Idaho Technology Authority (ITA)

ENTERPRISE STANDARDS – S4000 – INFORMATION AND DATA

Category: S4244 –Species Ranges Layer and Data Standard

CONTENTS:

I. DEFINITION

See ITA Guideline G105 (ITA Glossary of Terms) for definitions.

II. RATIONALE

A statewide Species Ranges layer and data standard, which is part of the Bioscience data theme is a critical source of information for Resource land management, research and analysis. Standardized Species Ranges data supports those groups by providing a single source of truth of species ranges in the state of Idaho.

III. APPROVED STANDARD(S)

See Attachment

IV. APPROVED PRODUCT(S)

Any GIS Software, either desktop or online, capable of ingesting and displaying Open Geospatial Consortium (OGC) Web Map Standard (WMS) services.

V. JUSTIFICATION

A statewide Species Ranges dataset is a critical source of information as stated under 'II Rationale' in this standard. A data exchange standard supports the use of the Species Ranges to facility a predictable format, improve collaboration and encourage use of this dataset.

VI. TECHNICAL AND IMPLEMENTATION CONSIDERATIONS

Any GIS Software, either desktop or online, capable of ingesting and displaying Open Geospatial Consortium (OGC) Web Map Standard (WMS) services.

VII. EMERGING TRENDS AND ARCHITECTURAL DIRECTIONS

Data will be shared in accordance with ITA Standard S4250 – Enterprise Geographic Information System (GIS) Data Sharing Standards.

VIII. PROCEDURE REFERENCE

The format, content and development of this standard adhere to ITA Policy P5030 - Framework Standards, ITA Standard S4250 - Data Sharing Standards and ITA Standard S4220 - Geospatial Metadata.

IX. REVIEW CYCLE

Reviews will occur at least annually.

X. CONTACT INFORMATION

For more information, contact the ITA Staff at (208) 605-4000.

REVISION HISTORY

05/15/2025 – Standard Presented to the IGC-EC

STATE OF IDAHO

Species Ranges Layer and Data Standard

Part of the Bioscience Theme

Version 1
Effective May 15, 2025

Developed by the Bioscience Technical Working Group

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CONTENTS

1. Introduction to the Species Ranges Data Exchange Standard

A statewide Species Ranges Standard is a critical source of information for Resource land management, research and analysis. This standard provides a single source of truth of species ranges in the State of Idaho. Many private sector and local, state, and federal government agencies have a business need for Species Ranges data.

A Species Ranges Standard is intended to facilitate integration and sharing of up-to-date Species Ranges data, and enhance the dissemination and use of Species Ranges information. This standard does not instruct on how Species Ranges databases are designed for internal use.

This standard was developed by the Bioscience Technical Working Group, a subgroup of the Idaho Geospatial Council – Executive Committee (IGC-EC). This standard will be reviewed on an annual basis and updated as needed.

1.1. **Mission and Goals of the Standard**

The Species Ranges Standard supports a statewide dataset that is consistent with applicable state and national standards. It establishes the minimum attributes and geospatial database schema for the Species Ranges Framework. The Standard will communicate with, and may have similar attributes to, other Idaho Framework data standards. It encourages all Idaho-based agencies with geospatial Species Ranges data to contribute to Species Ranges Framework.

The Species Ranges Framework will be appropriately shared and beneficial to all. The fields in the Species Ranges Data Exchange Standard will be general enough to incorporate basic information without requiring major changes in internal data models. This standard allows for expansion into a more complex data structure and schema.

1.2. **Relationship with Existing Standards**

This Species Ranges Exchange Standard relates to existing standards as follows: This dataset is a compilation of species ranges gathered from various sources. Many of these ranges were created by the Idaho Department of Fish and Game (IDFG) using methodologies similar to those employed in the Northwest Regional Gap Analysis Project (NW ReGAP) or the hydrologic boundaries (HUC5) observation effort. Species ranges provide a general representation of where a species might occur during its lifetime. It's important to distinguish these from species 'distribution models', which pinpoint potential habitat within the range.

1.3. **Description of the Standard**

This standard describes the vision and geospatial data structure of a Species Ranges Framework in the state of Idaho. This standard is devised to be:

- Simple, easy to understand, and logical
- Uniformly applicable, whenever possible
- Flexible and capable of accommodating future expansions
- Dynamic in terms of continuous review

1.4. **Applicability and Intended Uses**

This standard applies to the Species Ranges element of the Bioscience theme of Idaho Spatial Data Infrastructure also known as The Idaho Map (TIM).

When implemented this standard will enable access and exchange of data. A predictable standard will support data collaboration, improve data collaboration, help identify and report errors and allow agencies to incorporate this data into their own data products.

This standard does not consider data sharing agreements, contracts, transactions, privacy concerns, or any other issues relating to the acquisition and dissemination of Species Ranges data.

1.5. **Standard Development Process**

The Bioscience Technical Working Group is a voluntary group of private, city, county, tribal, state, and federal representatives. In 2025 the Species Ranges Lead began developing the standard for the Species Ranges Framework using the standard development to generate the first draft of the Standard. This standard was then reviewed and edited by the members of the Bioscience Technical Working Group.

After initial development the draft standard document was shared with the Idaho Geospatial Council (IGC) in accordance with the review and approval process described in ITA Policy P5030 - Framework Standards Development.

The standard was presented to the IGC-EC in May 2025.

1.6. **Maintenance of the Standard**

This standard will be revised as needed and in accordance with the ITA Policy (P5030) - Framework Standards Development.

2. Body of the Standard

2.1. Scope and Content

The scope of the Species Ranges Data Exchange Standard is to describe a statewide layer which identifies the physical locations and attributes of Species Ranges in Idaho.

2.2. Need

Species Ranges are a key dataset needed for Resource land management, research and analysis. This standard provides the foundation to aggregate Species Ranges data for centralized access and stewardship information.

Species Ranges data is needed because prior to the creation of this standard, there is no single source identified for species ranges in Idaho.

2.3. Participation in Standard Development

The development of the Species Ranges Data Exchange Standard adheres to the ITA Policy P5030 - Framework Standards Development. The Bioscience Standard Team tasked with developing this standard invite input and comments from private, county, state, and federal organizations. As the standard is reviewed in accordance with ITS Policy P5030 requirements, there will be an opportunity for broad participation and input by stakeholders in the development of this standard. The process will be equally broad for input on updates and enhancements to the standard. As with all Idaho Framework standards, public review and comments on the Species Ranges Data Exchange Standard is encouraged.

2.4. Integration with Other Standards

The Species Ranges Data Exchange Standard follows the same format as other Idaho geospatial framework data standards. The Species Ranges standard may contain some of the same attributes as other framework standards and may adopt the field name, definition, and domain from the other standards to promote consistency.

2.5. Technical and Operation Context

2.5.1. **Data Environment**

The data environment is a digital vector polygon with a specific, standardized set of attributes pertinent to the Species Ranges Framework. Species Ranges data shared under this standard must be in a format supporting vector polygons.

2.5.2. **Reference Systems**

The Species Ranges Framework will be published in the WGS 1984 Web Mercator coordinate system, which is the State of Idaho's single zone coordinate system. Data is not required to be submitted in the Idaho Transverse Mercator NAD83 (IDTM83) coordinate system but must have a defined coordinate system clearly described in the metadata.

2.5.3. **Global Positioning Systems (GPS)**

Some data provided might contain geometry from GPS methods, and the provided metadata should describe this, if applicable.

2.5.4. **Interdependence of Themes**

Species Ranges has geometry data that could be coincident with other framework data.

2.5.5. **Encoding**

When data is imported into and exported from the Species Ranges Framework, encoding will take place to convert data formats and attributes.

2.5.6. **Resolution**

No specific requirements for resolution are specified in this standard. Resolution will be documented in the metadata.

2.5.7. **Accuracy**

No specific requirements for accuracy are specified in this standard. Accuracy will be documented in the metadata.

2.5.8. **Edge Matching**

No edge matching is required between jurisdictions, or between this and other framework layers

2.5.9. **Unique Identifier**

The unique ID for this data is the TaxonID. This is the taxonomical id for a given species found in Idaho.

2.5.10. **Attributes**

Attributes for public and intergovernmental distribution are described in Section 3 of this standard.

2.5.11. **Stewardship**

Perpetual maintenance and other aspects of lifecycle management are essential to Species Ranges Framework. Details of stewards, their roles and responsibilities, and processes are set forth, or are planned to set forth in a Species Ranges Framework Stewardship Plan and related documents.

2.5.12. **Records Management and Archiving**

Idaho species range models compiled and/or created by the Idaho Department of Fish and Game, Idaho Fish and Wildlife Information System. Data pulled 18 December 2023; edits are ongoing as needed.

2.5.13. **Metadata**

The Species Ranges Framework metadata will describe the methods used to update and aggregate the individual Species Ranges data contributions, processes or crosswalks performed, definition of attributes, and other required information. This metadata will conform to the metadata standards as set out in ITA Standard S4220 - Geospatial Metadata.

3. Data Characteristics

3.1. **Minimum Graphic Data Elements**

The geometry of the features in Species Ranges Framework is vector polygon

3.2. **Optional Graphic Data Elements**

Not applicable.

3.3. **Standard Attribute Schema**

Field Name	Data Type	Length	Description	Examples
OBJECTID	ObjectID		Unique ID for the dataset.	1,5,8
TaxonID	Double		Numeric value for a single species.	19985
Common_Name	Text	100	Common name of species.	Long-toed Salamander
Scientific_Name	Text	255	Scientific name of species.	Ambystoma macrodactylum
Taxa_Order	Text	255	Taxonomical Order	Caudata
Category	Text	255	The category of the species.	Amphibian
Season	Text	255	The season that the species occupies the range.	Year-round
Data_Source	Text	255	Source from which species range is derived.	IDFG Biologists, Merge Huc5 w/ ReGap Range
Sqkm	Double		Square kilometers of species range.	122228.30591676
Shape.STArea()	Double		Native geometry area.	56936127580.159393
Shape.STLength()	Double		Native geometry length.	2508741.859893
Shape	Geometry		Polygon geometry	Polygon

3.4. **Data Quality**

Data quality considerations for Species Ranges include:

a) All Species Ranges should have Species Ranges IDs.

Appendix A: References

Idaho Technology Authority (ITA). *Information and Data Policy P5000, Category: P5030 Framework Standards Development Policy.* https://ita.idaho.gov/psg/P5030.pdf

Idaho Technology Authority (ITA). *Enterprise Standards S4000 Geographic Information Systems (GIS) Data, Category: S4220 Geospatial Metadata.* https://ita.idaho.gov/psg/S4220.pdf

Appendix B: Glossary

See ITA Guideline G105 - (ITA Glossary of Terms) for definitions.