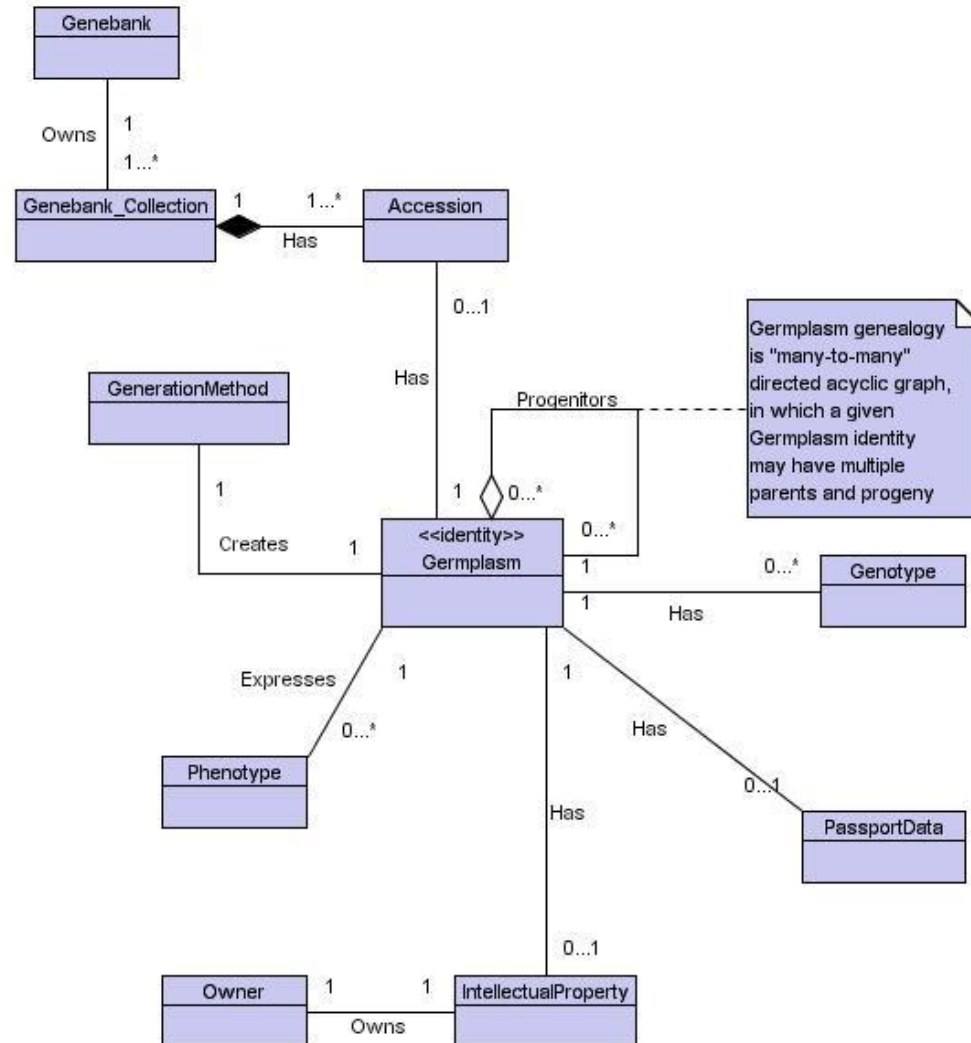




Utility, Germplasm Genealogy, Phenotype & Genotype Team

*Generation CP - Domain Modeling Workshop
Wageningen, the Netherlands
Feb. 14th, 2005*

Germplasm Data Model

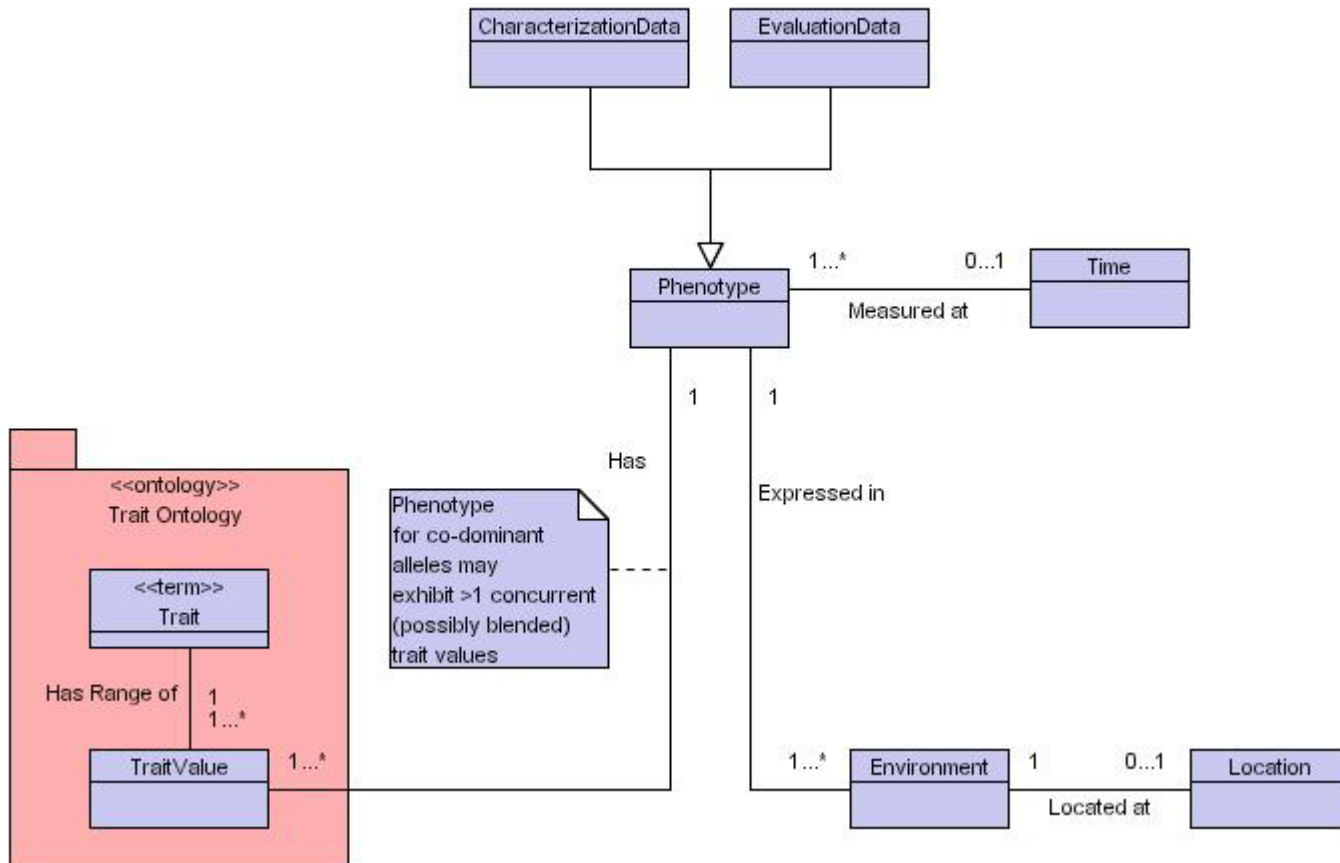




Germplasm (Genealogy) Model

- ***Basic Concepts:*** germplasm as biological identity; may have multiple names
- ***Public models:***
 - Will start with the ICIS “Genealogy Management System” model including the ICIS germplasm method controlled vocabulary
- ***International partners:***
 - ICIS community; all other editorial teams; model plant db’s
 - Germplasm derivation ontology under development in Australia (I. Delacy and co.)
- ***Strategy & Process:***
 - Compile comprehensive ontology model of germplasm from ICIS
 - Review model at ICIS workshop(s)

Phenotype Data Model





Phenotype Domain Model

- ***Basic Concepts:***

- observables x attributes = traits, trait values, value scales

- ***Public models:***

- PATO/EAV model with Plant Ontology and PATO ontologies

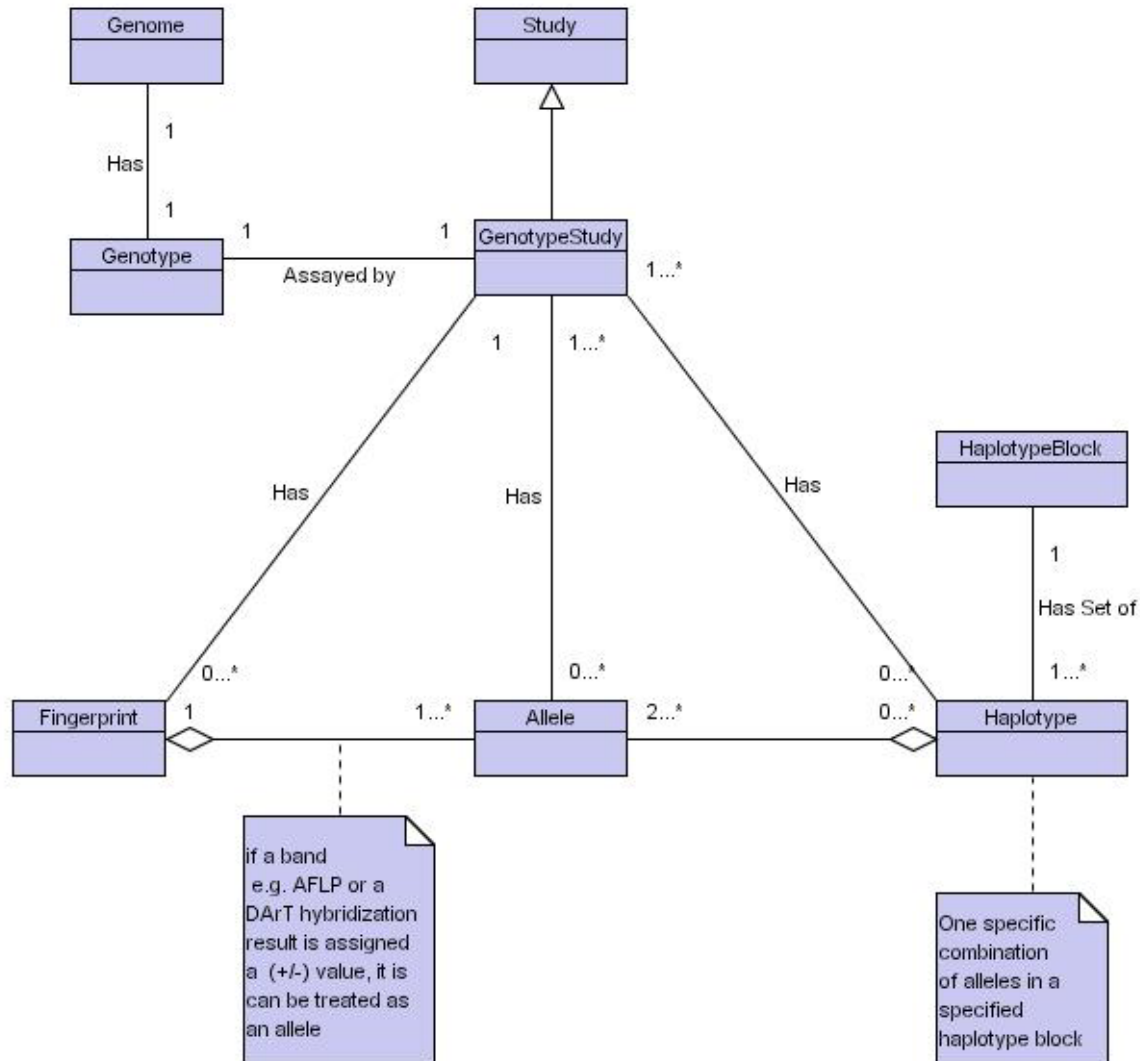
- ***International partners:***

- Plant ontology (www.plantontology.org)
- PATO (obo.sourceforge.net)
- *Model organism databases:* Gramene, NASC, TAIR, MIPS

- ***Strategy & Process:***

- Extend GCP Montpellier phenotype workshop “drought trait” table effort in 2005 SP* workshops on phenotyping
- Collaborate with IRFGC (and POC) rice (and Arabidopsis) mutant phenotype documentation efforts, as a model for other crops

Genotype Data Model





Genotype Domain Model

- ***Basic Concepts:***

- marker, allele, frequencies, sequence (SNP)

- ***Public models:***

- GDPDM, Germinate, ICIS, OMG SNP, MaizeGDB

- ***International partners:***

- Germinate, GDPC/Gramene, HAP Map project (at CSHL) and OMG

- ***Strategy & Process:***

- Develop abstract model in partnership with CGIAR center representatives, Germinate and Gramene



Generic Domain Models

- ***Basic Concepts:***

- Ontology and nomenclature, time (ontology), organizations, persons, publications, intellectual property, statistical study (and associated classes)

- ***Public models:***

- GO (Chado) models for ontology management, publications, etc.
- ICIS Data Management System (DMS) data model for Study et al.

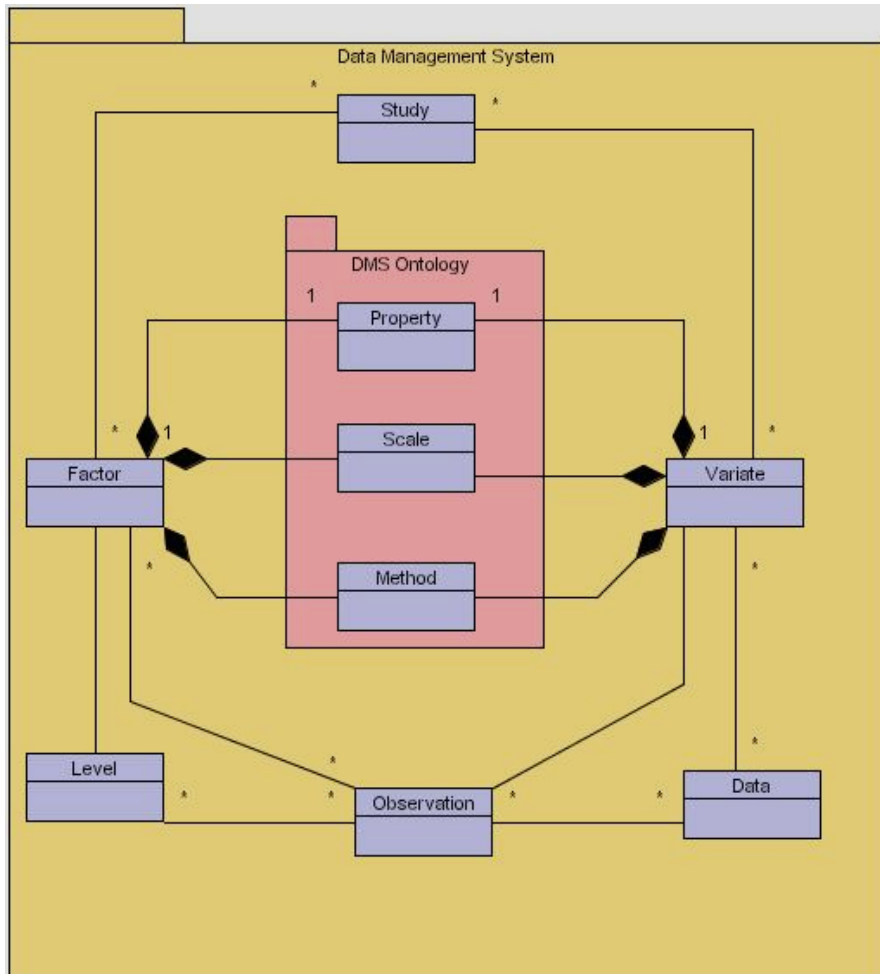
- ***International partners:***

- ICIS community, GMOD (Chado), other specialist communities (e.g. IP)

- ***Strategy & Process:***

- Adopt elements of Chado into GCP domain model
- Capture ICIS DMS in a domain model
- Develop custom models and ontology (e.g. IP, time) in consultation with experts

Experimental Study Data Model



DMS from ICIS
(for review by team)

Study types:

- Map studies
- Genotype studies
- Phenotype studies
- LIMS data

Pertinent ontology:

- Marker ontology
- Phenotype ontology