

Part 1 = Species ranges for the full U.S. including Alaska, Hawaii, Puerto Rico are near completion. Updates to the ranges will be evaluated based on the availability of new information (e.g. range shifts, high quality occurrence records).

Part 2 = Ranges for 86% (1485/1735) of the species for the nation have been completed. Native terrestrial birds (648) and reptiles (327) are complete. 50 of the 459 native terrestrial mammals and 200 of the 301 amphibians need to be modeled.

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**STAGE 4 - Access****13)** Do you have a process for providing users access to the data in an open digital machine readable format?**Answer:** Process is developed, documented, and beginning to be implemented.**Justification Comment:****Attachment(s):** 0

The ranges are being provided as webservice (<http://gapanalysis.usgs.gov/species/data/web-map-services/>). We are currently changing process for generating and serving webservice more openly accessible through Sciencebase.gov.

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## STAGE 5 - Maintain

14) Is there a maintenance process for updating and storing the dataset?

**Answer:** Dataset maintenance process is under development.

**Justification Comment:**

**Attachment(s):** 0

We are in the process of changing the maintenance process for the species distribution models. There had been a working workflow but changes in organizational structure are making updates to the process necessary.

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15) Is there an error correction process as part of dataset maintenance?

**Answer:** Error correction process under development.

**Justification Comment:**

**Attachment(s):** 0

Because the species ranges are still being developed the primary focus on errors is based on internal review. Some subsets of models have been formally reviewed by external partners – specifically the state biologists for the Western Governor’s Association. Those comments were compiled and evaluated by the modeling team. Where the proposed changes were well documented and consistent across the range of the species they were made. In the future the plan would be to compile comments from internal and external reviews and develop a reconciliation document explain which changes have been made, and if no change was made the logic behind that choice.

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## STAGE 6 - Use/Evaluate

16) Is there a process to determine if the dataset meets user needs?

**Answer:** Process is complete and being implemented on ad hoc basis.

**Justification Comment:**

**Attachment(s):** 0

The gap analysis program had a very specific focus and mandate, to assess the conservation status (representation) of terrestrial vertebrate species in the conservation network. In 2008 there was an independent programmatic review and the recommendations from that review were to complete the ranges based on the nationally consistent approach.

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17) Is there a process to provide users information on how to access and properly use the dataset?

**Answer:** Process is fully implemented supporting access and proper use, process is reviewed on a recurring basis.

**Justification Comment:**

**Attachment(s):** 0

On the National GAP Analysis program’s website there are multiple ways for the public to access the species ranges (through an interactive viewer, through download, or webservice). In the metadata there is a description about limitations of the data and appropriate uses of the data. We are working on changing the access point and soon the ranges will be hosted in ScienceBase.

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18) Are the business processes and management practices assessed to meet changing technology?

**Answer:** Assessment process implementation started for taking advantage of changing technology.

**Justification Comment:**

**Attachment(s):** 0

The National Gap Analysis Program’s website is well established and the data formats have been working well to date. When webservices became a standard way to share geospatial data those were created in addition to the more traditional gis formats. We are in the process of updating the data formats for the spatial models, getting the Wildlife Habitat Relationship Database formally published and made available on line, currently the information from the database is provided through species reports. We are also moving the models into the ScienceBase Catalog.

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## STAGE 7 - Archive

19) Is there an archiving process for the dataset?

**Answer:** Archival and/or disposition processes are in development.

**Justification Comment:****Attachment(s):** 0

The National Gap Analysis Program's website has been the central location for acquiring the data with access provided from USGS data servers in Denver. Currently we are in the process of moving the data and creating webservice through the ScienceBase catalog.

<<https://www.sciencebase.gov/about/content/about-sciencebase>>