Priority Content Management and Delivery Needs within the National Soil Information System

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State Soil Scientist Meeting, Florence, KY

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Content Management and Delivery

Been there. Done that. What's the big deal?

Priority needs

- Narrative soil survey manuscript information
- Photographs, block diagrams, and other graphics
- Open-file reports

Timeline

- October 2007 – team identified; start weekly teleconferences
- December 2-4 – team meeting at NSSC
- March 13, 2008 – draft requirements document submitted to SBAAG
- March 25-27 – SBAAG meeting
- Post SBAAG – National Leadership, State Soil Scientist, NCSS cooperator review

Thinking Points

- Streamline business processes and increase efficiency
- Enhance quality and usability
- Enable effective and efficient customer-centric delivery
- Add value
- Priorities

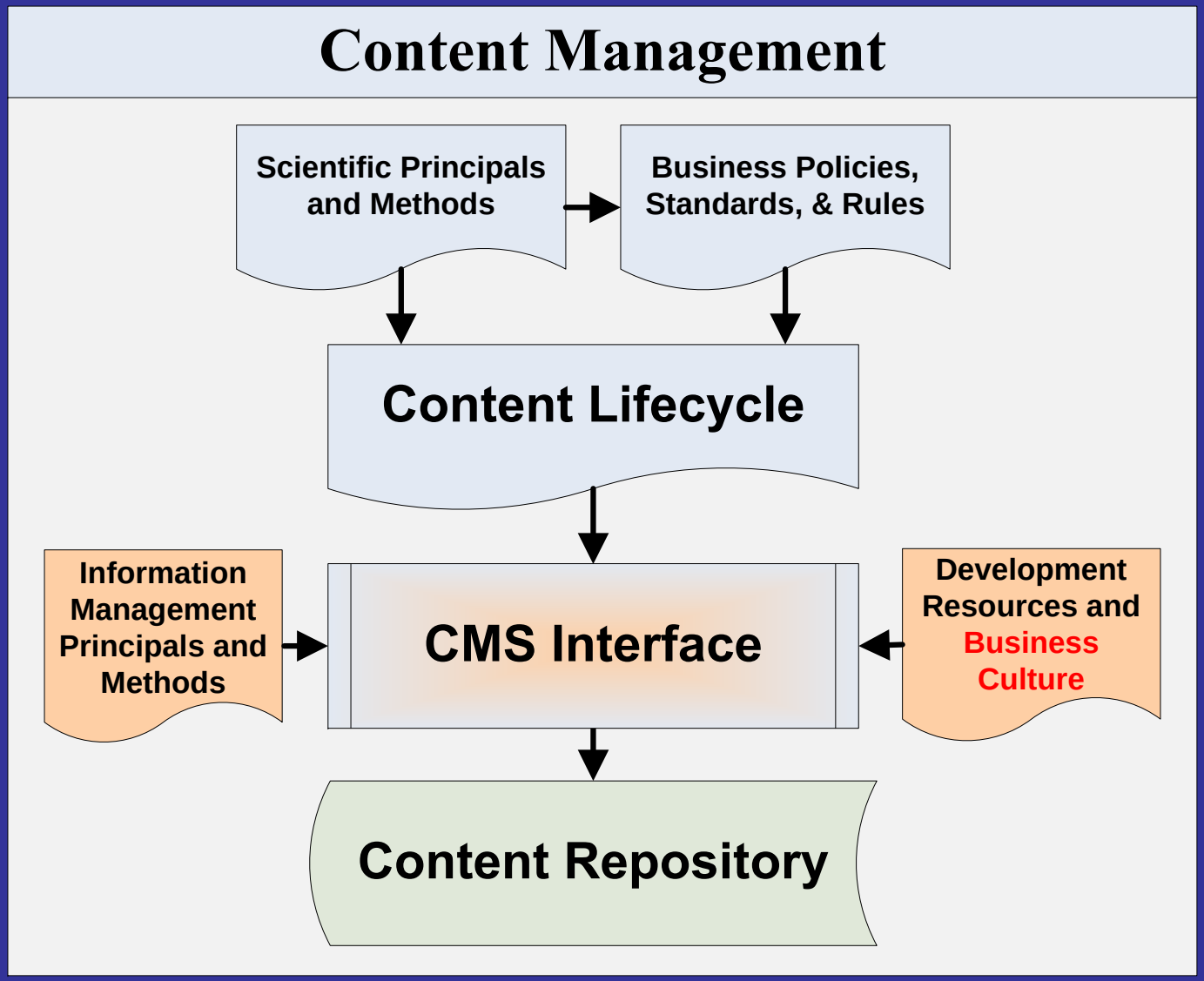
Content Management

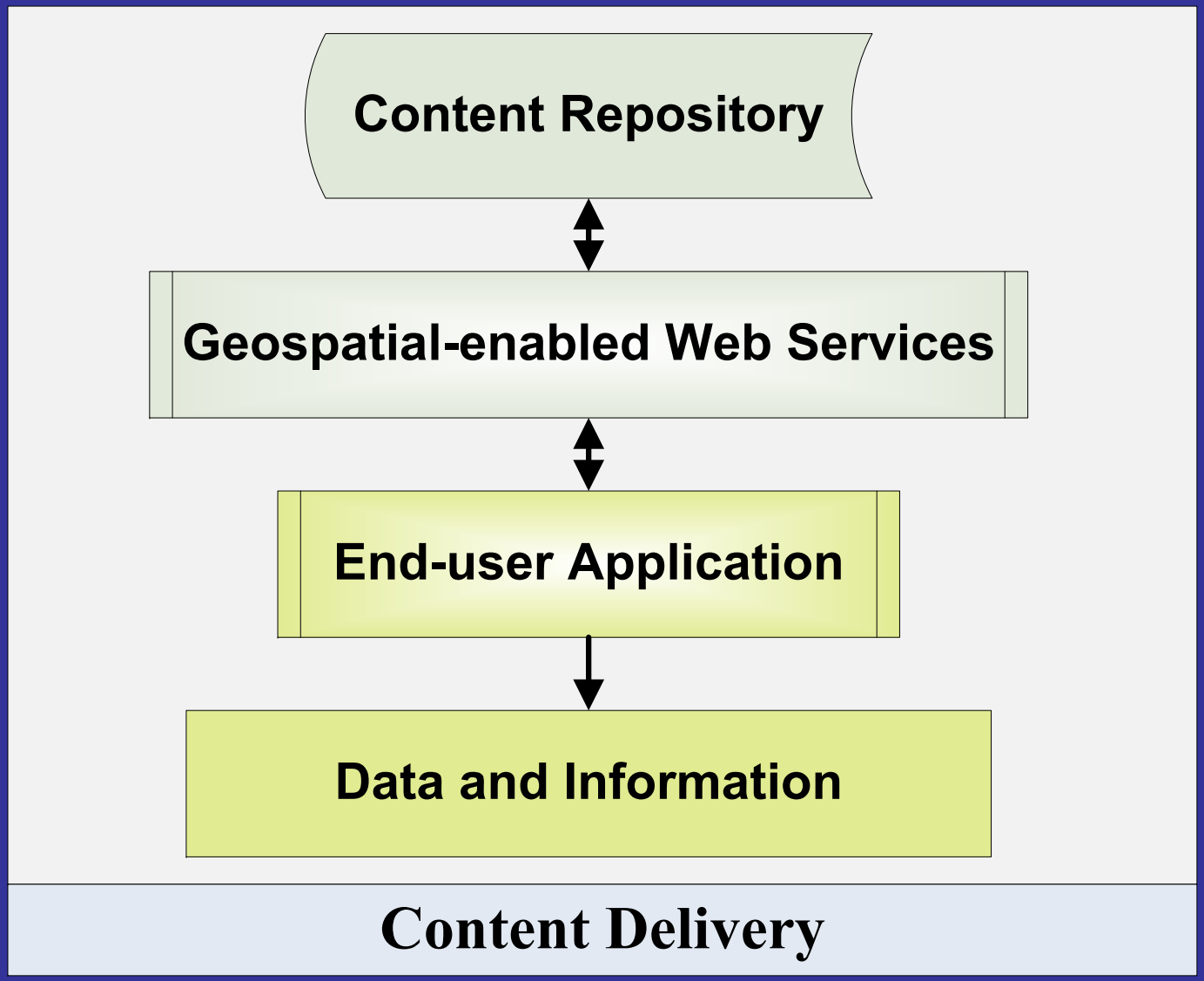
There are two fundamental elements to content management: (1) storing stuff in a *content repository*, and (2) supporting the *workflow* of a group of people engaged in putting stuff into that repository. (Software Engineering for Internet Applications by Eve Andersson, Philip Greenspun, and Andrew Grumet. February 2005.)

Content Delivery

- Content created and stored with no particular audience in mind
- Content delivered based on
  - Customer-centric
  - context, audience, and format
  - Area and content of interest
- Manage and store content; deliver information
  - Value-added

Content Management




Content Repository
Geospatial-enabled Web Services
End-user Application
Data and Information
Content Delivery

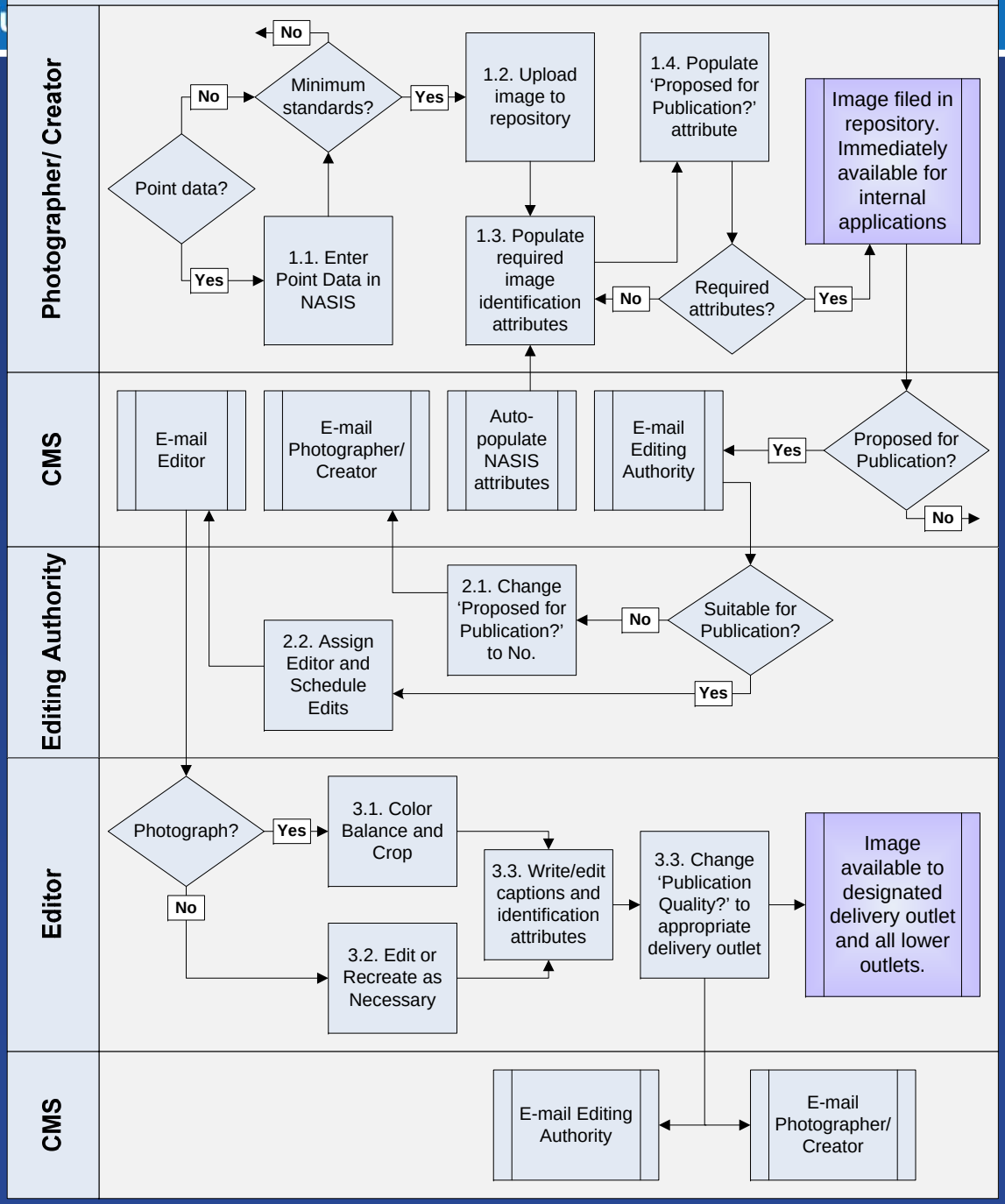
Draft Requirements Statement

- Proposed policies, standards, and business rules
- Draft workflow, and process steps
- Draft requirements for the content management systems
- Draft requirements for delivery systems

Proposed Policies, Standards, and Business Rules

- Manuscript text is official soil survey information. It is developed and managed in NASIS and published to the SDW/SDM
- All manuscript text published to the SDW/SDM undergoes a formal, rigorous review and certification process

Figure 8. Second level process steps for submitting and publishing images.



Categories of Content

Web Pages	NSSH	Soils Homepage	Hyperlinked, HTML documents

Categories of Content

Documents	**Open-file reports; soil survey manuscripts**	**Single- or multi-purpose, public Web-based application**	**Complete, stand-alone documents, delivered as-is**
Web Pages	**NSSH**	**Soils Homepage**	**Hyperlinked HTML Web Pages**

Open-file reports

"…maps, technical reports, special studies, and other materials that are provided for the general public and are compiled by Soil Survey Division staff. They are informal publications that have undergone internal technical review and will not vary in quality, accuracy, or precision from standards applied to similar texts destined for formal publication. They may be cited in other publications as sources of information." (NCSS Open-file Reports Committee final report)

Open-file reports & Soil survey manuscripts

- Complete, stand-alone documents
- Delivered as-is
  - What you see is what you get
- Both can probably be managed within the same content management system
  - Technical review, English edit, approval process

Open-file reports & Soil survey manuscripts

- SSD does not have an any open-file reports repository or delivery system
- SSD does not have a suitable soil survey manuscript repository or delivery system

Open-file reports & Soil survey manuscripts

- Probably can be published to the same repository
- May want to deliver via separate, single-purpose, Web-based applications

Open-file reports vs. Soil survey manuscripts

- File size of soil survey manuscripts, particularly scanned historical manuscripts, can be huge

All Documents

- Single content management system and repository for all documents
- Single- or multi-purpose delivery applications as deemed necessary
  - Including the Soils homepage

Categories of Content

Spatial & Attribute Data	**Official Soil Survey Data & Information**	**WSS**	**Transformed & Assembled for Context, Purpose and Audience**
Documents	Open-file reports; soil survey manuscripts	Single- or multi-purpose, public Web-based application	Complete, stand-alone documents, delivered as-is
Web Pages	NSSH	Soils Homepage	Hyperlinked HTML Web Pages

Soil Survey Manuscripts

Content Management System(s)

Manage and publish related spatial data & tabular data, including reusable narrative text & images (photographs, block diagrams, & other grahics)

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SDM

All data published to SDM

Soil Survey Manuscripts

Content Management System(s)

Manage and publish related spatial data & tabular data, including reusable narrative text & images (photographs, block diagrams, & other grahics)

SDM

All data published to SDM

WSS/SDM Report

Assembles and formats standard (default) information

Narrative Text	Tables	Photographs & Graphics	Maps (soil & interpretive)	Metadata

Soil Survey Manuscripts

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Manage and publish related spatial data & tabular data, including reusable narrative text & images (photographs, block diagrams, & other grahics)

SDM

All data published to SDM

WSS/SDM Report

Assembles and formats standard (default) information

Narrative Text	Tables	Photographs & Graphics	Maps (soil & interpretive)	Metadata

Digital Soil Survey Manuscript

Soil Survey Manuscripts

Content Management System(s)

Manage and publish related spatial data & tabular data, including reusable narrative text & images (photographs, block diagrams, & other grahics)

SDM

All data published to SDM

WSS/SDM Report

Assembles and formats standard (default) information

Narrative Text	Tables	Photographs & Graphics	Maps (soil & interpretive)	Metadata

Downloadable Soil Survey Manuscript

"The rain in Spain stays mainly on the plain"

- Customer's area of interest is on the plain but in Portugal
  - Different SSA
  - Requires an almost identical statement for each SSA

"The rain in Spain stays mainly on the plain"

- Customer's area of interest is on the mountain in Spain
  - Same SSA but not interested in the plain
  - If text is linked to the SSA, the customer gets it regardless

"The rain in Spain stays mainly on the plain"

- How can the statement be written to be equally applicable to both Spain and Portugal?
- How can the statement be written and associated and delivered with the plain but not with the mountain?

Modular, Reusable Writing

- Non-linear, non-hierarchical, non-sequential
- Chunk information based on content, not on context
- Link and cross-reference to related content

Modular, Reusable Writing

- Multiple or recurring use
- Chunks assembled at output based on audience, purpose, and spatial extent
  - Customer-centric delivery

Challenges

- Develop context neutral manuscript text
- Associate the text with the appropriate spatial extent

Simple text

- NASIS currently supports simple text
  - Equal spaced font
  - No text formatting
  - Nearly impossible to include columns and tables

Word Documents

- We could modify NASIS to store a Word document
- But, we can not effectively and efficiently deliver Word documents
  - Proprietary format that would require a reader or conversion
  - Can not easily reassemble with other content

XML text

- Extensible markup language
- Embedded tags that define structure and text formatting
- Supports tables and columns
- Facilitates the sharing of structured data across different information systems, particularly via the Internet

XML text

- We could modify NASIS to store a XML text
- Would all soil scientists have to learn XML scripting?

Business Requirement

- Ability to author and format manuscript content in an easy to use interface
  - Allow new text to be typed into the database
  - Provide a user interface similar to familiar tools, such as MS Word, with comprehensive formatting capabilities
  - Provide a formatted view of the content

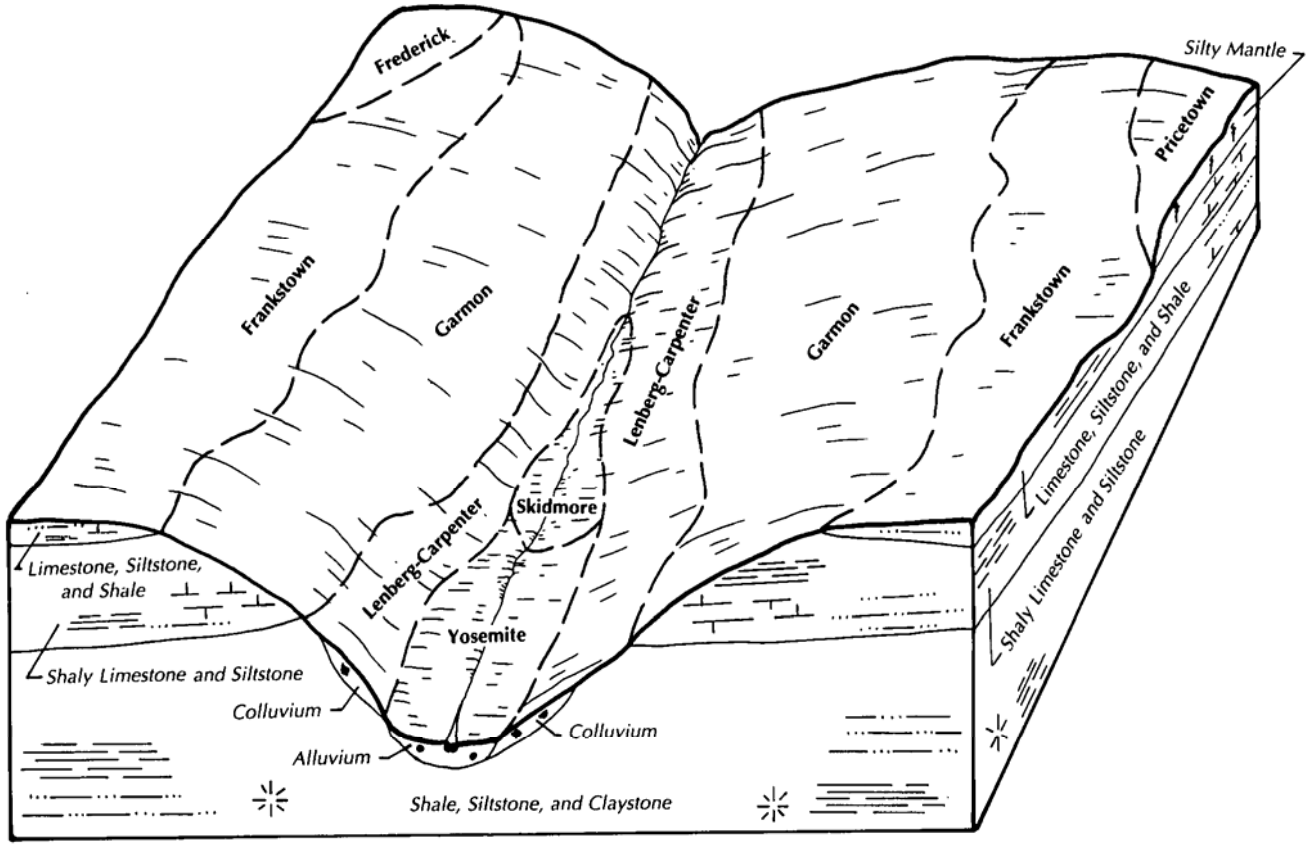
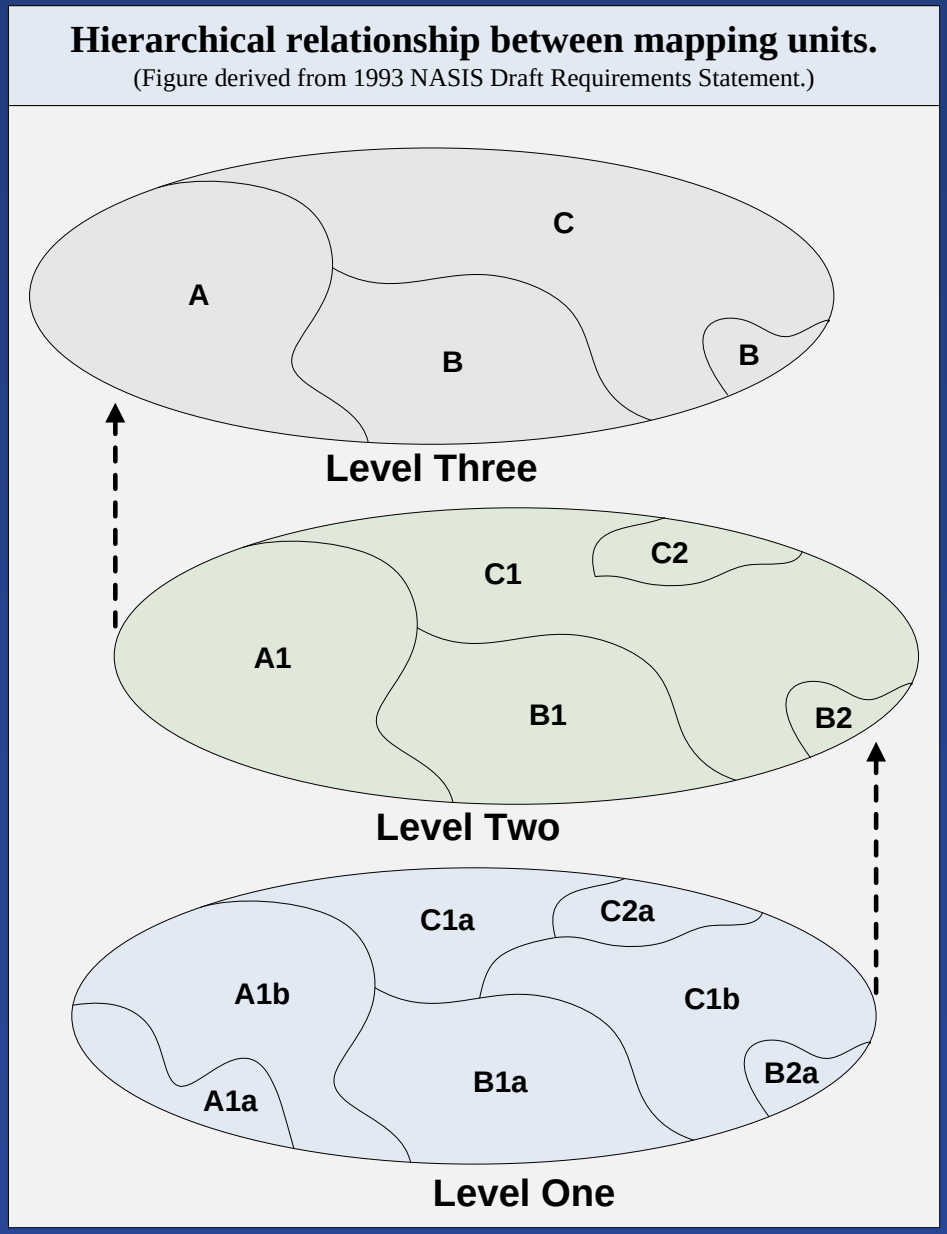
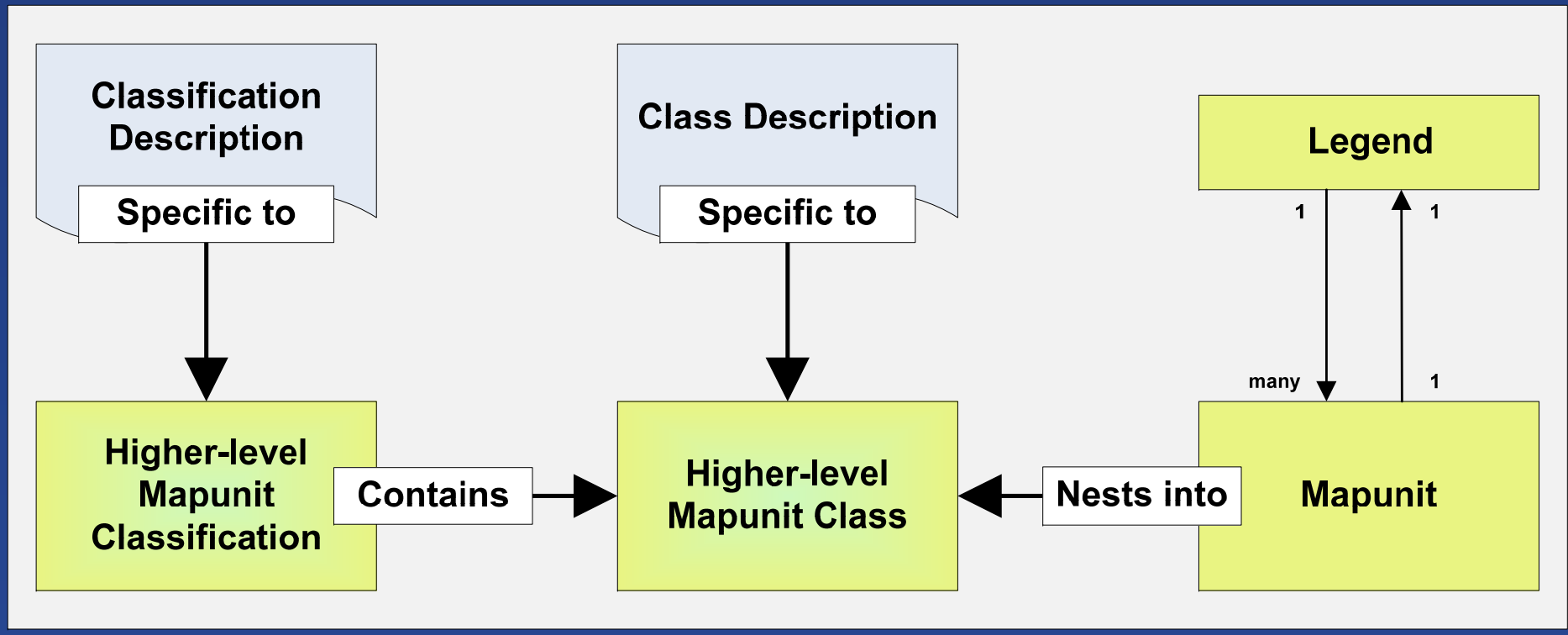


Figure 9.—Typical pattern of soils and underlying material in the Garmon-Frankstown general soil map unit.

Hierarchical relationship between mapping units.
(Figure derived from 1993 NASIS Draft Requirements Statement.)

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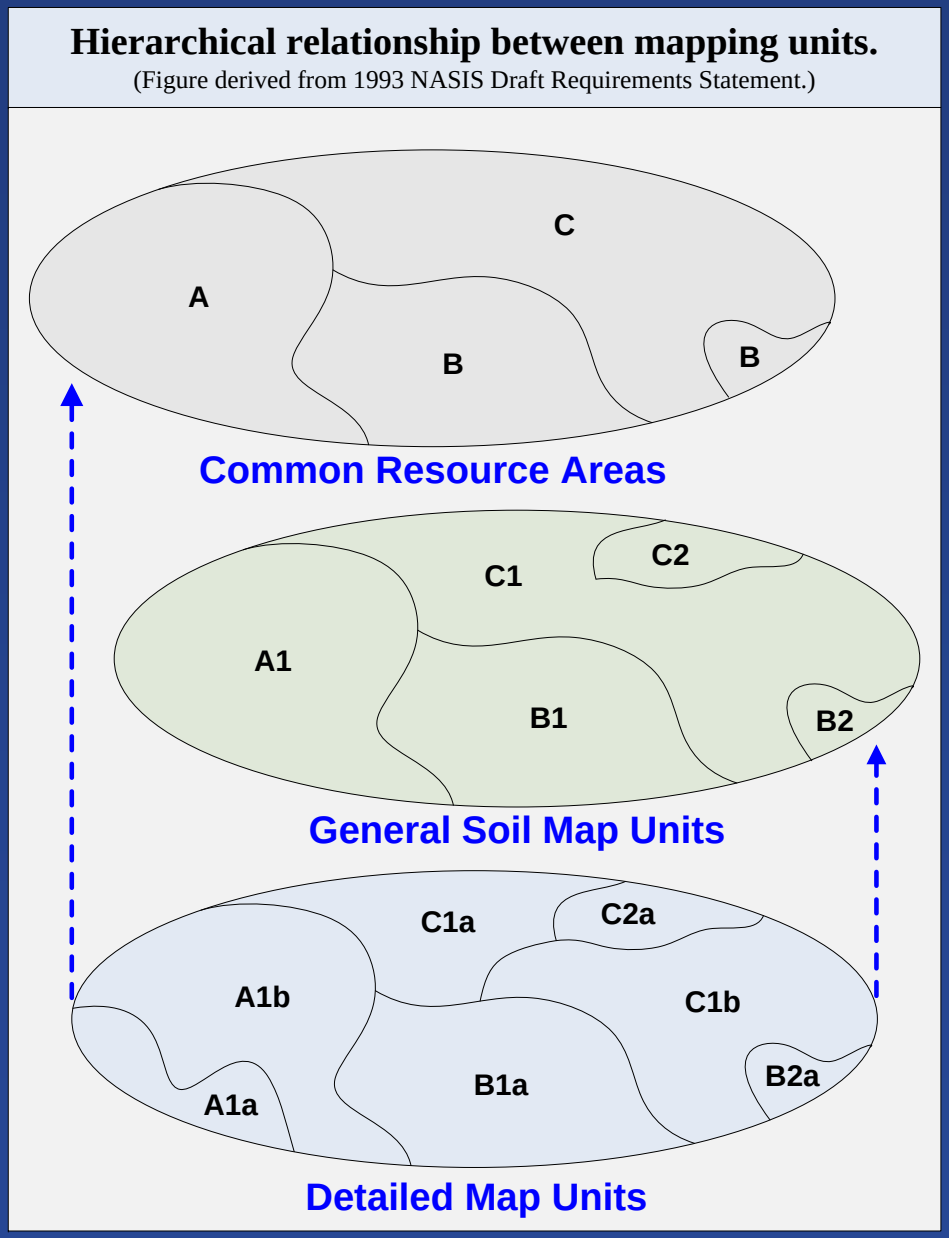
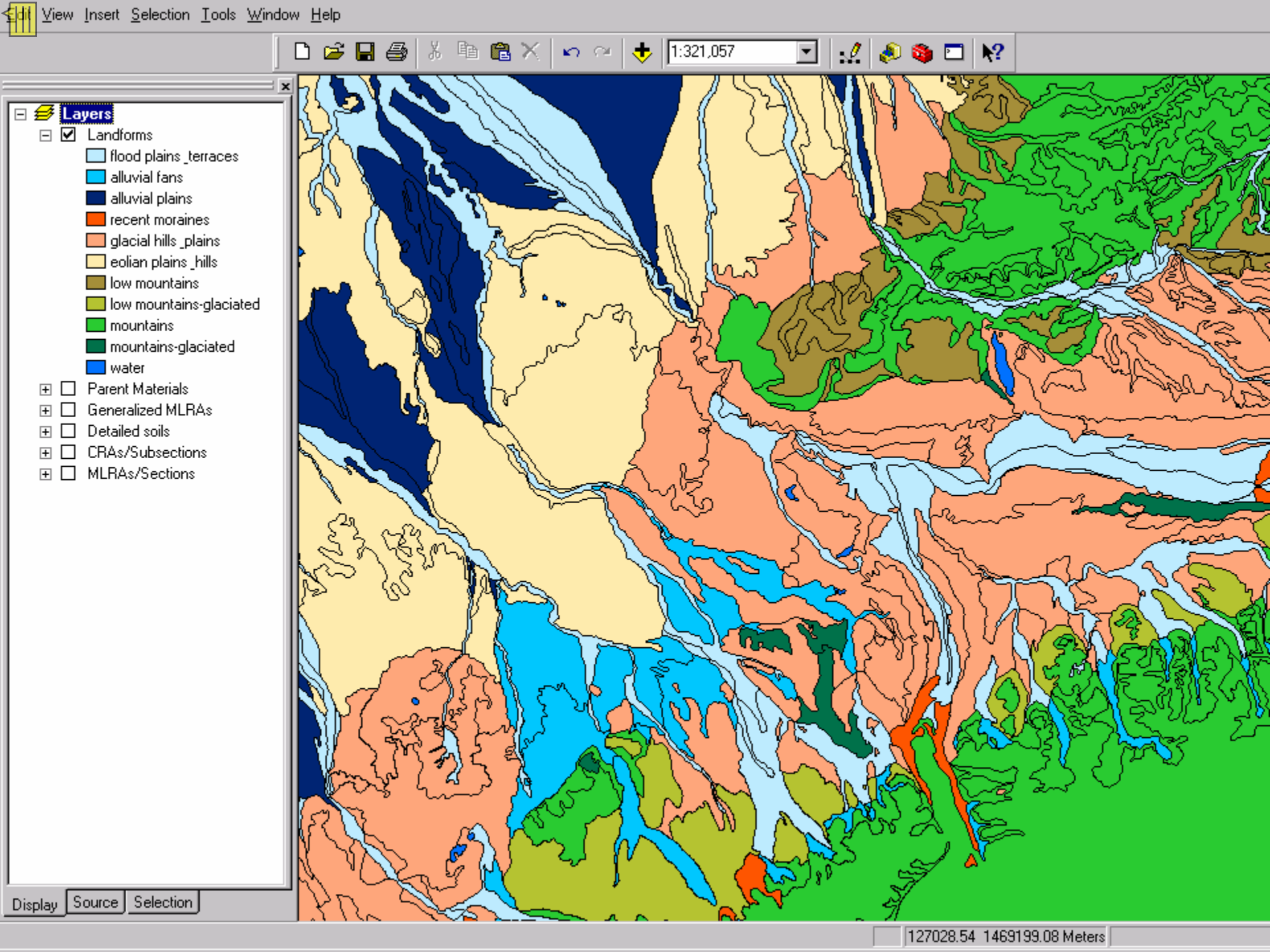
Hierarchical relationship between mapping units.
(Figure derived from 1993 NASIS Draft Requirements Statement.)

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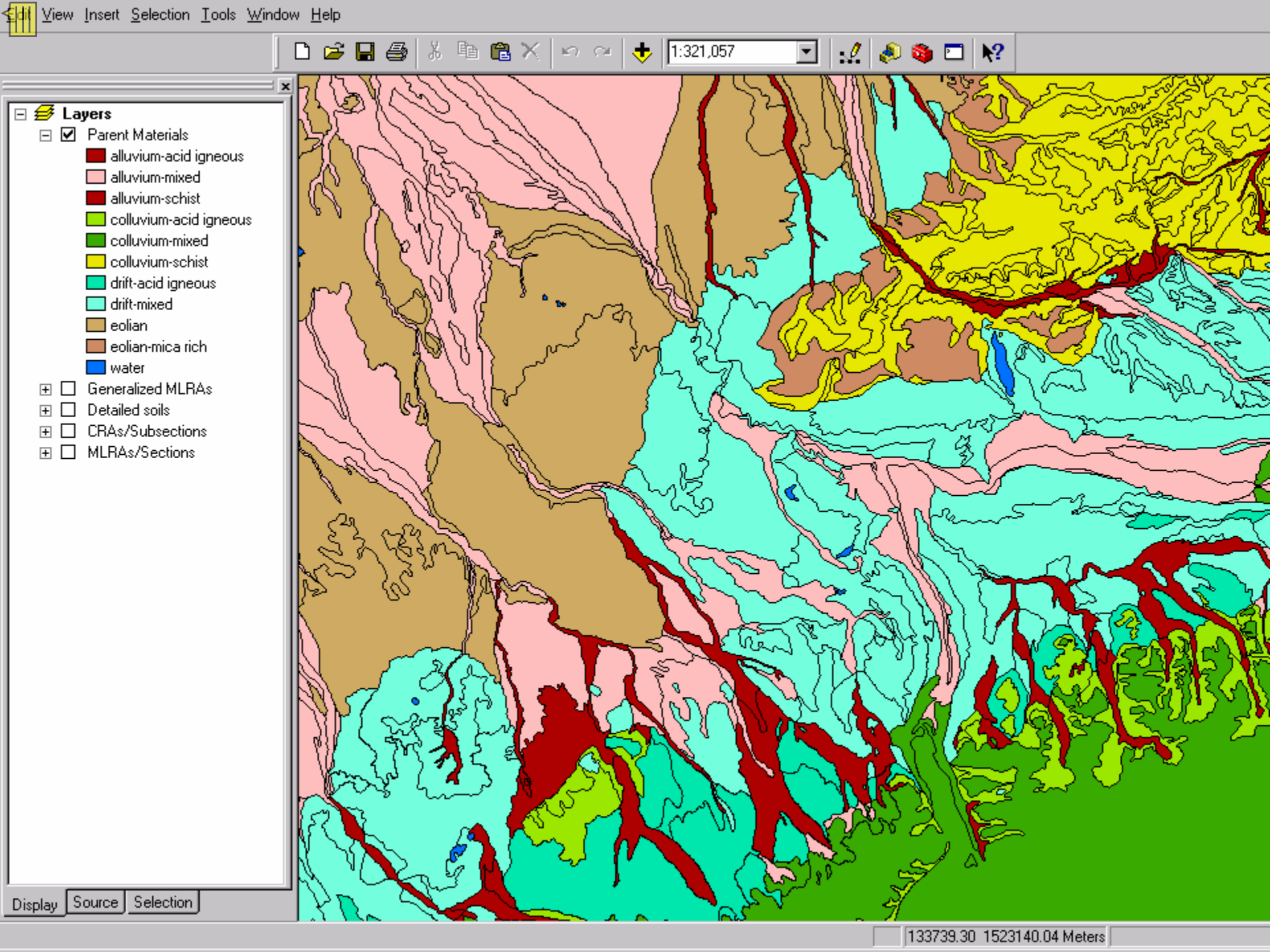
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Layers
Parent Materials
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alluvium-mixed
alluvium-schist
colluvium-acid igneous
colluvium-mixed
colluvium-schist
drift-acid igneous
drift-mixed
eolian
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water
Generalized MLRAs
Detailed soils
CRAs/Subsections
MLRAs/Sections
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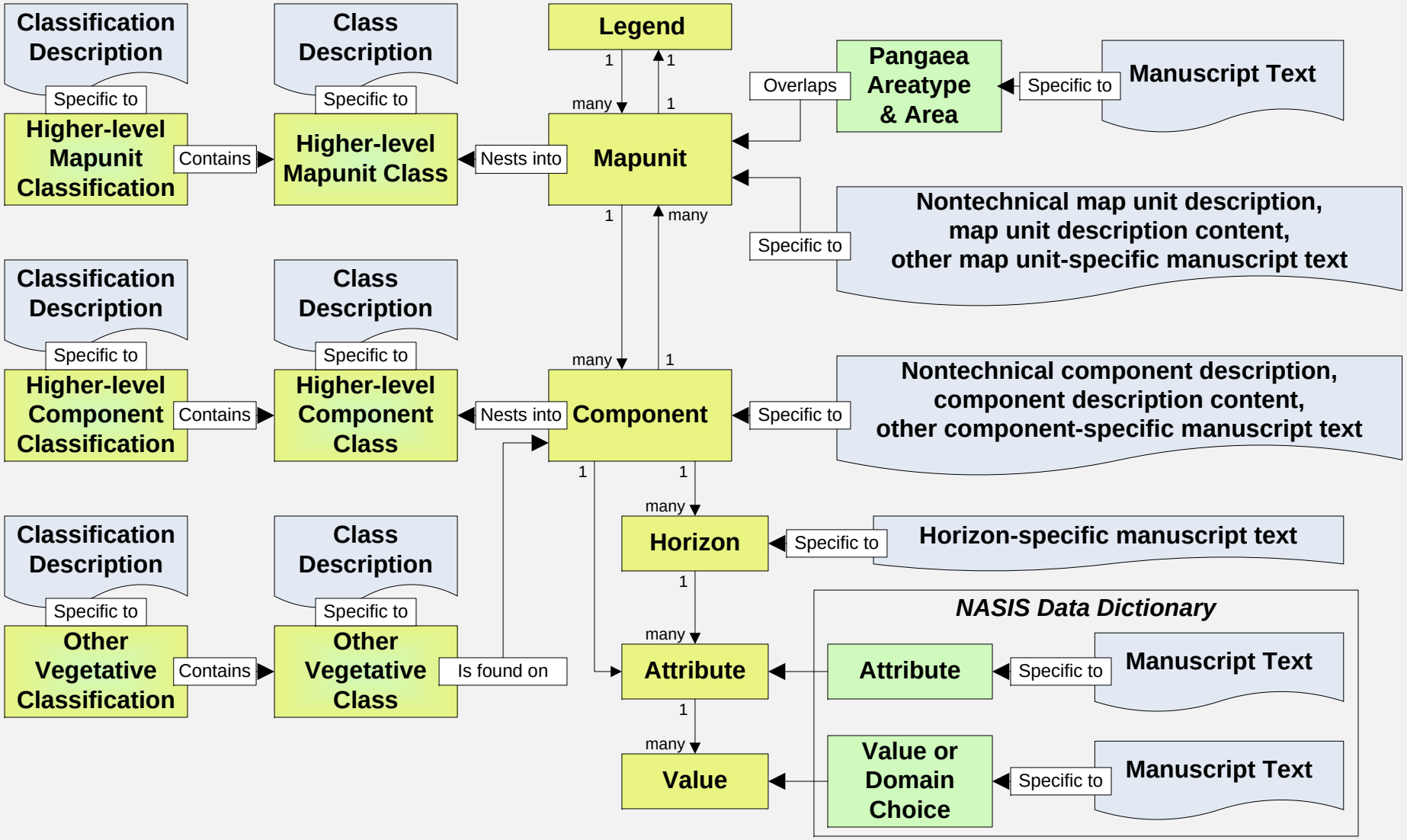
Draft business model for managing manuscript text within the NASIS database model.



Categories of Content

Images	**Photographs, Block diagrams**	**WSS, Image Gallery**	**Depends on outlet and purpose**
Spatial & Attribute Data	Official Soil Survey Data & Information	WSS	Transformed & Assembled for Context, Purpose and Audience
Documents	Open-file reports; soil survey manuscripts	Single- or multi-purpose, public Web-based application	Complete, stand-alone documents, delivered as-is

Images

- Photographs
  - Digital
  - Scanned slides and prints
- Block diagrams and profile diagrams
  - Artwork
  - Computer-generated
- Charts and graphs
- Not text

SSD does not have a management system or repository for images

- NSSC has a photo library; most states and many MOs have photo galleries
- MO-10 example
  - Only one with more than just photographs
- All with limited metadata and limited or no search capabilities
- None that allow delivery via WSS

Multiple outlets for images

- WSS
- Download via Image Gallery
- Provide to Federal partners as project deliverables
- Download with SSURGO data from SDM

Complexities

- Many photographs are point data
  - Georeferenced with lat-long coordinates
  - Comprehensive metadata for point data in NASIS point data structure; what about the others
- Other photographs and graphics are not point data

Complexities

- Multiple types of images
  - Photographs
  - Annotated photographs
  - Various types of graphics
- Subject matter is highly variable
- Potentially thousands of images to manage

Complexities

- Must be able to deliver via multiple outlets
  - WSS
  - Downloadable images from photo gallery
  - Point data photographs
    - Analysis value in AnalysisPC
    - Deliverable item along with pedon descriptions to NPS

Complexities

- Quality standards and review and approval process may vary depending on outlet
  - WSS: only the best
  - Photo Gallery: everything, multiple resolutions

PLANTS Image Gallery

- Currently 40,000+ images
- Supports copyrighted images
- Sophisticated multi-categorical search capabilities
- Comprehensive metadata
- Published guidelines for submitting images

Image Gallery

The PLANTS Gallery emphasizes photos and line drawings of U.S. plants but also contains many cultivated or foreign taxa.

1. Enter Search Criteria:

Select by name, Symbol, or Family:

Scientific Name

Wildcards are permitted.

Select by Category:

All
Dicot
Fern
Green alga

Select by Duration:

All
Annual
Biennial
Perennial

Select by Growth Habits:

All
Forb/herb
Graminoid
Lichenous

Native Status:

Any Status
Native to PLANTS Floristic Area
--North America Native
--L48 Native

Select by Wetland Status:

All

Select by State and Province Distribution:

All
U.S. States
--Alabama
--Alaska
--Arizona
--Arkansas

Select by Artist:

All
Acevedo-Rodriguez, Pedro
Alexander, Patrick J.
Allain, Larry
Always, Clayton
Anderson, Edward F.
Anderson, Jennifer
Anderson, M. Kat
Arkansas Natural Heritage Commission

Select by Copyright Status:

All

Select by Image Type:

All

PLANTS Profile

Juglans nigra L.
black walnut

Symbol:	JUNI
Group:	Dicot
Family:	Juglandaceae
Duration:	Perennial
Growth Habit:	Tree
Native Status:	L48 N CAN N

Click on the image below to enlarge it and download a high-resolution JPEG file.

Robert H. Mohlenbrock. USDA NRCS. 1995. *Northeast wetland flora: Field office guide to plant species*. Northeast National Technical Center, Chester. Courtesy of USDA NRCS Wetland Science Institute. Usage Requirements.

More Information:

- Characteristics
- Classification
- Fact Sheet (pdf) (doc)
- Plant Guide (pdf) (doc)
- Source & Reference

Images:

Juglans nigra L.

Symbols for Unknown Plants
NRCS State GSAT Lists
NRCS State Plants Lists
PLANTS Posters

Related Tools

Crop Nutrient Tool
Ecological Site Information System
Plant Materials Web Site
Other NRCS Tech Resources
VegSpec

Plant Links

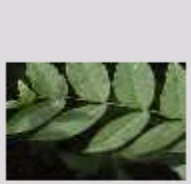
PLANTS Links

Requirements.

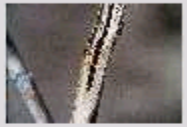
Images:

Juglans nigra L.

Click on a thumbnail to view an image, or see all the *Juglans* thumbnails at the PLANTS Gallery






Synonyms:

Juglans nigra L.

WANI *Wallia nigra* (L.) Alef.

Distribution:

Juglans nigra L.

PLANTS Topics

- Alternative Crops
- Characteristics
- Classification
- Culturally Significant
- Distribution Update
- Fact Sheets & Plant Guides
- Invasive and Noxious Weeds
- Plant Materials Publications
- Threatened & Endangered
- Wetland Indicator Status

Image Gallery

- 40,000+ Plant Images
- Submit Your Digital Images

Download

- Complete PLANTS Checklist
- State PLANTS Checklist
- Advanced Search Download
- Symbols for Unknown Plants
- NRCS State GSAT Lists
- NRCS State Plants Lists
- PLANTS Posters

Related Tools

- Crop Nutrient Tool
- Ecological Site Information System
- Plant Materials Web Site
- Other NRCS Tech

Juglans nigra L.
black walnut
JUNI

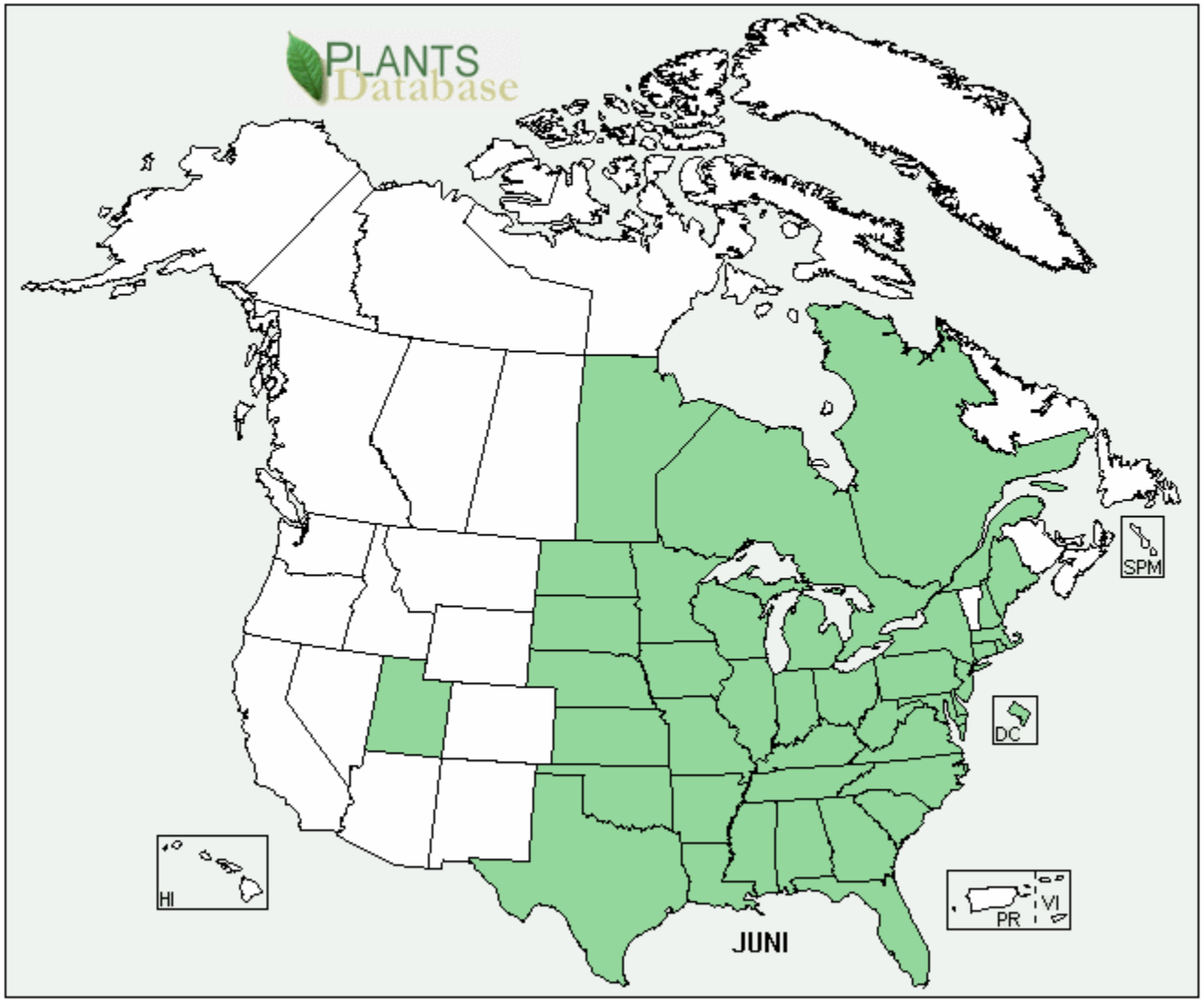
Summary

Duration	Perennial
Growth Habit	Tree
U.S. Nativity	
Federal T/E Status	
National Wetland Indicator	FACU

Morphology/Physiology

Active Growth Period	Spring
After Harvest Regrowth Rate	
Bloat	None
C:N Ratio	High
Coppice Potential	No
Fall Conspicuous	No
Fire Resistant	No
Flower Color	Yellow
Flower Conspicuous	No
Foliage Color	Green
Foliage Porosity Summer	Porous
Foliage Porosity Winter	Porous
Foliage Texture	Medium
Fruit/Seed Color	Brown
Fruit/Seed Conspicuous	Yes
Growth Form	Single Stem
Growth Rate	Rapid

Juglans nigra L.



View Native Status

Present Absent

See US county distributions (when available) by clicking on the map or the state links below:

Image Gallery

Search
Name Search
Scientific Name Go
State Search
Advanced Search
Search Help

PLANTS Topics
Alternative Crops
Characteristics
Classification
Culturally Significant
Distribution Update
Fact Sheets & Plant Guides
Invasive and Noxious Weeds
Plant Materials Publications
Threatened & Endangered
Wetland Indicator Status

Image Gallery
40,000+ Plant Images
Submit Your Digital Images

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Complete PLANTS Checklist
State PLANTS Checklist
Advanced Search Download
Symbols for Unknown Plants
NRCS State GSAT Lists

Guidelines for Submission of Images to PLANTS

We would very much appreciate your contributions of digital images or line drawings of U.S. plants to the PLANTS project. At this time, we can only accept batches that meet the following criteria:

- Batches of 100 images or more.
- Images must be accurately identified by scientific name.
- Batches must be accompanied with the necessary Metadata (see below) so that they can be easily processed.

The images in PLANTS are free for scientific and educational uses provided that users properly credit the photographer, institution, and The PLANTS Database. If you contribute your images, you will be properly credited at the PLANTS Web site. Some of the images in PLANTS are copyrighted. We prefer that you relinquish copyright privileges for your submissions, since it simplifies matters for everyone. However, if you do retain copyrights, we will put potential commercial users in touch with you to negotiate permission through the email address that you provide in the image metadata. A simple cooperative agreement, reproduced below and here as a PDF document, governs your submission.

Cooperative agreement (48Kb)

Please check out the images now in PLANTS to see what we have and how your submission will contribute. Please email us at plants@plants.usda.gov at the National Plant Data Center (NPDC) for further information if you have a batch of over 100 images that you would like to contribute.

Quantity: Submitting groups of 100 or more images will let us capture economies of scales during processing. We are unable to process small, unsolicited sets emailed to us.

Quality: It's not easy to take great pictures of plants, so we've developed a checklist that may improve your image submission to PLANTS. Our primary recommendation is to please use a tripod.

Digital Camera Images: Please submit high-resolution photographs taken with a good quality digital camera. Ideally your submissions would conform to the following standards:

- Use at least a 4 megapixel digital camera.
- Images should be taken at the largest size and best quality settings that the camera is able to produce.
- The preferred file format is uncompressed TIFF, provided your camera is capable of producing TIFF files.

Business Requirements

- WSS/SDM Report Manager
  - Ability to include and display formatted manuscript text, numeric and coded data (NASIS aggregate data), and images in a WSS/SDM report.

Business Requirements

- WSS
  - Ability to point to a map unit polygon and bring up images associated with the map unit

Business Requirements

- WSS
  - Ability to send AOI (spatial search criteria) to an open-file reports repository and return a list of documents, with selected attributes, applicable to the AOI.

Business Requirements

"As always, you must match up the technology tools to address YOUR business needs. Technology can enable streamlined management of content, but the underlying strategy must come first." (Association for Information and Image Management (AIIM))