THE BIODIVERSITY AND ECOSYSTEMS A-16 THEME: RESPON DING TO NEW GUIDANCE

OFWIM - October 9, 2019
Marcia McNiff/USGS
Biodiversity and Ecosystems Theme Lead
Topics

• Overview of A-16
  • Geospatial Data Portfolio Management
  • Themes and datasets

• Biodiversity and Ecosystem Theme
  • Background
  • The journey from Biota to Biodiversity and Ecosystems
  • Datasets

• New Legislative and Executive Directives
  • Geospatial Data Act
  • Evidence-Based Policymaking Act
  • Open Government Data Act
Acronym Alert!

• **A-16**
  - Refers to OMB Circular A-16
  - Provides guidance for federal agencies that create, maintain or use spatial data
  - Established the Federal Geographic Data Committee (FGDC) and the National Spatial Data Infrastructure (NSDI)

• **OMB**
  - Office of Management and Budget
  - The office within the White House which oversees the implementation of the president’s vision across the Executive Branch

• **NGDA**
  - National Geospatial Data Asset
  - Refers to datasets within A-16 themes
A-16 PORTFOLIO MANAGEMENT OVERVIEW
Portfolio Management Overview

• Portfolio management is:
  • Managing a group of investments or assets together as a collection – in this case, geospatial data assets
  • An interagency construct emerging from the Geospatial Line of Business project
  • Sanctioned by President’s budget language written by the Office of Management and Budget (OMB)

• Portfolio management supports:
  • A comprehensive understanding of available data
  • Increased information sharing
  • Better informed decision making
  • A basis for making sound investments
  • Greater benefits through better managed and documented National Geospatial Data Assets (NGDA)
## NGDA Themes

Federal Geospatial Data Portfolio (NGDA Portfolio)

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What are NGDA Themes?

• Themes are mid-level management units to support portfolio management
• Themes are logical groupings of related data assets
• Themes focus on the spatial representation of natural and manmade assets that are important to the Nation
• Themes are national in scope and are created and managed in response to well-defined spatial data requirements that are common across multiple Federal agencies
• Themes reflect legislated mandates, clearly defined directives, or core spatial reference datasets
• Themes promote cohesive and collaborative development, maintenance, and evolution of multiple related datasets across Federal, State, Tribal, and local governments
Datasets/NGDAs

• Themes are composed of individual datasets known as National Geospatial Data Assets (NGDA)

• A dataset can be a candidate to be an NGDA if it meets one or more of the following criteria:
  • Used by more than one program
  • Used by more than one Federal Agency
  • Used by multiple levels of government
  • Directly supports implementation of Administration Initiatives
  • Are legislatively mandated and/or required by Executive Order
NGDA Theme Leadership

• Theme Lead Agency
  • Leads coordination of an NGDA Theme
  • Works with partners to develop, manage, and maintain data sets associated with the Theme

• Two defined roles – two different people
  • Executive NGDA Theme Champion – provides high level support (SES level)
  • NGDA Theme Lead – provides interdepartmental leadership and coordination - the “master coordinator”

• The Theme Lead Agency is responsible for coordinating, not managing, the datasets within the NGDA Theme
NGDA Theme Lead Activities

- **Inventory** - Identify and evaluate datasets for inclusion in the NGDA Theme
- **Select** - Recommend datasets for inclusion under the theme
- **Manage** - Coordinate with Dataset Managers to help ensure that their datasets support relevant business processes and are produced in a cost effective manner. Coordinate with other NGDA Theme Leads
- **Evaluate/Monitor** - Develop annual NGDA Theme Report that captures plans, milestones, and progress. The reports will include scorecard on each NGDA Dataset within the NGDA Theme
- **Identify and facilitate interagency priorities** - Identify and recommend dataset development priorities to the FGDC Coordination Group then the FGDC Steering Committee
Dataset Manager Roles and Responsibilities

- NGDA Dataset Managers use the Geospatial Data Lifecycle to plan, develop, maintain, evolve, and archive the NGDA Dataset(s) for which they are responsible.
- NGDA Dataset Managers:
  - evaluate their NGDA Dataset(s) against the Geospatial Data Lifecycle stages
  - work with their agency leadership to develop means of tracking related financial information
  - assist with incorporation of funding information into a comprehensive annual NGDA Theme Report
  - will annually submit an NGDA Dataset Report to the relevant NGDA Theme Lead
Reports, Plans, and Assessments

- Portfolio Summary Report
- Annual NGDA Theme Report
- Theme Strategic Plan
- NGDA Theme Maturity Assessment
- Annual NGDA Dataset Report
- NGDA Lifecycle Maturity Assessment
What do we do with all this data?

• One of the goals of the A-16 portfolio management process is to make the data available to the public

• Each A-16 agency has their own internal processes for publishing metadata and data
  • Data.gov harvests metadata from individual agencies
  • GeoPlatform.gov provides access to spatial data
THE BIODIVERSITY AND ECOSYSTEMS THEME
Background and Leadership

Biodiversity and Ecosystems Theme

Definition

- Datasets in the Biodiversity and Ecosystems Theme pertain to, or describe, the dynamic processes, interactions, distributions, and relationships between and among organisms and their environments.

Theme Leadership

- Lead Agency: DOI/USGS
- Theme Lead: Marcia McNiff/USGS
- Executive Champion: Tod Dabolt/DOI
Community of Interest for the Theme

- Scientists, data managers and researchers from the Federal, state, public and academic sectors
- Conservation land managers and decision makers in federal and non-profit organizations
- The NGDA Biodiversity & Ecosystems Theme Community on the Geospatial Platform provides a forum to serve these stakeholders
# Biodiversity & Ecosystem Theme Datasets

<table>
<thead>
<tr>
<th>Dataset Name</th>
<th>Lead Agency</th>
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<tr>
<td>Bailey’s Ecoregions and Subregions Of The United States, Puerto Rico, And The U.S. Virgin Islands</td>
<td>USDA-USFS</td>
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<td>Environmental Sensitivity Index (ESI) Data</td>
<td>DOC-NOAA</td>
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<td>FWS Critical Habitat for Threatened and Endangered Species</td>
<td>DOI-USFWS</td>
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<td>Omernik's Level III Ecoregions Of The Conterminous United States</td>
<td>USEPA</td>
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<tr>
<td>USGS National Potential Ecosystems (formerly Terrestrial Ecosystems of the Conterminous United States)</td>
<td>DOI-USGS</td>
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</table>
In late 2015, a proposal to change the theme name from “Biota” to “Biodiversity and Ecosystems” was presented by Roger Sayre, PhD, a dataset manager and Senior Scientist at USGS.

- 3 of the 7 datasets are ecosystems datasets
- Better reflects the content of the theme
- Better consistency with precedents

Approved in June 2016 after a series of briefings showed consensus.
“Biota” to “Biodiversity and Ecosystems”

Biota – A16 definition

- Pertain to, or describes, the dynamic processes, interactions, distributions, and relationships between and among organisms, and their environments.

Wikipedia definitions of Biota and Ecosystems

Biota

- Biota are the total collection of organisms of a geographic region or a time period, from local geographic scales and instantaneous temporal scales all the way up to whole-planet and whole-timescale spatiotemporal scales. The biota, or biotic component of the Earth make up the biosphere.

Ecosystem

- An ecosystem is a community of living organisms called producers, consumers, and decomposers. These biotic and abiotic components are regarded as linked together through nutrient cycles and energy flows. As ecosystems are defined by the network of interactions among organisms, and between organisms and their environment, they can be of any size but usually encompass specific, limited spaces (although some scientists say that the entire planet is an ecosystem, which is probably true).
Datasets in the B&E Theme
B&E Datasets – Bailey’s Ecoregions

Full name: Bailey's Ecoregions And Subregions Of The United States, Puerto Rico, And The U.S. Virgin Islands – Direct Download

- Agency lead: USDA - USFS
- Dataset manager: David Rugg
- Shows ecosystems of regional extent in the United States, Puerto Rico, and the U.S. Virgin Islands
  - Four levels of detail are included to show a hierarchy of ecosystems
- Dataset is static – no further updates planned
- USFS now hosting the dataset, which was previously hosted by USGS’ National Map
  - Working with FGDC staff and contractors to update metadata and links to host location
B&E Datasets - ESI

Full name: Environmental Sensitivity Index (ESI) Data Viewer and REST Services for Atlases

- Agency lead: Commerce - NOAA
- Dataset manager: Jill Petersen
- ESI data characterize the marine and coastal environments and wildlife based on sensitivity to spilled oil
  - Three main components: shoreline habitats, sensitive biological resources, and human-use resources
- Dataset Manager has recently made the request to retire this dataset from the list of NGDAs.
  - Formal request currently in the works
B&E Datasets - Critical Habitat

Full name: FWS Critical Habitat for Threatened and Endangered Species Dataset
- Agency lead: Interior - USFWS
- Dataset manager: TBD (formerly John Swords)
- Critical habitat is a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection
  - For species proposed for listing as endangered or threatened under the Endangered Species Act
- Online mapper available
  http://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77
Full name: Omernik's Level III Ecoregions Of The Conterminous United States

- **Agency lead:** USEPA
- **Dataset manager:** Randy Comeleo
- **Ecoregions** denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources. They are designed to serve as a spatial framework for the research, assessment, management, and monitoring of ecosystems and ecosystem components.
  - The approach used to compile this map is based on the premise that ecological regions can be identified through the analysis of patterns of biotic and abiotic phenomena, including geology, physiography, vegetation, climate, soils, land use, wildlife, and hydrology.
- **Dataset is static** – no further updates planned.
B&E Datasets – Potential Ecosystems

Full name: USGS National Potential Ecosystems
Former name: Terrestrial Ecosystems of the Conterminous United States

- Agency lead: Interior - USGS
- Dataset manager: Roger Sayre
- The U.S. Geological Survey (USGS), with support from NatureServe, has modeled the potential distribution of 419 terrestrial ecosystems for the conterminous United States
  - Uses a comprehensive biophysical stratification approach that identifies distinct biophysical environments and associates them with known vegetation distributions
- Note: name changed to more accurately reflect that the dataset is of potential distribution of ecosystems
B&E Datasets – GAP Species Datasets

There are two GAP Species related datasets in the Biota Theme:

**Full name:** U.S. Geological Survey - Gap Analysis Project Species Habitat Maps CONUS_2001

**Former name:** U.S. Geological Survey Gap Analysis Program Species Distribution Models

- GAP distribution models represent the areas where species are predicted to occur based on habitat associations.
- The spatial arrangement of environments suitable for occupation by a species.

**Full name:** U.S. Geological Survey - Gap Analysis Project Species Range Maps CONUS_2001

**Former name:** U.S. Geological Survey Gap Analysis Program Species Ranges

- GAP species range data show a coarse representation of the total areal extent of a species or the geographic limits within which a species can be found (Morrison and Hall 2002).

- Agency lead: Interior - USGS
- Dataset manager: Julie Prior-Magee
Full name: GAP LANDFIRE National Terrestrial Ecosystems

- Includes detailed vegetation and land cover patterns for the continental United States.
- Incorporates the Ecological System classification system developed by NatureServe to represent natural and semi-natural vegetation.
- The 584 unique classes in the data set can be displayed at three levels of detail, from general (8 classes) to most detailed.
- The data set can be used to identify those places in the country with sufficient habitat to support wildlife, a key step in developing sound conservation plans.

- Agency lead: Interior - USGS
- Dataset manager: Julie Prior-Magee
- Map viewer available at: https://maps.usgs.gov/terrestrial-ecosystems-2011/
NEW LEGISLATIVE AND EXECUTIVE DIRECTIVES
Legislative and Executive Directives

H.R 302 (P.L. 115-254)
Our Hundred Fourteenth Congress of the United States of America
At the Second Session
Begun and held at the City of Washington, on Monday the Second of December, one thousand fifteen, and of the Independence of the United States of America the Two hundred and Thirteenth.

FAA Reauthorization Act of 2018
Subtitle F: Geospatial Data Act of 2018

H.R 4174 (P.L. 115-435)
Our Hundred Fourteenth Congress of the United States of America
At the Second Session
Begun and held at the City of Washington, on Monday the Second of December, one thousand fifteen, and of the Independence of the United States of America the Two hundred and Thirteenth.

Foundations for Evidence-Based Policymaking Act of 2018
Title I: Federal, Evidence-Building Activities
Title II: Open Government Data Act
Title III: Confidential Information Protection and Statistical Efficiency

OMB Circular A-16
Revision Pending Oct 2019

President’s Management Agenda
March 2018
Pending – Oct 2019

Federal Data Strategy
Action Plan 2019-2020

Year-1 Pending – Oct 2019
Geospatial Data Act (GDA) of 2018

• Geospatial data is managed as a strategic asset, openly shared, and usable

• Calls for:
  • Lead agencies for national data themes
  • Adoption of open standards for interoperable sharing
  • Online mechanism to share and discover content
  • Serving national data assets for discovery, access, and use

• Puts a regulatory framework on work already being done
Geospatial Data Act (GDA) of 2018

Circular A-16: How agencies implement GDA
- OMB revising to meet GDA requirement of providing guidance to agencies on GDA
- Recommendations developed by cross-agency core team
- Recommended text parallels GDA sections
- Sent to OMB in July
- OMB internally vetting and preparing draft
- Projected 2-week agency review: October

Geospatial Data Act
- Federal Geographic Data Committee
- National Geospatial Advisory Committee
- National Spatial Data Infrastructure
- National Geospatial Data Asset Data Themes
- FGDC Office of the Secretariat
- Geospatial Data Standards
- GeoPlatform
- Covered Agency Responsibilities
- Limitation on Use of Federal Funds
- Savings Provision (impact existing laws)
- Private Sector (use as practical)
Foundations for Evidence-Based Policymaking Act of 2018

**Title I**: Agency evidence-building plans to address policy, data needs, methods, research; **consult with stakeholders**; designate Evaluation Officer (plan lead); designate a statistical official – serves on Interagency Council on Statistical Policy; Federal – Advisory Committee on Data for Evidence Building (**data sharing, linkage**); privacy enhancing techniques; build staff skills; GAO Report on agency findings after 2 years

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**Title I: Federal, Evidence-Building Activities**

**Title II: Open Government Data Act**

**Title III: Confidential Information Protection and Statistical Efficiency**
Foundations for Evidence-Based Policymaking Act of 2018

Title II: Federal agencies make data open by default, open format, machine readable; Strategic information resources management plan; Open data plans; establish priority data assets; report annual usage; public input; all data assets inventory; metadata; tools/schemas repository; security/PII considerations; Federal data catalog; Chief Data Officers; OMB Chief Data Officer Council; GAO Reports; Congressional reports

Title III: Information protection; available statistical information; consult stakeholders; secure access control; any guidance from OMB in 1 year; replaces parts of “Confidential Information Protection and Statistical Efficiency Act of 2002”
Conceptual Diagram

- Presidents Management Agenda (PMA)
- Federal Data Strategy (FDS) M-19-18
- Federal Data Strategy Action Plan FY2019-20
  - FGDC Actions: NSDI Strategic Plan, Geo Enable Gov., Data Services/GeoPlatform, Standards Inventory
- Playbook on Data Governance
- M-19-23: Phase 1 Implementation FEBPA

- Geospatial Data Act (GDA)
- OBM Circular A-16 Revised
- Evidence Act (FEBPA)
  - Open Gov. Data Act
  - Confidential Info Protection Act
These all show a trend….

- The importance of data and of openly sharing it
  - Effectively managing
  - Openly sharing
  - Applying it to effective decision making
- Portfolio management fits right in…
  - Managing a group of investments or assets together as a collection
  - A comprehensive understanding of available data
  - Increased information sharing
  - Better informed decision making
  - A basis for making sound investments
  - Greater benefits through better managed and documented National Geospatial Data Assets (NGDA)
Thanks and Contact Info

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703-648-4078

Search for data at www.data.gov and www.geoplatform.gov

Many thanks to my FGDC co-workers for information and materials - Especially Lorna Schmid and Ken Shaffer

Thanks also to Pat Cummens of ESRI, who gave a great talk at the 2019 ESRI Fed conference about the 3 acts that became bills