



Esri Forestry GIS Solutions Conference
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ArcGIS Forestry Data Model 2.0

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Agenda

- **Purpose**
- **Requirements Gathering**
- **Data Modeling**
- **Future Plans**



Purpose

Why Use the Forestry Data Model?

- **Manage forestry spatial data**
- **Comprehensive template**
- **Leverage and adopt/ extend**
- **Esri Forestry Resource Center**
- **Primarily focused on commercial forestry activities**



Challenges

- **Constant change**
 - How do you maintain up-to-date, high quality data?
 - How do you get the most from the investment in GIS?
- **Data quality**
 - What you actually own vs. what you think you own?
 - Making the right decisions: What to harvest?
 - Reporting, accountability
- **Leveraging new technologies**



Requirements Gathering

Geodatabase Design Process

- **Questionnaires/ interviews**
- **Input from:**
 - **US Private Companies**
 - **Canadian Private Companies**
 - **US State Forestry Agencies**
 - **Military Training Facilities**
- **Case studies**



Workflows/ System

- **Forest Management**
- **Forest Planning**
- **Forest Inventory**
- **Asset Management**



Existing Conditions & Needs

- GIS design
- Spatial data
- Gaps in current model
- Data standards
- Data validation process
- Cartographic products and reports
- Existing/desired tools



Findings...

Wide use of:

- Coverages
- Shapefiles
- Repetitive data entry

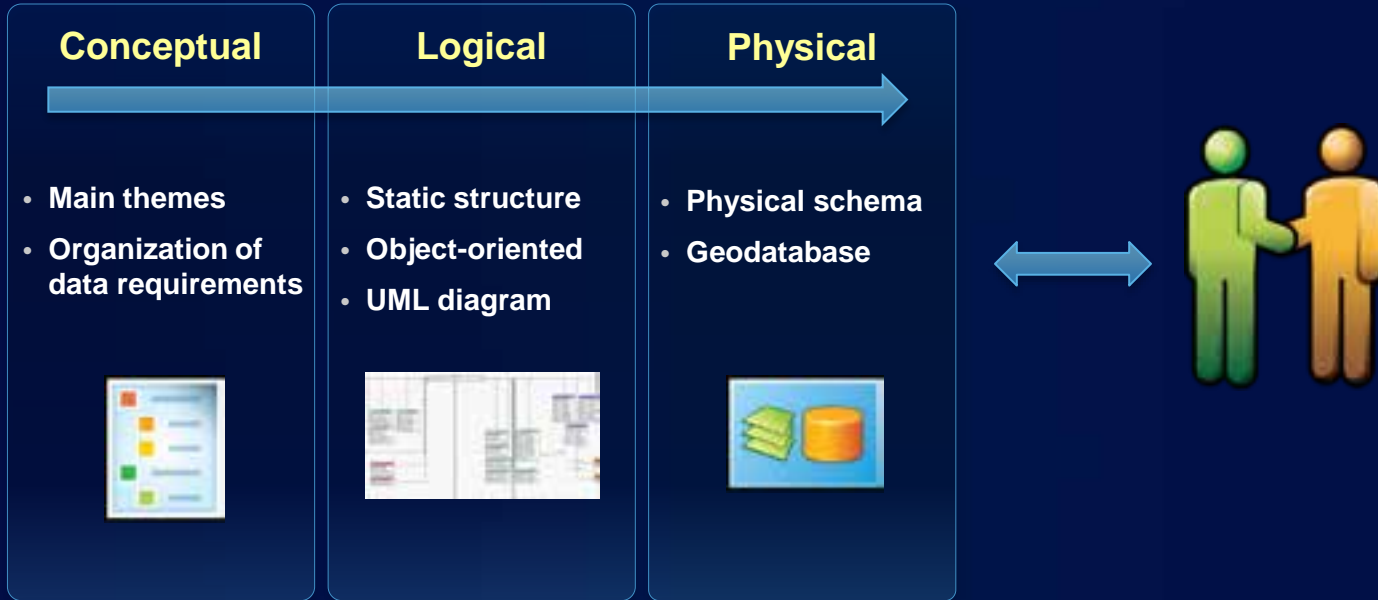
Needs:

- Move to geodatabase model
- Templates for standardized map generation
- More robust reporting



Data Modeling

Data Modeling Process



Themes: Managed Data

Land Administration

- Ownership
- Forest Boundaries
- Rights
- Encumbrances
- Property Map

Forest Planning

- Harvest Plan
- Landscape Plan
- Silviculture Plan

Forest Inventory

- Timber Cruise
- Stand
- Restocking Inventory

Forest Management

- Silviculture Completed
- Harvest Completed
- Pests & Disease
- Fire Management
- Plot Location

Natural Resources Inventory

- Riparian
- Site Index

Asset Management

- Quarries
- Forest Roads
- Forest Trails
- Road Infrastructure

Non Timber Operations

- Hunting
- Cell Tower
- Recreation
- Billboards
- Mining
- Grazing

Stand Alone Tables

- Species
- Prescriptions

Themes: Reference Data

Roads

- Major Roads
- Railroads

Land Administration

- Administrative Boundaries
- Taxes

Natural Resources Inventory

- Land Use
- Vegetation
- Wetlands
- T&E
- Soils
- Watersheds
- Streams

Asset Management

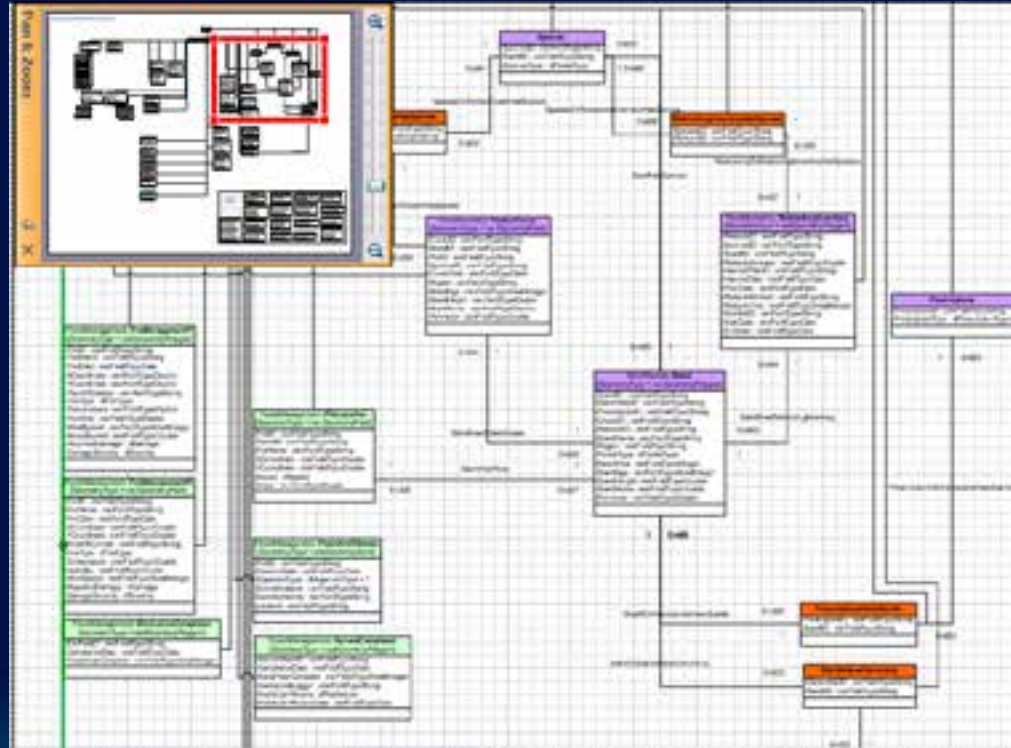
- Logyard Inventory
- Nurseries
- Facilities/ Mills
- Machinery/ Equipment

Raster

- Digital Orthophoto
- Topo Quads
- AGOL
- Terrain
- DEM
- LIDAR

Geodatabase Elements

- Feature datasets
- Feature classes
 - Geometry types
- Attributes
- Subtypes
- Domains
- Relationship classes
- Stand-alone tables
- Topology *



Final Schema

- CASE Tools
- File Geodatabase
- Version 10

The image shows a screenshot of a geodatabase schema tree. The tree is organized into two columns. The left column shows the hierarchy of the geodatabase, starting with 'ForestryDataModel.gdb' and containing several feature classes and relationships. The right column lists individual feature classes and relationships, each with a small icon representing its type (e.g., polygon, line, point, or relationship class).

Feature Class / Relationship
ForestryDataModel.gdb
Ownership
Ownership_Topology
OwnershipParcels
Stand
EncumbranceLn
EncumbrancePl
EncumbrancePt
FireManagementPl
FireManagementPt
ForestBoundaryLn
ForestBoundaryPl
ForestRoads
ForestTrails
HarvestCompleted
HarvestPlan
LandscapePlan
PestsAndDisease
PlotLocation
Prescriptions
PrescriptionsHaveStands
PrescriptionToPrescriptionsHaveStands
PropertyMapIndex
Quarries
RestockingInventory
RestockingInventoryHasSpecies
RestockingToRestockingInventoryHasSpecies
Rights
RiparianZones
RoadInfrastructure
SilvicultureCompleted
SilviculturePlan
SiteIndex
Species
SpeciesToRestockingInventoryHasSpecies
SpeciesToTimberCruiseHasSpecies
StandHasPlots
StandHasRestockingInventory
StandHasSpecies
StandHasTimberCruise
StandToPrescriptionsHaveStands
TimberCruise
TimberCruiseHasSpecies
TimberCruiseToTimberCruiseHasSpecies



Future Plans

Community Involvement

- Implement data model
- Share ideas and thoughts
- Ask Questions
- Continuous improvement



Send emails to forestry@esri.com

Quality Control

- **Document quality standards**
- **Configure quality control rules**
- **Configure visual specifications for map products**



Additional

- **Sample data**
- **Basemaps**
- **GIS tools**
- **Apps**
 - **Web**
 - **Mobile**





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