

The Logical Information Model

Tables for the Primary Cataloging Application

Tables for Collection Objects

Biol_Indiv

Description

A Cataloged_Item that represents (is/was) a biological individual (as opposed to an inanimate cataloged item such as a sound tape, photograph, etc.).

Primary Key

| | |
|---------------|---|
| Biol_Indiv_id | longint, mandatory Description: The primary identifier of Biological_Individual Foreign Key To: Collection_Object |
|---------------|---|

Field(s)

| | |
|---------------------|---|
| Age_Class | varchar 20, optional Description: The age of an individual, expressed as an age class. E.g. embryo, larva, pouch young, nestling, juvenile, sub-adult, adult. |
| Age_Det_Meth | varchar 255, optional Description: Indicates what features were used to determine the age class of an individual. (Particularly important for birds.) |
| Age_Class_Det_by | varchar 15, optional Description: Indicates whether the age class was determined by the collector or the person entering the data. Rule: IN ("collector", "data entry") |
| Biol_Indiv_Type | Varchar 5, mandatory Description: A classification variable indicating the subtype of the Biological_Individual. Values: M, B, H, F |
| Eaten_by_Biol_Indiv | longint, optional Description: Biological_Individual that ate this Biological_Individual. Foreign Key To: Biol_Indiv |

| | |
|-------------------|--|
| Numeric_Age | integer, optional Description: The age of an individual, expressed as an integer. (Units are not assumed and must be entered in the Number_Age_Units field). |
| Numeric_Age_Units | varchar 6, optional Description: Units of the numeric age given for a biological individual. Rule: IN ("hours", "days", "weeks", "months", "years") |
| Repro_Cond | text, optional Description: Remarks about reproductive condition of the individual. |
| Sex_cde | varchar 5, optional Description: Indicates sex of individual. Rule: IN ("M", "F", "U", "X") |
| Sex_cde_mod | varchar 20, optional Description: Sex_cde_mod for Biological_Individual. Contains qualifiers (modifier) of sex_cde; eg., '?' |
| Stomach_Cont_txt | text, optional Description: A description of stomach contents. Applies to descriptions made in field or subsequently from retained stomach contents. Does not indicate that stomach contents were retained. (see specimen part) |
| Weight | real, optional Description: The mass (weight) of the specimen, in grams. |

Incident Foreign Keys

| Table | Field(s) | Relationship |
|---------------------|----------------------------|--------------|
| Child_of_Biol_Indiv | Bio_Parent_id | 1:m |
| Child_of_Biol_Indiv | Bio_Child_id | 1:m |
| Biol_Indiv | Eaten_by_Biol_Indiv | 1:m |
| Collection_Object | Derived_From_Biol_Indiv_id | 1:m |
| Histo_Slide_Series | Derived_From_Biol_Indiv_id | 1:m |
| Karyo_Slide | Derived_From_Biol_Indiv_id | 1:m |
| Specimen_Part | Derived_From_Biol_Indiv_id | 1:m |
| Tissue_Sample | Derived_From_Biol_Indiv_id | 1:m |
| Vocal_Series | Derived_From_Biol_Indiv_id | 1:m |

Bird**Description**

A Biological_Individual of the vertebrate class Aves.

Primary Key

| | |
|---------|---|
| Bird_id | longint, mandatory |
| | Description: The primary identifier of Bird |
| | Foreign Key To: Collection_Object |

Field(s)

| | |
|------------------------|---|
| Associated_Egg_Nest_id | longint, optional |
| | Description: Identifies an Egg_Nest that was associated with this Bird. |
| | Foreign Key To: Egg_Nest |
| Colors | text, optional |
| | Description: Unrestricted remarks on plumage colors. |
| Fat_Deposition | varchar 21, optional |
| | Description: Indicates relative amount of stored fat (deposit) in specimen. |
| Molt_Condition | varchar 255, optional |
| | Description: Indicates molt condition. |
| Recorded_Master_Tape | varchar 10, optional |
| | Description: Master Tape that holds recording of Bird. Initially to hold existing TAXIR data, but can be removed after vocalizations are cataloged. |

Cataloged_Item**Description**

A collection object that is identified (on paper) by an institution acronym, a collection code, and a catalog number.

Primary Key

| | |
|-------------------|---|
| Cataloged_Item_id | longint, mandatory |
| | Description: The primary identifier of Cataloged_Item |
| | Foreign Key To: Collection_Object |

Field(s)

| | |
|----------------------------|---|
| Accession_id | integer, optional Description: Accession that contains Collection_Object. Foreign Key To: Acc |
| Cataloged_Item_Type | varchar 20, mandatory Description: Indicates the subtype that this Cataloged_Item represents. |
| Collection_cde | varchar 10, mandatory Description: A code or name designating a separate series of catalog numbers within an institution. Rule: IN ("Mam", "Bird", "Herp", "Egg_Nest", "MH", "Teaching", "Film", "Film_Clip", "Vocal", "Sound_Tape", "Image") Foreign Key To: Collection |
| Institution_Acronym | varchar 20, mandatory Description: An abbreviation for an institution (organization) that maintains natural history collections. Uses standard codes. Foreign Key To: Collection |
| Cat_Num | longinteger, mandatory Description: Part of a visible unique key that identifies a cataloged item (not the primary key of Coll_Obj). Combination of collection_cde and catalog_number must be unique for all cataloged_items. |
| Collecting_Event_id | longint, optional Description: Collecting_Event that produced Cataloged_Item. Foreign Key To: Collecting_Event |
| Accepted_Identification_id | longint, optional Description: Identification that is accepted for Cataloged_Item. Foreign Key To: Identification |
| Coll_Num_Prefix | varchar 20, optional Description: The prefix on a collector's number; always includes collector's initials if known. May also include other letters, separators, and numbers (typically last two digits of year) that differentiate multiple series by same collector. |
| Collectors_Num | real, optional Description: Incremental portion of an identifying number of a specimen, typically assigned by collector at time of collection. Does not include prefixes or suffixes. Data type is |

real number to allow decimals if used by collector.

| | |
|-------------------------|--|
| Coll_Num_Suffix | varchar 5, optional Description: The suffix of a collectors number; typically appended as -a or -b to distinguish among duplicate numbers. Begins with the first non-numeric character following the numeric portion of a collector's number. Includes separators and any other alpha-numeric characters. |
| Coll_Num_Assigned_by | integer, optional Description: Person that assigned coll_num Collection_Object. Foreign Key To: Person |
| Field_Note_Section_id | integer, optional Description: Field_Note_Section that lists Cataloged_Item (by Coll_Num). Foreign Key To: Field_Note_Section |
| Taxir_Coll_Name | varchar 127, optional Description: The combined values for various collector name fields as they were stored in Taxir. |
| Taxir_Specific_Locality | varchar 255, optional Description: The specific locality (text description) as it was entered in Taxir. These data were originally entered and stored separately for each cataloged item. |

Secondary Indexes

| | |
|--------------------|--|
| Cataloged_ItemIdx2 | Compound alternate unique index over: Collection_cde, Institution_Acronym, Cat_Num |
|--------------------|--|

Incident Foreign Keys

| Table | Field(s) | Relationship |
|----------------|-------------------|--------------|
| Identification | Cataloged_Item_id | 1:m |
| Citation | Cataloged_Item_id | 1:m |

Child_of_Biol_Indiv

Description

This table holds the many (children) to many (maximum of 2 parents) relationship among Biological_Individuals.

Primary Key

| | |
|-----------|--|
| Child_id | longint, mandatory Description: Biological_Individual that is child of Biological_Individual. Note: a child may appear in this table a maximum of two times (can have at most two parents). Foreign Key To: Biol_Indiv |
| Parent_id | longint, mandatory Description: Biological_Individual that is parent of Biological_Individual. Foreign Key To: Biol_Indiv |

Coll_Obj_Other_ID_Num**Description**

Another identifying number of a collection object; typically another catalog number indicating the object's previous membership in another collection. May also be used to hold the old catalog number if a new number has been assigned to this item to eliminate duplicate catalog numbers.

Primary Key

| | |
|--------------|--|
| Coll_Obj_id | longint, mandatory Description: Collection_Object that has Other_ID_Number. Foreign Key To: Collection_Object |
| Other_ID_Num | varchar 30, mandatory Description: Another identifying number applied to a collection object, typically a previous catalog number; used for old number when new number is assigned. |

Field(s)

| | |
|----------------------|---|
| ID_Type | varchar 20, optional Description: Indicates nature (origin) of other id number; e.g., catalog number. Uses standard codes. |
| Other_ID_Explanation | varchar 255, optional Description: An explanation of what an Other_ID_Number represents; i.e., why that number is no longer current. |

Collection_Object

Description

A generic supertype entity capable of representing the identity and kind of any collection item that must be described or tracked. Some collection objects are logical, while others are physical objects.

Primary Key

| | |
|-------------|--|
| Coll_Obj_id | longint, mandatory |
| | Description: The primary identifier of Collection_Object |

Field(s)

| | |
|----------------------------|--|
| Coll_Obj_Type | varchar 25, mandatory |
| | Description: Indicates the subtype of this Collection_Object. |
| Entered_Date | datetime, mandatory |
| | Description: Date of entry for Collection_Object. |
| Entered_Person_id | integer, mandatory |
| | Description: Person that entered Collection_Object. |
| | Foreign Key To: Person |
| Last_Edited_Date | datetime, optional |
| | Description: Date of last edit for Collection_Object. |
| Last_Edited_Person_id | integer, optional |
| | Description: Person that last edited Collection_Object. |
| | Foreign Key To: Person |
| Coll_Obj_Disposition | varchar 20, optional |
| | Description: Indicates current disposition of Collection_Object. |
| Disposition_Remarks | text, optional |
| | Description: Remarks explaining the disposition of the Collection_Object. |
| Derived_From_Biol_Indiv_id | longint, optional |
| | Description: Biological_Individual that Collection_Object was derived from. |
| | Rule: Content of this field managed by trigger on create, update, delete in the appropriate collection object subtype (see Specimen_Part, Tissue_Sample, Histo_slide, Karyoligcal_Slide_Series, and Vocalization_Recording). |
| | Foreign Key To: Biol_Indiv |

Remarks text, optional
Description: Remarks for Collection_Object.

Incident Foreign Keys

| Table | Field(s) | Relationship |
|------------------------|------------------------------|--------------|
| Specimen_Part | Specimen_Part_id | 1:1 |
| Tissue_Sample | Tissue_Sample_id | 1:1 |
| Tissue_Prep | Tissue_Prep_id | 1:1 |
| Histo_Slide_Series | Histological_Slide_Series_id | 1:1 |
| Karyo_Slide | Karyo_Slide_id | 1:1 |
| Cataloged_Item | Cataloged_Item_id | 1:1 |
| Biol_Indiv | Biol_Indiv_id | 1:1 |
| Bird | Bird_id | 1:1 |
| Mammal | Mammal_id | 1:1 |
| Herp | Herp_id | 1:1 |
| Egg_Nest | Egg_Nest_id | 1:1 |
| Vocal_Series | Vocal_Series_id | 1:1 |
| Tape | Tape_id | 1:1 |
| Species_Tape | Species_Tape_id | 1:1 |
| Image | Image_id | 1:1 |
| Still_Image | Still_Image_id | 1:1 |
| Coll_Obj_Image_Content | Coll_Obj_id | 1:m |
| Film | Film_id | 1:1 |
| Film_Clip | Film_Clip_id | 1:1 |
| Model | Model_id | 1:1 |
| Deacc_Item | Refers_To_Coll_Obj_id | 1:1 |
| Loan_Item | Refers_To_Coll_Obj_id | 1:m |
| Vocal_Recording | Vocal_Series_id | 1:m |
| Vocal_Recording | Tape_id | 1:m |
| Film_Clip_in_Film | Film_Clip_id | 1:m |
| Film_Clip_in_Film | Film_id | 1:m |
| Coll_Obj_Other_ID_Num | Coll_Obj_id | 1:m |

Collection

Description

A group of similar items, held by an insitution or private individual, in which each item has been assigned a catalog number and has been described.

Primary Key

Collection_cde varchar 10, mandatory
 Description: A code or name designating a separate series of catalog numbers within an institution.
 Rule: IN ("Mam", "Bird", "Herp", "Egg_Nest", "MH", "Teaching", "Film", "Film_Clip", "Vocal", "Sound_Tape", " Image")

Institution_Acronym varchar 20, mandatory
 Description: Acronym of institution that maintains Collection.

Field(s)

Descr text, optional
 Description: Description of Collection.

Incident Foreign Keys

| Table | Field(s) | Relationship |
|----------------|---------------------------------------|--------------|
| Cataloged_Item | Collection_cde Institution_Acronym | 1:m |

Egg_Nest

Description

A member in the Egg_Nest Collection; either a set (clutch) of eggs taken from a single nest, a nest only, or both.

Primary Key

Egg_Nest_id longint, mandatory
 Description: The primary identifier of Egg_Nest
 Foreign Key To: Collection_Object

Field(s)

Set_Mark varchar 20, optional
 Description: Set marks may represent several concepts (but inconsistently), including collector's number, count of eggs in set. They are typically written in a numerator / denominator format. A standard interpretation-expression syntax will be required.

| | |
|--------------------------|---|
| AOU_Num | varchar 10, optional Description: AOU number is a standard ornithological taxon identifier. An alphanumeric field is used because some numbers have suffixes; e.g., 365c, 590.1.a. AOU numbers change among checklist editions. Documents original taxonomic identification. |
| Coll_Egg_count | integer, mandatory Description: Egg_count that Egg_Nest has in collection (Does not include parasite eggs). |
| Coll_Parasite_Egg_count | integer, mandatory Description: Number of Parasite Eggs that Egg_Nest has in collection. |
| Field_Egg_count | integer, optional Description: Number of eggs in the nest observed in the field (not including parasite eggs). |
| Field_Parasite_Egg_count | integer, optional Description: Number of parasite eggs observed in the field. |
| Parasitized_by_Taxon | longint, optional Description: Taxon_Name for Egg_Nest parasite. Foreign Key To: Taxon_Name |
| Descr | text, optional Description: Description of Egg_Nest. |
| Incubation_Stage | text, optional Description: Incubation_Stage of eggs in nest. |
| Includes_Nest | logical, mandatory Description: Indicates whether Egg_Nest includes nest or not |

Incident Foreign Keys

| Table | Field(s) | Relationship |
|----------------------|------------------------|--------------|
| Bird | Associated_Egg_Nest_id | 1:m |
| Egg_Nest_Data_Source | Egg_Nest_id | 1:m |

Egg_Nest_Data_Source**Description**

Indicates the type of Original_Data_Source for information about an Egg_Nest item. Several source types may be available for a single item.

Primary Key

| | |
|----------------------|--|
| Original_Data_Source | varchar 20, mandatory Description: Indicates the original source of data for an egg_nest item (an egg-set /and or nest). Can be more than one for an egg set or nest. Rule: IN ("Egg_Data_Slip", "Ledger", "Field_Notes") |
| Egg_Nest_id | longint, mandatory Description: Egg_Nest that has Original_Data_Source. Foreign Key To: Egg_Nest |

Herp**Description**

A Biological Individual of the vertebrate class Amphibia or Reptilia.

Primary Key

| | |
|---------|--|
| Herp_id | longint, mandatory Description: The identifying number of a Herp record (surrogate key). Foreign Key To: Collection_Object |
|---------|--|

Field(s)

| | |
|-------------------|--|
| Snout_Vent_Length | real, optional Description: Length of specimen from tip of snout to vent. |
|-------------------|--|

Mammal**Description**

A Biological Individual of the vertebrate class Mammalia.

Primary Key

| | |
|-----------|--|
| Mammal_id | longint, mandatory Description: The primary identifier of Mammal Foreign Key To: Collection_Object |
|-----------|--|

Field(s)

| | |
|------------|--|
| Ear_Length | real, optional Description: Ear_Length of Mammal. |
|------------|--|

| | | |
|------------------|--------------------|---|
| Forearm_Length | real, optional | Description: Forearm_Length of Mammal. |
| Hind_Foot_Length | real, optional | Description: Hind_Foot_Length of Mammal. |
| Karyotype_slides | logical, mandatory | Description: Indicates whether Mammal has karyotype_slides or not |
| Tail_Length | real, optional | Description: Tail_Length of Mammal. |
| Total_Length | real, optional | Description: Total_Length of Mammal. |
| Tragus_Length | real, optional | Description: Tragus_Length of Mammal. |

Model

Description

A cataloged item (e.g., in Hildebrand Collection) that is a model of an anatomical structure or a reconstruction of a fossil taxon; may also demonstrate a function within a larger vertebrate taxon.

Primary Key

| | | |
|----------|--------------------|---|
| Model_id | longint, mandatory | Description: The primary identifier of Model Foreign Key To: Collection_Object |
|----------|--------------------|---|

Field(s)

| | | |
|-------|----------------|--|
| Descr | text, optional | Description: A description of the model. |
|-------|----------------|--|

Specimen_Part

Description

A part of a specimen (biological specimen); may range from a single anatomical structure, to an anatomical region, to an entire individual.

Primary Key

| | |
|------------------|---|
| Specimen_Part_id | longint, mandatory Description: The primary identifier of Specimen_Part Foreign Key To: Collection_Object |
|------------------|---|

Field(s)

| | |
|----------------------------|--|
| Part_Name | varchar 30, mandatory Description: Indicates the name of the part. Must be a valid name for a part of a specimen. (Vocabulary maintained in an authority file.) |
| Part_Modifier | varchar 60, optional Description: A series of one or more adjectives describing specimen part. |
| Preserv_Method | varchar 20, optional Description: Indicates preservation method(s) used for a specimen. Used only if non-standard for the part. |
| Storage_Loc | varchar 20, optional Description: Indicates storage location of an item. Used only if non-standard. |
| Derived_From_Biol_Indiv_id | longint, mandatory Description: Identifies the Biological_Individual from which the Specimen_Part was derived. This field is a master copy of this foreign key. It is replicated in the Collection_Object supertype to facilitate queries. The replicated value should be managed by appropriate triggers (insert, update, delete) defined on this table. Foreign Key To: Biol_Indiv |

Secondary Indexes

| | |
|-------------------|--|
| Specimen_PartIdx2 | Compound alternate unique index over: Prepared_From_Biol, Part_Name, Part_Modifier |
|-------------------|--|

Tiss_Sample_Tiss_Type**Description**

This table creates the many to many relationship between Tissue_Sample and Tissue_Type.

Primary Key

| | |
|------------------|--|
| Tissue_Sample_id | longint, mandatory Description: Tissue_Sample that contains Tissue_Type. Foreign Key To: Tissue_Sample |
| Tissue_Type | varchar 20, mandatory Description: A name designating an organ or tissue class contained in, or represented by, a tissue sample, karyo prep, etc. |

Tissue_Prep**Description**

A Tissue_Sample that contains prepared tissue (i.e., ground tissue in buffer, protein extract, or DNA extract).

Primary Key

| | |
|----------------|---|
| Tissue_Prep_id | longint, mandatory Description: The primary identifier of Tissue_Prep Foreign Key To: Collection_Object |
|----------------|---|

Field(s)

| | |
|----------------------------|--|
| Prep_From_Tissue_Sample_id | longint, optional Description: Tissue_Sample that was source of Tissue_Prep. Foreign Key To: Tissue_Sample |
| Tissue_Prep_Method | varchar 30, optional Description: Indicates the method used to prepare the Tissue_Prep. |
| Prepared_Person_id | integer, optional Description: Person that prepared Tissue_Prep. Foreign Key To: Person |
| Prepared_Date | datetime, optional Description: Date that Tissue_Prep was prepared. |
| DNA_Conc | varchar 20, optional Description: DNA_Concentration of Tissue_Prep. |
| Received_Dry | logical, mandatory Description: Indicates whether Tissue_Prep received dry or not |

| | |
|-----------------|--|
| Original_Volume | varchar 15, optional Description: Volume of Tissue_Prep. Used only if Tissue_Prep was received dry. |
|-----------------|--|

Tissue_Sample

Description

A collection object, taken from a biological individual, that will (or has been) used in genetic analysis.

Primary Key

| | |
|------------------|---|
| Tissue_Sample_id | longint, mandatory Description: The primary identifier of Tissue_Sample Foreign Key To: Collection_Object |
|------------------|---|

Field(s)

| | |
|----------------------------|---|
| Tissue_Preserv_Meth | varchar 20, mandatory Description: Tissue_Preservation_Method of Tissue_Sample. Rule: IN ("frozen", "ethanol", "freeze_dried") |
| Stored_Vial_type | varchar 15, optional Description: Indicates the kind of vial the Tissue_Sample is stored in. Rule: IN ("Small Glass", "Lg Glass", "Lg Cryo", "Std Glass", "Std Cryo") |
| Derived_From_Biol_Indiv_id | longint, mandatory Description: Indicates the Biological_Individual that the Tissue_Sample was derived from. Foreign Key To: Biological_Individual |
| Avail_Loans | logical, mandatory Description: Indicates whether Tissue_Sample is available for loans or not |
| Tissue_Prep | logical, mandatory Description: Indicates whether the Tissue_Sample is a Tissue_Prep (a subtype of Tissue_Sample). |
| Sample_Number | integer, mandatory Description: A sub_number, used to provide visible identification of a tissue sample -- in combination with the full catalog number of the biological individual from which the sample was taken. |

Incident Foreign Keys

| Table | Field(s) | Relationship |
|-----------------------|----------------------------|---------------------|
| Tiss_Sample_Tiss_Type | Tissue_Sample_id | 1:m |
| Tissue_Prep | Prep_From_Tissue_Sample_id | 1:m |

Tables for Taxonomy and Publications

Book

Description

A book or other monographic publication. A subtype of Publication.

Primary Key

Book_id integer, mandatory
 Description: The primary identifier of Book
 Foreign Key To: Publication

Field(s)

Edited_Work logical, mandatory
 Description: Indicates whether or not Book is an edited work.

Page_Total varchar 15, optional
 Description: Page_Total of Book, as it will be printed. May contain both roman and arabic numerals.

Publisher_Name varchar 127, optional
 Description: The name of the Publisher. Should also include City. (Alternatively, could use Agent_Address, but Address entity currently requires street address, not needed for citation of Publisher.)

Volume_Number integer, optional
 Description: The volume number of a publication. Stored as an integer; output styles may be complicated (e.g., roman numeral representations).

Incident Foreign Keys

| Table | Field(s) | Relationship |
|--------------|----------|--------------|
| Book_Section | Book_id | 1:m |

Book_Section**Description**

A chapter or section in a book or other monographic publication. A subtype of Publication.

Primary Key

| | |
|-----------------|---|
| Book_Section_id | integer, mandatory |
| | Description: The primary identifier of Book_Section |
| | Foreign Key To: Publication |

Field(s)

| | |
|--------------------|---|
| Begins_Page_Number | integer, optional |
| | Description: First Page_Number of Book_Section. |
| Book_id | integer, optional |
| | Description: Book that contains Book_Section. |
| | Foreign Key To: Book |
| Ends_Page_Number | integer, optional |
| | Description: Last Page_Number of Book_Section. |

Citation**Description**

The mention of a Biological Individual in a Publication, including the designation of type specimens. Implements a many to many relationship between Publications and Biological_Individuals, and as well as descriptive information about the Citation.

Primary Key

| | |
|-------------------|--|
| Cataloged_Item_id | longint, mandatory |
| | Description: Cataloged_Item that is cited in Publication. |
| | Foreign Key To: Cataloged_Item |
| Publication_id | integer, mandatory |
| | Description: Publication that cites Biological_Individual. |
| | Foreign Key To: Publication |

Field(s)

| | |
|---------|---|
| Current | logical, mandatory |
| | Description: Indicates whether Citation effecting type status is most current or not. |

| | |
|---------------|--|
| Page_Number | integer, optional Description: Page_Number that contains beginning of Citation. |
| Taxon_Name_id | longint, optional Description: Taxon_Name that has type effected by Citation. Foreign Key To: Taxon_Name |
| Type_Status | varchar 20, optional Description: The taxonomic Type_Status that is conferred upon a "specimen" by a Citation. Rule: IN ("Holotype", "Paratype", "Syntype", "Lectotype", "Paralectotype", "Neotype", "Allotype", "Topotype") |
| Remarks | text, optional Description: Remarks that describe Citation. |

Rule ([Taxon_Name_id] IS NOT NULL)AND ([Type_Status] IS NOT NULL)OR ([Taxon_Name_id] IS NULL)AND ([Type_Status] IS NULL) /* [Type_Status] and [Taxon_Name_id] must either both contain values or both be empty.* /

Identification

Description

The application of a taxon name to a biological individual.

Primary Key

| | |
|-------------------|---|
| Identification_id | longint, mandatory Description: The primary identifier of Identification |
|-------------------|---|

Field(s)

| | |
|-------------------------|---|
| Cataloged_Item_id | longint, mandatory Description: Cataloged_Item that has Identification. Foreign Key To: Cataloged_Item |
| Taxon_Name_id | longint, mandatory Description: Taxon_Name that was used in Identification. Foreign Key To: Taxon_Name |
| Identification_Modifier | varchar 15, optional Description: Indicates whether identification is: uncertain (?); applied taxon name is for cognate of unnamed taxon (cf.); etc. |

| | |
|-------------------|---|
| Made_by_Person_id | integer, optional Description: Person that made Identification. Foreign Key To: Person |
| Made_Date | datetime, optional Description: Date of Identification. |
| Remarks | text, optional Description: Remarks that concern Identification. |
| Based_on_Geog | logical, mandatory Description: Indicates whether Identification based on geography or not |

Journal

Description

A serial publication. Represents an authority list for Journals (serial publications); not a subtype of Publication (Journal Article is subtype of Publication).

Primary Key

| | |
|------------|--|
| Journal_id | integer, mandatory Description: The primary identifier of Journal |
|------------|--|

Field(s)

| | |
|----------------------|--|
| Publisher_Name | varchar 127, optional Description: The name of the Publisher. Should also include City. (Alternatively, could use Agent_Address, but Address entity currently requires street address, not needed for citation of Publisher.) |
| Journal_Name | varchar 255, mandatory Description: Journal_Name of Journal. |
| Journal_Abbreviation | varchar 10, optional Description: Journal_Abbreviation of Journal. |

Incident Foreign Keys

| Table | Field(s) | Relationship |
|-----------------|------------|--------------|
| Journal_Article | Journal_id | 1:m |

Journal_Article

Description

An article in a Journal.

Primary Key

Journal_Article_id integer, mandatory
 Description: The primary identifier of Journal_Article
 Foreign Key To: Publication

Field(s)

Journal_id integer, mandatory
 Description: Journal that contains Journal_Article.
 Foreign Key To: Journal

Begins_Page_Number integer, optional
 Description: Page_Number that is beginning of
 Journal_Article.

Ends_Page_Number integer, optional
 Description: Page_Number that is ending of
 Journal_Article.

Volume_Number integer, optional
 Description: The volume number of a publication.
 Stored as an integer; output styles may be
 complicated (e.g., roman numeral
 representations).

Issue_Number integer, optional
 Description: Issue_Number that contains
 Journal_Article.

Ordered_Taxon**Description**

A taxon of the lowest rank in the class (mam, bird, herp) that is in phylogenetic order;
 i.e., not alphabetic.

Primary Key

Ordered_Taxon_id longint, mandatory
 Description: The primary identifier of Ordered_Taxon
 Foreign Key To: Taxon_Name

Field(s)

Collection_Order integer, optional
 Description: The sequential position of a taxon in the
 collection. This is a denormalization of the

order generated by the linked list relationship 'is followed by'.

Preceding_Taxon_id longint, optional
 Description: The Ordered_Taxon that comes before this Ordered_Taxon.
 Foreign Key To: Ordered_Taxon

Incident Foreign Keys

| Table | Field(s) | Relationship |
|---------------|--------------------|--------------|
| Ordered_Taxon | Preceding_Taxon_id | 1:1 |

Publication

Description

A written work, mass produced, and distributed or made available.

Primary Key

Publication_id integer, mandatory
 Description: The primary identifier of Publication

Field(s)

Title varchar 255, optional
 Description: Title of Publication.

Publication_Type varchar 20, mandatory
 Description: Indicates kind of publication. (A publication may be of only one type.)
 Rule: IN ("Journal_Article", "Book", "Book_Section")

Remarks text, optional
 Description: Remarks that concern Publication.

Published_Year integer, optional
 Description: Year of publication Publication.
 Rule: BETWEEN 1700 AND 2010

Incident Foreign Keys

| Table | Field(s) | Relationship |
|--------------------|------------------------|--------------|
| Publication_Author | Publication_id | 1:m |
| Taxon_Name | Erected_Publication_id | 1:m |
| Book | Book_id | 1:1 |
| Book_Section | Book_Section_id | 1:1 |
| Journal_Article | Journal_Article_id | 1:1 |

| | | |
|----------|----------------|-----|
| Citation | Publication_id | 1:m |
|----------|----------------|-----|

Publication_Author

Description

This table records the many to many relationship between Author (Agents) and Publications. Agent is Author_Position (i.e., first, second, third, etc.) author of Publication.

Primary Key

| | |
|----------------|--|
| Agent_id | integer, mandatory Description: In this role, an Agent must be either a Person or an Organization. Foreign Key To: Agent |
| Publication_id | integer, mandatory Description: A printed work, mass produced and distributed. Foreign Key To: Publication |

Field(s)

| | |
|-----------------|---|
| Author_Position | integer, mandatory Description: Indicates the cardinal position of author in relationship to authored object. Default = 1. |
|-----------------|---|

Secondary Indexes

| | |
|------------------------|--|
| Publication_AuthorIdx2 | Compound alternate unique index over: Author_Position, Publication_id |
|------------------------|--|

Rank_Master

Description

The name of a Linnaean taxonomic rank; e.g., order, family, subfamily, tribe, genus, species, etc. This table was derived from the fact 'Rank has Rank_Order.'

Primary Key

| | |
|-----------|--|
| Rank_name | varchar 15, mandatory Description: The name of a Linnaean taxonomic rank; e.g., order, family, subfamily, tribe, genus, species, etc. |
|-----------|--|

Field(s)

Rank_Order integer, mandatory
Description: The sort order for a taxonomic rank.

Secondary Indexes

Rank_MasterIdx2 Simple alternate unique index over:
Rank_Order

Incident Foreign Keys

| Table | Field(s) | Relationship |
|------------|-----------|--------------|
| Taxon_Name | Rank_name | 1:m |

Synonymy**Description**

This table was derived from the fact 'Taxon_Name may be a synonym of Valid_Taxon_Name.' It implements a many to many relationship between synonyms and valid names.

Primary Key

| | |
|---------------|---|
| Synonym_id | longint, mandatory Description: Taxon_Name that is synonym of Valid_Taxon_Name. Foreign Key To: Taxon_Name |
| Valid_Name_id | longint, mandatory Description: Valid_Taxon_Name that has synonymous Taxon_Name. Foreign Key To: Valid_Taxon_Name |

Tax_Nam_Elem_Pos**Description**

This table was derived from the fact Taxon_Name has Taxon_Name_Element in an ordered sequence (position).

Primary Key

| | |
|---------------|--|
| Taxon_Name_id | longint, mandatory Description: An identifier used to designate a Taxon_Name. Foreign Key To: Taxon_Name |
|---------------|--|

| | |
|--------------------|---|
| Taxon_Name_Element | varchar 25, mandatory Description: A portion of a Taxon_Name; i.e., generic name, specific epithet, subspecific epithet, etc. |
| Position | smallint, mandatory Description: The position (order) of a taxonomic name element in a full taxonomic name, expressed as an integer. |

Taxon_Name

Description

The name used to designate a taxon. Taxon_Names are maintained in an authority file. This object creates the surrogate key for the taxon name. A Taxon_Name must be either valid or not (i.e., a synonym), but this rule may be relaxed to load files of names.

Primary Key

| | |
|---------------|---|
| Taxon_Name_id | longint, mandatory Description: The primary identifier of Taxon_Name |
|---------------|---|

Field(s)

| | |
|------------------------|---|
| Valid | logical, mandatory Description: Indicates whether Taxon_Name is valid or not. |
| Erected_Publication_id | integer, optional Description: Publication that was origin of Taxon_Name. Foreign Key To: Publication |
| Published_Year | integer, optional Description: Year of publication for Taxon_Name. Rule: BETWEEN 1700 AND 2010 |
| Full_Taxon_Name | varchar 60, mandatory Description: Full_Taxon_Name of Taxon_Name. |
| Private | logical, mandatory Description: Indicates whether Taxon_Name is private or not. Private names are not yet published. |
| Rank_Name | varchar 15, optional Description: Indicates the Rank of the Taxon_Name. Foreign Key To: Rank_Master |

Rule ([Private] ne 1 AND [Valid] ne 1)OR
([Private] eq 1 AND [Valid] ne 1)OR

((Private] ne 1 AND [Valid] eq 1)
 /*Only one of [Private] or [Valid] may be true at any one time.*/

Incident Foreign Keys

| Table | Field(s) | Relationship |
|---------------------|----------------------|--------------|
| Image_Content_Taxon | Taxon_Name_id | 1:m |
| Synonymy | Synonym_id | 1:m |
| Tax_Nam_Elem_Pos | Taxon_Name_id | 1:m |
| Taxon_Name_Author | Taxon_Name_id | 1:m |
| Egg_Nest | Parasitized_by_Taxon | 1:m |
| Species_Tape | Taxon_Name_id | 1:m |
| Valid_Taxon_Name | Valid_Taxon_Name_id | 1:1 |
| Ordered_Taxon | Ordered_Taxon_id | 1:1 |
| Identification | Taxon_Name_id | 1:m |
| Citation | Taxon_Name_id | 1:m |

Taxon_Name_Author

Description

Taxon_Name was authored by Person as Author_Position. This table was derived from the fact 'Taxon_Name was authored by Person as Author_Position.'

Primary Key

| | |
|---------------|--|
| Taxon_Name_id | longint, mandatory Description: The primary identifier of a Taxon_Name. Foreign Key To: Taxon_Name |
| Person_id | integer, mandatory Description: The primary identifier of a Person. Foreign Key To: Person |

Field(s)

| | |
|-----------------|---|
| Author_Position | integer, mandatory Description: Indicates the cardinal position of author in relationship to authored object. Default = 1. |
|-----------------|---|

Secondary Indexes

| | |
|-----------------------|---|
| Taxon_Name_AuthorIdx2 | Compound alternate unique index over: Taxon_Name_id, Author_Position |
|-----------------------|---|

Taxon_Protect_Status

Description

Valid_Taxon_Name may have a Protection_Status on a Protection_List.

Primary Key

| | |
|----------------------|--|
| Valid_Taxon_Name_id | longint, mandatory Description: A taxon name of a valid Taxon; i.e., a taxon that is recognized (accepted) as valid in the MVZ standard classification. Foreign Key To: Valid_Taxon_Name |
| Protection_List_name | varchar 30, mandatory Description: The name or acronym of a regulatory agency that designates protection status for species. |

Field(s)

| | |
|-------------------|--|
| Protection_Status | varchar 25, mandatory Description: Indicates the status of a taxon (species or subspecies) on a regulatory list (e.g., endangered, threatened, etc.). |
|-------------------|--|

Valid_Taxon_Name**Description**

A taxon name of a valid Taxon; i.e., a taxon that is recognized (accepted) as valid in the MVZ standard classification.

Primary Key

| | |
|---------------------|---|
| Valid_Taxon_Name_id | longint, mandatory Description: The primary identifier of Valid_Taxon_Name Foreign Key To: Taxon_Name |
|---------------------|---|

Field(s)

| | |
|-----------------|--|
| Rank_name | varchar 15, optional Description: Rank of Valid_Taxon_Name. Foreign Key To: Rank_Master |
| Parent_Taxon_id | longint, optional Description: Valid_Taxon that contains (is parent of) this Valid_Taxon. Foreign Key To: Valid_Taxon_Name |
| Ordered | logical, mandatory Description: Indicates whether Valid_Taxon_Name is ordered or not |

Incident Foreign Keys

| Table | Field(s) | Relationship |
|----------------------|---------------------|---------------------|
| Taxon_Protect_Status | Valid_Taxon_Name_id | 1:m |
| Synonymy | Valid_Name_id | 1:m |
| Valid_Taxon_Name | Parent_Taxon_id | 1:m |

Tables for Collecting Events and Localities

Agent_Collecting_Event

Description

This association table implements a many-to-many relationship, and was derived from the fact 'Agent conducted Collecting_Event.' [need to add secondary uniqueness constraint on collector_order and collecting_event.]

Primary Key

| | | |
|---------------------|-----------------|--|
| Agent_id | integer, | mandatory |
| | Description: | Agent that conducted Collecting_Event. |
| | Foreign Key To: | Agent |
| Collecting_Event_id | longint, | mandatory |
| | Description: | Collecting_Event that was conducted by Agent |
| | Foreign Key To: | Collecting_Event |

Field(s)

| | | |
|-----------------|--------------|---|
| Collector_Order | integer, | mandatory |
| | Description: | The order of the collector in the list of collectors. |

Secondary Indexes

| | |
|-----------------------------|--|
| Agent_Collecting_Event_Idx2 | Compound alternat unique index over: Collector_Order, Collecting_Event_id |
|-----------------------------|--|

Agent_Expedition

Description

This association table implements a many-to-many relationship, and was derived from the fact 'Agent participated in Expedition.'

Primary Key

| | | |
|---------------|-----------------|--|
| Agent_id | integer, | mandatory |
| | Description: | Agent that participated in Expedition. |
| | Foreign Key To: | Agent |
| Expedition_id | integer, | mandatory |
| | Description: | Expedition that included Agent. |
| | Foreign Key To: | Expedition |

Collecting_Event

Description

A conjunction of time and place, describing an event in which a collection object is collected in the field. Includes single instance for Unknown, which is used when ALL data of origin are unknown; collector, date, locality.

Primary Key

| | | |
|---------------------|---|-----------|
| Collecting_Event_id | longint, | mandatory |
| | Description: The primary identifier of Collecting_Event | |

Field(s)

| | | |
|-------------------|---|----------|
| Locality_id | longint, | optional |
| | Description: Locality that was site of Collecting_Event. Foreign Key To: Locality | |
| Expedition_id | integer, | optional |
| | Description: Expedition that conducted Collecting_Event. Foreign Key To: Expedition | |
| Began_Date | datetime, | optional |
| | Description: Date of beginning of Collecting_Event. | |
| Ended_Date | datetime, | optional |
| | Description: Date of ending of Collecting_Event. | |
| Verbatim_Date | varchar 30, | optional |
| | Description: The literal expression of collecting date as given by the collector. | |
| Verbatim_Locality | text, | optional |
| | Description: The expression of specific locality, entered as closely as possible to the original text provided by the collector (in field notes). A different description of specific locality can be made for each collecting event at a single locality. | |
| Remarks | text, | optional |
| | Description: Remarks that about Collecting_Event. | |

Rule ([Began_Date] IS NOT NULL)AND ([Ended_Date] IS NOT NULL)OR
 ([Began_Date] IS NULL)AND ([Ended_Date] IS NULL)
 /* [Ended_Date] and [Began_Date] must either both contain values or both be empty.*/

Incident Foreign Keys

| Table | Field(s) | Relationship |
|------------------------|---------------------|--------------|
| Agent_Collecting_Event | Collecting_Event_id | 1:m |
| Notes_of_Coll_Event | Collecting_Event_id | 1:m |
| Cataloged_Item | Collecting_Event_id | 1:m |

Expedition**Description**

An 'event' in which one or more collectors visit one or more localities, and conduct one or more collecting events; bounded by departure and return dates.

Primary Key

Expedition_id integer, mandatory
Description: The primary identifier of Expedition

Field(s)

Expedition_Name varchar 255, optional
Description: A descriptive name for an Expedition; typically leader of field party, place (region), and year.

Descr text, optional
Description: Description of Expedition.

Departed_Date datetime, optional
Description: Date of departure of Expedition.

Returned_Date datetime, optional
Description: Date of return of Expedition.

Incident Foreign Keys

| Table | Field(s) | Relationship |
|------------------|----------------------------|--------------|
| Agent_Expedition | Participated_Expedition_id | 1:m |
| Image_Content | Expedition_id | 1:m |
| Collecting_Event | Expedition_id | 1:m |

Field_Note_Section**Description**

A section of field notes written by a person between a range of dates. Three sections are typically created in parallel; catalog, journal, and species accounts. Sections in bound volumes are separated by blue pages. Gaps may exist within sections. Some sections are of mixed type.

Primary Key

Field_Note_Section_id integer, mandatory
 Description: The primary identifier of
 Field_Note_Section

Field(s)

Start_Date datetime, mandatory
 Description: Date of start for Field_Note_Section.

End_Date datetime, mandatory
 Description: Date of end of Field_Note_Section.

Written_Person_id integer, mandatory
 Description: Person that wrote Field_Note_Section.
 Foreign Key To: Person

Fld_Note_Sect_Type varchar 20, optional
 Description: Fld_Not_Sect_Type of
 Field_Note_Section.
 Rule: IN ("Journal", "Species Accounts", "Catalog")

Begins_Collectors_Num real, optional
 Description: Collectors_Number that is first in
 Field_Note_Section.

Ends_Collectors_Num real, optional
 Description: Collectors_Number that is last in
 Field_Note_Section.

Field_Note_Volume_id integer, optional
 Description: Field_Note_Volume that contains
 Field_Note_Section.
 Foreign Key To: Field_Note_Volume

Folder_Name varchar 20, optional
 Description: Folder_Name that contains
 Field_Note_Section.

Rule ([Folder_Name] IS NULL AND [Field_Note_Volume_id] IS NULL)OR
 ([Folder_Name] IS NOT NULL AND [Field_Note_Volume_id] IS NULL)OR
 ([Folder_Name] IS NULL AND [Field_Note_Volume_id] IS NOT NULL)
 /*Only one of [Folder_Name] or [Field_Note_Volume_id] may contain values at any one
 time.*/

Incident Foreign Keys

| Table | Field(s) | Relationship |
|---------------------|-----------------------|--------------|
| Notes_of_Coll_Event | Field_Note_Section_id | 1:m |
| Cataloged_Item | Field_Note_Section_id | 1:m |

Field_Note_Volume

Description

A bound volume of field notes (i.e., field note sections). May include sections written by different authors, so author is not single-valued attribute of volume, but rather of each section it contains.

Primary Key

Field_Note_Volume_id integer, mandatory
Description: Primary identifier of a Field_Note_Volume.

Field(s)

Volume_Title varchar 255, mandatory
Description: Volume_Title of Field_Note_Volume. (As indicated on spine of bound volume.)

Incident Foreign Keys

| Table | Field(s) | Relationship |
|--------------------|----------------------|--------------|
| Field_Note_Section | Field_Note_Volume_id | 1:m |

Geog_Auth_Rec**Description**

A record in the geographic nomenclature authority file, which provides the MVZ standard fields for describing political/natural geographic entities.

Primary Key

Geog_Auth_Rec_id integer, mandatory
Description: The primary identifier of Geog_Auth_Rec.

Field(s)

Continent_Ocean varchar 25, mandatory
Description: Continent_Ocean that contains Geog_Auth_Rec.

Country varchar 30, optional
Description: Country that contains Geog_Auth_Rec.

State_Prov varchar 30, optional
Description: State_Prov that contains Geog_Auth_Rec.

County varchar 40, optional
Description: State_Prov that contains Geog_Auth_Rec.

| | |
|--------------|--|
| Island_Group | varchar 30, optional Description: Island_Group that contains Geog_Auth_Rec. |
| Island | varchar 30, optional Description: Island that contains Geog_Auth_Rec. |

Incident Foreign Keys

| Table | Field(s) | Relationship |
|----------|------------------|--------------|
| Locality | Geog_Auth_Rec_id | 1:m |

Lat_Long**Description**

Indicates a place (point) on the earth.

Primary Key

| | |
|-------------|---|
| Lat_Long_id | integer, mandatory Description: The primary identifier of Lat_Long |
|-------------|---|

Field(s)

| | |
|-----------------------|--|
| Describes_Locality_id | longint, optional Description: Locality that Lat_Long is for. Foreign Key To: Locality |
| Lat_Deg | integer, optional Description: Degrees portion of Latitude. Rule: BETWEEN 0 AND 90 |
| Lat_Min | integer, optional Description: Minutes portion of Latitude. Rule: BETWEEN 0 AND 60 |
| Lat_Sec | double, optional Description: Seconds portion of Latitude. Rule: BETWEEN 0 AND 60 |
| Lat_Dir | varchar 1, optional Description: Direction of Latitude. Rule: IN ("N", "S") |
| Long_Deg | integer, optional Description: Degrees portion of Longitude. Rule: BETWEEN 0 AND 180 |
| Long_Min | integer, optional Description: Minutes portion of Longitude. Rule: BETWEEN 0 AND 60 |

| | |
|----------------------|--|
| Long_Sec | double, optional Description: Seconds portion of Longitude. Rule: BETWEEN 0 AND 60 |
| Long_Dir | varchar 1, optional Description: Direction of Longitude. Rule: IN ("E", "W") |
| Lat_Long_Det_Meth | varchar 10, optional Description: A code indicating the method by which a latitude - longitude was determined. Rule: IN ("GPS", "Map", "Gazetteer", "Average") |
| Remarks | text, optional Description: Remarks that about Lat_Long. |
| Determined_Date | datetime, optional Description: Date of determination for Lat_Long. |
| Determined_Person_id | integer, optional Description: Person that determined Lat_Long. Foreign Key To: Person |
| Preferred | logical, mandatory Description: Indicates whether Lat_Long is preferred or not. |
| UTM_EW | longint, optional Description: The magnitude of the east-west directional in a UTM coordinate pair. |
| UTM_NS | longint, optional Description: The magnitude of the north-south directional in a UTM coordinate pair. |
| Lat_Long_Expr_Type | varchar 7, mandatory Description: A code indicating the original form of the latitude longitude value. |
| Dec_Lat | real, mandatory Description: A latitude value expressed as decimal degrees. |
| Dec_Long | real, mandatory Description: A longitude value expressed as decimal degrees. |

Locality

Description

A place where a collecting event was conducted.

([Range] IS NOT NULL)AND ([Township] IS NOT NULL)OR ([Range] IS NULL)AND ([Township] IS NULL)

/* [Township] and [Range] must either both contain values or both be empty.*/

([Township_Direction] IS NOT NULL)AND ([Township] IS NOT NULL)OR ([Township_Direction] IS NULL)AND ([Township] IS NULL)

/* [Township] and [Township_Direction] must either both contain values or both be empty.*/

([Range_Direction] IS NOT NULL)AND ([Range] IS NOT NULL)OR ([Range_Direction] IS NULL)AND ([Range] IS NULL)

/* [Range] and [Range_Direction] must either both contain values or both be empty.*/

([Section] IS NULL OR [Range] IS NOT NULL)

/*There must be a value in [Range] before a value can be entered in [Section].*/

([Section_Part] IS NULL OR [Section] IS NOT NULL)

/*There must be a value in [Section] before a value can be entered in [Section_Part].*/

Incident Foreign Keys

| Table | Field(s) | Relationship |
|------------------|-----------------------|--------------|
| Image_Content | Locality_id | 1:m |
| Collecting_Event | Locality_id | 1:m |
| Lat_Long | Describes_Locality_id | 1:m |

Notes_of_Coll_Event

Description

This table implements a many to many relationship between Field_Note_Sections and Collecting_Events.

Primary Key

| | |
|-----------------------|--|
| Field_Note_Section_id | integer, mandatory Description: Field_Note_Section that describes Collecting_Event. Foreign Key To: Field_Note_Section |
| Collecting_Event_id | longint, mandatory Description: Collecting_Event that is described in Field_Note_Section. Foreign Key To: Collecting_Event |

Tables for People, Organizations and Addresses

Addr

Description

A description of place that allows a common carrier to deliver an item of correspondence or package. Includes everything after person and organization name. May be PO box, or street address.

Primary Key

Addr_id integer, mandatory
Description: The primary identifier of Address

Field(s)

| | |
|----------------|---|
| Street_Addr | varchar 120, mandatory Description: Street_Address that belongs to Address. Street_Address is everything else in the address except city, state, zip, and country. |
| City | varchar 30, mandatory Description: The name of the City that contains Address. |
| State | varchar 20, mandatory Description: State that contains Address; abbreviation for a US or Canadian State, or a fully spelled out state name. |
| Country | varchar 20, optional Description: Country that contains Address; the abbreviation or fully spelled out country name. |
| Zip | varchar 10, optional Description: The zip code for an address (may include international zipcodes). |
| Formatted_Addr | varchar 255, mandatory Description: Allows a user to concatenate elements of an address, and format it the way it should appear as an address label, and then save it. (Does not include Org or Person name. |
| Addr_Use | varchar 20, optional Description: Indicates specific use of address; e.g., correspondence, shipping, USPS only, Commercial Carrier, etc. |

Mail_Stop varchar 20, optional
 Description: A code used internally within a large organization to speed mail sorting and delivery to departments and offices.

Incident Foreign Keys

| Table | Field(s) | Relationship |
|------------|--------------|--------------|
| Agent_Addr | Uses_Addr_id | 1:m |

Agent**Description**

A supertype representing either a person, an organization, an informal group of people, or an ambiguously designated person (role name).

Primary Key

Agent_id integer, mandatory
 Description: The primary identifier of Agent

Field(s)

Agent_Type varchar 10, mandatory
 Description: Indicates the subtype of an Agent.

Remarks text, optional
 Description: Remarks for an Agent.

Donor_Card_Present logical, mandatory
 Description: Indicates whether a Donor Card is present for this Agent.

Incident Foreign Keys

| Table | Field(s) | Relationship |
|------------------------|--------------------|--------------|
| Agent_Expedition | Included_Agent_id | 1:m |
| Agent_Collecting_Event | Conducted_Agent_id | 1:m |
| Ambiguous_Agent | Ambig_Agent_id | 1:1 |
| Image | Made_Agent_id | 1:m |
| Image_Content | Copyright_Agent_id | 1:m |
| Group | Group_id | 1:1 |
| Org | Org_id | 1:1 |
| Person | Person_id | 1:1 |
| Publication_Author | Agent_id | 1:m |

Agent_Addr**Description**

An Agent_Address is a Person with an Address, an Organization with an Address, or a Person affiliated with an Organization and a particular Address. Correctly entered addresses are never deleted, only marked as no longer valid.

Primary Key

Agent_Addr_id integer, mandatory
Description: The primary identifier of Agent_Address

Field(s)

Uses_Addr_id integer, optional
Description: Address that is used by Agent_Address.
Foreign Key To: Addr

Org_id integer, optional
Description: Organization that acts as Agent_Address.
Foreign Key To: Org

Pers_id integer, optional
Description: Person that acts as Agent_Address.
Foreign Key To: Person

Job_Title varchar 25, optional
Description: Job_Title that describes Agent_Address. A
person has a job title only in association
with an organization. E.g., Curator,
Collection Manager, Keeper, Assistant
Professor.

Current logical, mandatory
Description: Indicates whether Agent_Address is current
or not

Remarks text, optional
Description: Remarks that are for Agent_Address.

Rule

[Pers_id] IS NOT NULL OR [Org_id] IS NOT NULL
/*At least one of [Pers_id],[Org_id] must contain a value.*/

Incident Foreign Keys

| Table | Field(s) | Relationship |
|------------------|----------------------------|--------------|
| Phone | Agent_Addr_id | 1:m |
| Trans_Agent_Addr | Agent_Addr_id | 1:m |
| Shipment | Hand_Carried_Agent_Addr_id | 1:m |
| Shipment | From_Agent_Addr_id | 1:m |
| Shipment | Shipped_To_Agent_Addr_id | 1:m |
| Permit | Issued_By_Agent_Addr_id | 1:m |

| | | |
|---------|--------------------------|-----|
| Permit | Issued_To_Agent_Addr_id | 1:m |
| Corresp | From_Agent_Addr_id | 1:m |
| Corresp | Written_To_Agent_Addr_id | 1:m |

Ambiguous_Agent

Description

An ambiguously designated person or group of people. Used as a place-holder for names such as "Indian", "Hunter", "Fisherman", "Sitka Ned", "Gambia Bay Jim", etc.

Primary Key

| | |
|--------------------|--|
| Ambiguous_Agent_id | integer, mandatory |
| | Description: The primary identifier of Ambiguous_Agent |

Field(s)

| | |
|----------------------|--|
| Ambiguous_Agent_Name | varchar 40, mandatory |
| | Description: The name of an Ambiguous_Agent. |

Secondary Indexes

| | |
|------------|---|
| Group_Idx2 | Simple alternate unique index over: Ambiguous_Agent_Name |
|------------|---|

E_Mail_Addr

Description

An electronic mail address. Typically of the form: 'user-id'@'subnet.net.domain'.

Primary Key

| | |
|-------------|---|
| E_Mail_Addr | varchar 60, mandatory |
| | Description: The primary identifier of E_Mail_Address |

Field(s)

| | |
|-----------|---|
| Person_id | integer, optional |
| | Description: Person that has E_Mail_Address. Foreign Key To: Person |
| Org_id | integer, optional |
| | Description: Organization that has E_Mail_Address. Foreign Key To: Org |

Rule [Person_id] IS NOT NULL OR [Org_id] IS NOT NULL
/*At least one of [Person_id],[Org_id] must contain a value.*/

Group**Description**

An informally constituted group of people, typically designated by person-name + "et al". Each group must be linked to at least one valid person.

Primary Key

Group_id integer, mandatory
Description: The primary identifier of Group

Field(s)

Group_Name varchar 40, mandatory
Description: The name of Group.

Secondary Indexes

Group_Idx2 Compound alternate unique index over:
Group_Name

Incident Foreign Keys

| Table | Field(s) | Relationship |
|--------------|----------|--------------|
| Group_Person | Group_id | 1:m |

Group_Person**Description**

This table records the many to many relationship between groups and people.

Primary Key

Group_id integer, mandatory
Description: Group that contains Person.
Foreign Key To: Group

Person_id integer, mandatory
Description: Person that is part of Group.
Foreign Key To: Person

Org**Description**

Organization is typically a formally constituted body, such as an institution, or a department, or an office, within an institution or agency.

Primary Key

Org_id integer, mandatory
Description: The primary identifier of Organization

Field(s)

Org_Name varchar 255, mandatory
Description: Organization_Name that designates Organization. The full name of an organization. May include line breaks. Include agency or institution name. Organization_Name must include sufficient information to make it unique. For example, "Department of Mammalogy" would be insufficient as there are probably hundreds. "Department of Mammalogy, American Museum of Natural History" would be a valid entry.

Org_Acronym varchar 20, mandatory
Description: Organization_Acronym that is used for Organization. An abbreviation for an organization.

Parent_Org_id integer, optional
Description: Organization that contains Organization.
Foreign Key To: Org

Secondary Indexes

OrgIdx2 Simple alternate unique index over:
Org_Name

OrgIdx3 Simple alternate unique index over:
Org_Acronym

Incident Foreign Keys

| Table | Field(s) | Relationship |
|-------------|---------------|--------------|
| Agent_Addr | Org_id | 1:m |
| Org | Parent_Org_id | 1:m |
| E-Mail_Addr | Org_id | 1:m |

Person

Description

An individual human being for whom the application must have a single representation.

Primary Key

Person_id integer, mandatory
Description: The primary identifier of Person

Field(s)

Prefix varchar 20, optional
Description: The honorific prefix to be used in addresses; e.g., Mr., Ms., Mrs., Dr., etc.

Last_Name varchar 20, mandatory
Description: A person's last name (family name).

First_Name varchar 20, optional
Description: A person's first name (first given name).

Middle_Name varchar 20, optional
Description: A person's middle name or names if more than one. (Any names between first given name and family name.) Enter initials if known and full middle name(s) not known. If multiple initials, separate with space; do not use periods.

Suffix varchar 20, optional
Description: The suffix of person's name: e.g., Sr., Jr., II, III, etc. Do not enter degrees held, honorifics, or job titles.

Birth_Date datetime, optional
Description: Date of birth of Person.

Death_Date datetime, optional
Description: Date of death of Person.

Remarks text, optional
Description: Remarks that concern Person.

Incident Foreign Keys

| Table | Field(s) | Relationship |
|----------------------|-------------------|--------------|
| Image_Content_Person | Person_id | 1:m |
| Taxon_Name_Author | Person_id | 1:m |
| Person_Other_Name | Person_id | 1:m |
| Trans | Auth_Person_id | 1:m |
| Trans | Entered_Person_id | 1:m |
| Agent_Addr | Pers_id | 1:m |

| | | |
|--------------------|-----------------------|-----|
| Collection_Object | Last_Edited_Person_id | 1:m |
| Collection_Object | Entered_Person_id | 1:m |
| Cataloged_Item | Assigned_Coll_Num | 1:m |
| Loan_Item | Reconciled_Person_id | 1:m |
| Loan_Due | Entered_Person_id | 1:m |
| E-Mail_Addr | Person_id | 1:m |
| Tissue_Prep | Prepared_Person_id | 1:m |
| Lat_Long | Determined_Person_id | 1:m |
| Field_Note_Section | Written_Person_id | 1:m |
| Identification | Made_by_Person_id | 1:m |

Person_Other_Name

Description

This table was derived from the fact 'Person used Other_Name as Personal_Name_Type.'

Primary Key

| | |
|--------------------|---|
| Person_id | integer, mandatory Description: An individual human being for whom the application must have a single representation. Foreign Key To: Person |
| Personal_Name_Type | varchar 20, mandatory Description: An explanatory name of a personal name, other than first, middle, or last; i.e., maiden, previous married name, nick name, etc. |

Field(s)

| | |
|------------|--|
| Other_Name | varchar 20, mandatory Description: Any other name used by a person, and not among formal given names and last name. (e.g., maiden name, name from previous marriage, nick name, etc.) |
|------------|--|

Phone

Description

This table was derived from the fact 'Agent_Address has Phone_Number with Phone_Label.'

Primary Key

| | |
|---------------|---|
| Agent_Addr_id | integer, mandatory Description: The primary identifier of an Agent_Address. Foreign Key To: Agent_Addr |
| Phone_Num | varchar 30, mandatory Description: A Phone_Number is a code (alphanumeric) containing a sequence of numbers that can be dialed on a telephone to connect to another telephone (including fax machines). May contain alphanumerics, e.g., parens, hyphens, "ext.", etc. |

Field(s)

| | |
|-------------|--|
| Phone_Label | varchar 30, mandatory Description: Indicates the specific use/and or location of a phone; e.g., office, lab, home, message. |
|-------------|--|

Tables for Transaction Management Application

Acc

Description

A Transaction in which the Museum gains title to one or more Collection Objects.

Primary Key

Accession_id integer, mandatory
 Description: The primary identifier of Accession
 Foreign Key To: Trans

Field(s)

Acc_Type varchar 20, mandatory
 Description: Accession_Type that describes Accession.
 Indicates how the material was acquired by
 the Museum.
 Rule: IN ("Gift", "Purchased", "Salvaged", "MVZ_trip",
 "Found in Museum")

Acc_Num integer, mandatory
 Description: Accession_Number that identifies
 Accession; the visible filing number for an
 Accession (Transaction).

Received_Date datetime, optional
 Description: Date of receipt for Accession.

Acc_Status varchar 20, mandatory
 Description: The current status of the Accession.
 Rule: IN ("in process", "complete")

Secondary Indexes

AccIdx2 Simple alternate unique index over:
 Acc_Num

Incident Foreign Keys

| Table | Field(s) | Relationship |
|----------------|--------------|--------------|
| Cataloged_Item | Accession_id | 1:m |

Borrow**Description**

A Transaction in which the Museum temporarily gains custody of one or more collection objects to which it does not have title.

Primary Key

| | |
|-----------|---|
| Borrow_id | integer, mandatory |
| | Description: The primary identifier of Borrow |
| | Foreign Key To: Trans |

Field(s)

| | |
|-----------------------|--|
| Borrow_Num | integer, mandatory |
| | Description: Borrow_Number that identifies a Borrow on paper. |
| Borrow_Status | varchar 20, optional |
| | Description: Indicates the current status of the Borrow. Rule: IN ("open", "partially returned", "returned") |
| Due_Date | datetime, optional |
| | Description: Date that Borrow is due on. |
| Lenders_Instructions | text, optional |
| | Description: Any special instructions issued by the lender for the care, handling, permissions, and shipping of the borrowed material. |
| Lenders_Loan_Date | datetime, optional |
| | Description: The date on the paper work sent by the lender. Sometimes helps to identify a Borrow transaction. |
| Lenders_Trans_Num_cde | varchar 20, optional |
| | Description: Lenders_Trans_Num_cde that Lender uses to identify a Borrow on paper. |
| Received_Date | datetime, optional |
| | Description: Date of receipt for Borrow. |

Corresp**Description**

Typically a letter, fax, or printed e-mail note that is filed in the MVZ's correspondence archive. Includes receipt acknowledgements for all outgoing transactions.

Primary Key

Corresp_id longint, mandatory
 Description: The primary identifier of Correspondence

Field(s)

From_Agent_Addr_id integer, mandatory
 Description: Agent_Address that wrote
 Correspondence.
 Foreign Key To: Agent_Addr

Written_Date datetime, mandatory
 Description: Date of Correspondence.

To_Agent_Addr_id integer, mandatory
 Description: Agent_Address that received
 Correspondence.
 Foreign Key To: Agent_Addr

Filed_under_Name varchar 30, mandatory
 Description: Filed_Name that holds Correspondence.

Remarks text, optional
 Description: Remarks that are for Correspondence.

Concerns_Trans_id integer, optional
 Description: Transaction that is discussed in
 Correspondence.
 Foreign Key To: Trans

Corresp_Type varchar 25, mandatory
 Description: Indicates the type (medium) of
 Correspondence; e.g., letter, fax, e-mail, or
 phone notes.

Deacc**Description**

A Transaction in which the Museum relinquishes title to one or more collection objects.
 (Removes it from the permanent collections.)

Primary Key

Deaccession_id integer, mandatory
 Description: The primary identifier of Deaccession
 Foreign Key To: Trans

Field(s)

| | |
|--------------|---|
| Deacc_Type | varchar 9, mandatory Description: Deaccession_Type that describes Deaccession; the reason (standard category) why items were deaccessioned. Rule: IN ("Discarded", "Exchanged", "Lost", "Grant", "Gift", "Lost in Transit") |
| Deacc_Number | integer, mandatory Description: Deaccession_Number that identifies Deaccession on paper. |
| Deacc_Status | varchar 20, mandatory Description: Deaccession_Status that describes Deaccession; the current processing status of a Deaccession transaction. Rule: IN ("in process", "complete") |

Secondary Indexes

Deaccidx2 Simple alternate unique index over: Filed_Deacc_Num

Incident Foreign Keys

| Table | Field(s) | Relationship |
|------------|----------------|--------------|
| Deacc_Item | Deaccession_id | 1:m |

Deacc_Item**Description**

Indicates and describes the participation of a collection object in a deaccession.

Primary Key

| | |
|---------------------|---|
| Deaccession_Item_id | integer, mandatory Description: The primary identifier of Deaccession_Item |
|---------------------|---|

Field(s)

| | |
|----------------|---|
| Deaccession_id | integer, mandatory Description: Deaccession that contains Deaccession_Item. Foreign Key To: Deacc |
| Remarks | text, optional Description: Remarks that are for Deaccession_Item. |

Refers_To_Coll_Obj_id longint, mandatory
 Description: Collection_Object that is deaccessioned as
 Deaccession_Item.
 Foreign Key To: Collection_Object

Loan

Description

A Transaction in which the Museum temporarily transfers custody of one or more collection objects to an external agent (person or organization).

Primary Key

Loan_id integer, mandatory
 Description: The primary identifier of Loan
 Foreign Key To: Trans

Field(s)

Loan_Instructions text, optional
 Description: Specific instructions for care, use, etc of a
 collection object by the borrower.

Loan_Num integer, mandatory
 Description: Loan_Number (visible) that Loan is filed
 under.

Loan_Status varchar 20, mandatory
 Description: The current status of the Loan.
 Rule: IN ("in process", "open", "closed", "partially
 returned")

Secondary Indexes

LoanIdx2 Simple alternate unique index over:
 Loan_Num

Incident Foreign Keys

| Table | Field(s) | Relationship |
|-----------|--------------------|--------------|
| Loan_Item | Belongs_To_Loan_id | 1:m |

Loan_Due**Description**

A due date (and associated management data) for a loan. May be multiple records for a loan, but only one will be the most recent revision; i.e., has most recent Entered_Date and is therefore the current due date. (A loan period can be shortened, in which case the latest due date is not the current due date.)

Primary Key

| | |
|-------------|--|
| Due_Loan_id | integer, mandatory Description: Loan that is due on Date. Foreign Key To: Trans |
| Due_Date | datetime, mandatory Description: Date that the Loan is due. (may be part of due date history; is only current due date if Entered_Date is most recent for Loan. |

Field(s)

| | |
|-------------------|--|
| Entered_Date | datetime, mandatory Description: Date of entry for Loan_Due. |
| Entered_Person_id | integer, mandatory Description: Person that entered Loan_Due. Foreign Key To: Person |

Loan_Item**Description**

A particular line-item on a particular loan; typically refers to a single collection object. A Loan-item may be a cataloged or uncataloged object (there is no count, so it can't be a lot, unless count is put in remarks).

Primary Key

| | |
|--------------|--|
| Loan_Item_id | longint, mandatory Description: The primary identifier of Loan_Item |
|--------------|--|

Field(s)

| | |
|-----------------------|--|
| Belongs_To_Loan_id | integer, mandatory Description: Loan that contains Loan_Item. Foreign Key To: Loan |
| Refers_To_Coll_Obj_id | longint, optional Description: Collection_Object that participates in Loan as Loan_Item. Foreign Key To: Collection_Object |

| | |
|-----------------------|---|
| Collectors_Num_cde | varchar 30, optional Description: Collectors_Number_cde that identifies Loan_Item; user enters this only if object is uncataloged. |
| Item_Descr | varchar 127, optional Description: The description of an item on a loan. Used for items that are not cataloged (i.e., for which no specific description exists in the database). |
| Lent_Condition | varchar 255, optional Description: Specific description of the condition of the lent object; e.g., left bulla broken. |
| Item_Instructions | varchar 255, optional Description: Specific instructions for care, use, etc of a collection object by the borrower. |
| Remarks | text, optional Description: Remarks that were received for Loan_Item from the borrower; used if borrower notes discrepancy between actual condition and described condition. |
| Reconciled_Person_id | integer, optional Description: Person that reconciled Loan_Item. Foreign Key To: Person |
| Loan_Item_Disposition | varchar 25, mandatory Description: Loan_Item_Disposition of Loan_Item. Rule: IN ("On Loan", "Deaccessioned", "Returned", "Tissue_Prep Returned", "Equiv. Tissue Returned", "Transferred") |
| Reconciled_Date | datetime, optional Description: Date of reconciliation of Loan_Item. |

Permit

Description

A Permit is a document issued by an organization (usually but not necessarily a governmental entity), that grants permission for another agent to perform certain restricted actions, including to possess restricted material.

Primary Key

| | |
|-----------|--|
| Permit_id | smallint, mandatory Description: The primary identifier of Permit |
|-----------|--|

Field(s)

| | |
|-------------------------|---|
| Issued_By_Agent_Addr_id | integer, mandatory Description: Agent_Address that issued Permit. Foreign Key To: Agent_Addr |
| Permit_Name | varchar 40, mandatory Description: The name of a permit. (not necessarily what it is for, or the issuing body, but may include these if no formal name exists). |
| Permit_Num_cde | varchar 20, optional Description: The identifying number for the permit; used only if the issuing body has assigned an id. MVZ does not create this code; it must accommodate letters, numbers, etc. |
| Issued_To_Agent_Addr_id | integer, mandatory Description: Agent_Address that receives Permit. Foreign Key To: Agent_Addr |
| Issued_Date | datetime, optional Description: Date that Permit was issued on. |
| Renewed_Date | datetime, optional Description: Date of last renewal for Permit. |
| Exp_Date | datetime, optional Description: Date of expiration Permit. |
| Remarks | text, optional Description: Remarks that are for Permit. |

Incident Foreign Keys

| Table | Field(s) | Relationship |
|-----------------|-----------|--------------|
| Permit_Trans | Permit_id | 1:m |
| Permit_Shipment | Permit_id | 1:m |

Permit_Shipment**Description**

This table implements a many to many relationship between Permit and Shipment.

Primary Key

| | |
|-----------|--|
| Permit_id | smallint, mandatory Description: Permit that authorizes Shipment. Foreign Key To: Permit |
|-----------|--|

| | |
|-------------|---|
| Shipment_id | longint, mandatory |
| | Description: Shipment that is authorized by Permit. |
| | Foreign Key To: Shipment |

Permit_Trans

Description

This table was derived from the fact 'Permit authorizes Transaction', and records the many to many relationship.

Primary Key

| | |
|-----------|--|
| Permit_id | smallint, mandatory |
| | Description: Permit that authorizes Transaction. |
| | Foreign Key To: Permit |
| Trans_id | integer, mandatory |
| | Description: Transaction that is authorized by Permit. |
| | Foreign Key To: Trans |

Shipment

Description

A Shipment is a single outgoing package that may or may not contain collection objects (i.e., may contain something other than a Transaction, such as a large printout).

Primary Key

| | |
|-------------|---|
| Shipment_id | longint, mandatory |
| | Description: The primary identifier of Shipment |

Field(s)

| | |
|--------------------------|---|
| Trans_id | integer, optional |
| | Description: Transaction that is shipped in Shipment. |
| | Foreign Key To: Trans |
| Shipped_To_Agent_Addr_id | integer, mandatory |
| | Description: Agent_Address that receives Shipment. |
| | Foreign Key To: Agent_Addr |
| From_Agent_Addr_id | integer, mandatory |
| | Description: Agent_Address that sends Shipment. |
| | Foreign Key To: Agent_Addr |

| | |
|----------------------------|---|
| Shipped_Carrier_cde | varchar 25, optional Description: The name of a commercial (common) carrier. e.g., Postal Service, United Parcel Service, Federal Express, DHL. |
| Hand_Carried_Agent_Addr_id | integer, optional Description: Agent_Address that hand carries Shipment. Foreign Key To: Agent_Addr |
| Shipping_Method_cde | varchar 20, optional Description: Indicates the shipping method (class) by which the shipment is to be shipped. Methods vary by carriers. (This "value" object -- a string value -- is shown as a simple object to indicate values should be stored as an authority file.) |
| Package_Weight | varchar 10, optional Description: Package_Weight of Shipment. |
| Shipped_Date | datetime, optional Description: Date of Shipment. |
| Hazmat | logical, mandatory Description: Indicates whether Shipment contains hazmat or not |
| Carriers_Shipment_cde | varchar 20, optional Description: An identification code assigned to a shipment (package) by the carrier. May contain alphanumeric characters and separators. |
| Remarks | text, optional Description: Remarks that are for Shipment. |
| Contents | varchar 255, mandatory Description: A brief description of the material contained in the shipment , to be printed on labels, customs forms, etc. (to be read by non-biologists). |
| Insured_Insured_Value | money, mandatory Description: Insured_Value of Shipment. Enter zero if not insured (e.g., hand-carried). |
| Rule | [Hand_Carried_Agent_Addr_id] IS NOT NULL OR [Shipped_Carrier_cde] IS NOT NULL /*At least one of [Hand_Carried_Agent_Addr_id],[Shipped_Carrier_cde] must contain a value.*/ |

([Hand_Carried_Agent_Addr_id] IS NOT NULL AND
 [Shipped_Carrier_cde] IS NULL)OR
 ([Hand_Carried_Agent_Addr_id] IS NULL AND [Shipped_Carrier_cde]
 IS NOT NULL)
 /*Only one of [Hand_Carried_Agent_Addr_id] or [Shipped_Carrier_cde] may contain
 values at any one time.*/

([Shipped_Carrier_cde] IS NOT NULL)AND
 ([Shipped_Via_Shipping_Method_cd] IS NOT NULL)OR
 ([Shipped_Carrier_cde] IS NULL)AND ([Shipped_Via_Shipping_Method_cd] IS NULL)
 /* [Shipped_Via_Shipping_Method_cd] and [Shipped_Carrier_cde] must either both
 contain values or both be empty.*/

Incident Foreign Keys

| Table | Field(s) | Relationship |
|-----------------|-------------|--------------|
| Permit_Shipment | Shipment_id | 1:m |

Trans

Description

An action that changes custody of, and/or title to, one or more collection items.

Primary Key

Trans_id integer, mandatory
 Description: The primary identifier of Transaction

Field(s)

Related_To_Trans_id integer, optional
 Description: Transaction that is referenced by
 Transaction.
 Foreign Key To: Trans

Date datetime, optional
 Description: Date of Transaction.

Trans_Type varchar 12, mandatory
 Description: Transaction_Type that describes
 Transaction. Transaction_Type indicates
 the subtype of a particular Transaction;
 subtypes are mutually exclusive.
 Rule: IN ("Accession", "Deaccession", "Loan", "Borrow")

Remarks text, optional
 Description: Remarks that are for Transaction.

Auth_Person_id integer, optional
 Description: Person that authorizes Transaction.
 Foreign Key To: Person

| | |
|--------------------|---|
| Entered_Person_id | integer, mandatory Description: Person that entered Transaction. Foreign Key To: Person |
| Nature_of_Material | varchar 255, mandatory Description: A summary description of the items covered by the Transaction. |

Incident Foreign Keys

| Table | Field(s) | Relationship |
|------------------|---------------------|--------------|
| Permit_Trans | Trans_id | 1:m |
| Trans_Agent_Addr | Trans_id | 1:m |
| Shipment | Trans_id | 1:m |
| Trans | Related_To_Trans_id | 1:m |
| Acc | Accession_id | 1:1 |
| Deacc | Deaccession_id | 1:1 |
| Loan | Loan_id | 1:1 |
| Corresp | Concerns_Trans_id | 1:m |
| Borrow | Borrow_id | 1:1 |
| Loan_Due | Due_Loan_id | 1:m |

Trans_Agent_Addr**Description**

This table was derived from the fact 'Transaction is conducted by Agent_Address as Agent_Role.' It implements a many to many relationship between Transactions and Agent_Addresses, and describes each relationship with an Agent_Role.

Primary Key

| | |
|---------------|--|
| Trans_id | integer, mandatory Description: The primary identifier of a Transaction. Foreign Key To: Trans |
| Agent_Addr_id | integer, mandatory Description: An Agent_Address is a Person with an Address, an Organization with an Address, or a Person affiliated with an Organization and a particular Address. Agents conducting new transactions must have an address. Foreign Key To: Agent_Addr |

Field(s)

| | |
|------------|---|
| Agent_Role | varchar 20, mandatory Description: Indicates role played by Agent. (e.g., borrower, lender, donor, etc.); Agent_Role must be valid for Transaction_Type. |
|------------|---|

Valid_Agent_Role

Description

This table specifies the valid Agent_Roles for each Transaction Type.

Primary Key

| | |
|------------|--|
| Trans_Type | varchar 12, mandatory Description: Transaction_Type that has valid Agent_Role. Rule: IN ("Accession", "Deaccession", "Loan", "Borrow") |
| Agent_Role | varchar 20, mandatory Description: Agent_Role that is valid for Transaction_Type. Agent_Role describes (names) the valid roles that an Agent may play in a Transaction. (e.g., borrower, lender, donor, etc.) |

Tables for Ancillary Collection Catalogs

Coll_Obj_Image_Content

Description

This table was derived from the fact 'Collection_Object is the subject of (contained in) Image_Content', and implements a many-to-many relationship.

Primary Key

| | |
|------------------|--|
| Coll_Obj_id | longint, mandatory Description: Collection_Object that is contained in a Image_Content record. Foreign Key To: Collection_Object |
| Image_Content_id | longint, mandatory Description: Image_Content record that contains Collection_Object. Foreign Key To: Image_Content |

Digital_Audio_File

Description

A computer file, containing a digital representation of an audio signal.

Primary Key

| | |
|-----------------------|--|
| Digital_Audio_File_id | integer, mandatory Description: Digital_Audio_File that was made from Vocalization_Recording. |
|-----------------------|--|

Field(s)

| | |
|-------------------|---|
| Vocal_Series_id | longint, optional Description: Vocalization_Series that is on Tape. Foreign Key To: Vocal_Recording |
| Made_From_Tape_id | longint, optional Description: Tape that holds Vocalization_Series. Foreign Key To: Vocal_Recording |

Film

Description

A cataloged item that is a film (moving image based on a photographic process). Is composed of Film Clips.

Primary Key

| | |
|---------|--|
| Film_id | longint, mandatory |
| | Description: Primary identifier of Film. |
| | Foreign Key To: Collection_Object |

Field(s)

| | |
|------------|--|
| Film_Title | varchar 80, optional |
| | Description: Title of film (if exists and is known). |

Film_Clip**Description**

A sequence of images (i.e., frames -- either on celluloid or video) that documents an organism (behavior), person, place, etc.

Primary Key

| | |
|--------------|--|
| Film_Clip_id | longint, mandatory |
| | Description: The primary identifier of Film_Clip |
| | Foreign Key To: Collection_Object |

Field(s)

| | |
|--------------|---|
| Film_Speed | integer, optional |
| | Description: Film_Speed of Film_Clip. An integer value indicating the original film speed in frames per second. |
| Playing_Time | time, optional |
| | Description: Playing_Time of Film_Clip. Indicates playing time (at normal speed). Use time data type if supported in tools; else store in seconds and display as appropriate. |

Film_Clip_in_Film**Description**

Records that a Flim_Clip is contained in a Film.

Primary Key

| | |
|--------------|---|
| Film_Clip_id | longint, mandatory |
| | Description: Film_Clip that is contained in Film. |
| | Foreign Key To: Collection_Object |

Film_id longint, mandatory
 Description: Film that contains Film_Clip.
 Foreign Key To: Collection_Object

Field(s)

Start_Position varchar 20, optional
 Description: Start_Position of Film_Clip in Film.
 Indicates the starting position of a film_clip (i.e., a moving image segment or scene) on a particular film (or video). Should be expressed in time from beginning of film.

Histo_Slide_Series**Description**

A Collection_Object that is a series of Histological_Slides, prepared from a single Biological_Individual or part thereof.

Primary Key

Histological_Slide_Series_id longint, mandatory
 Description: The primary identifier of Histological_Slide_Series
 Foreign Key To: Collection_Object

Field(s)

Histo_Stain_Proc varchar 255, optional
 Description: Indicates staining procedure used on series. A text description, not a controlled vocabulary. If this should instead be a quickly searchable list of stain types used, the field should be shortened and the relationship to series should be many to many.

Section_Width real, optional
 Description: The width of histological sections; expressed in microns. Used as label, not for calculations (?).

Slide_count integer, optional
 Description: The number (count) of slides in a Histological_Slide_Series.

Part_Name varchar 30, optional
 Description: Part_Name that is sectioned in Histological_Slide_Series.

Histo_Prep_Meth text, optional
 Description: A description of the techniques used to prepare tissue in a histological series.

| | | |
|----------------------------|----------------------|---|
| | | Includes description of decalcification method, embedding/perfusion method, etc. |
| Embedding_Medium | varchar 30, optional | Description: Indicates the material in which the specimen or tissue was embedded prior to sectioning. Stored as expandable controlled vocabulary. |
| Section_Orientation | varchar 25, optional | Description: Indicates the orientation of the sections of the specimen (part); e.g., cross section, transverse, frontal, sagittal, etc. |
| Derived_From_Biol_Indiv_id | longint, mandatory | Description: A foreign key indicating the Biological_Individual from which the Histo_Slide_Series was derived. Foreign Key To: Biol_Indiv |

Image

Description

A Cataloged_Item that is a real embodiment of a logical image (i.e., is a physical object); a painting, photograph (negative or positive), film, video, etc.

Primary Key

| | | |
|----------|--------------------|---|
| Image_id | longint, mandatory | Description: The primary identifier of Image Foreign Key To: Collection_Object |
|----------|--------------------|---|

Field(s)

| | | |
|---------------|-----------------------|---|
| Made_Agent_id | integer, optional | Description: Agent that made Image. Foreign Key To: Agent |
| Made_Date | datetime, optional | Description: Date that Image was made. |
| Image_Medium | varchar 40, mandatory | Description: Indicates the medium of a physical image. (Values listed are examples; not complete list.) Rule: IN ("Gouache on paper", "Color print", "VHS", "16 mm", etc.) |

| | |
|------------------|--|
| Storage_Loc | varchar 20, optional Description: Storage_Location of Image. Used only if not standard. |
| Condition | text, optional Description: Condition of Image. |
| Duplicates_Count | integer, optional Description: Indicates number of copies of an image that exist in the collection. (Duplicates must be identical; made from the same source at the same time.) |
| Original | logical, mandatory Description: Indicates whether Image is original or not |
| Image_Content_id | longint, optional Description: A record of describing the content (subject of) an image. Foreign Key To: Image_Content |

Incident Foreign Keys

| Table | Field(s) | Relationship |
|------------|------------------|--------------|
| Image_Orig | Derived_Image_id | 1:m |
| Image_Orig | Source_Image_id | 1:m |

Image_Content**Description**

A record that represents the logical content of an image, rather than its physical embodiment.

Primary Key

| | |
|------------------|---|
| Image_Content_id | longint, mandatory Description: The primary identifier of Image_Content Foreign Key To: Collection_Object |
|------------------|---|

Field(s)

| | |
|-------------|--|
| Locality_id | longint, optional Description: Locality that is shown in Image_Content. Foreign Key To: Locality |
| Descr | text, optional Description: Description of Image_Content. |

| | |
|--------------------|--|
| Expedition_id | integer, optional Description: Expedition that is shown in Image_Content. Foreign Key To: Expedition |
| Copyright_Agent_id | integer, optional Description: Agent that holds copyright for Image_Content. Foreign Key To: Agent |

Incident Foreign Keys

| Table | Field(s) | Relationship |
|------------------------|------------------|--------------|
| Image_Content_Person | Image_Content_id | 1:m |
| Coll_Obj_Image_Content | Image_Content_id | 1:m |
| Image_Content_Taxon | Image_Content_id | 1:m |
| Image | Image_Content_id | 1:m |

Image_Content_Person**Description**

This table implements a many-to-many relationship between Image_Content and Person.

Primary Key

| | |
|------------------|---|
| Image_Content_id | longint, mandatory Description: Image_Content that is of Person. Foreign Key To: Image_Content |
| Person_id | integer, mandatory Description: Person that is represented in Image_Content. Foreign Key To: Person |

Image_Content_Taxon**Description**

This table implements a many-to-many relationship between Image_Content and Taxon_Name.

Primary Key

| | |
|------------------|--|
| Image_Content_id | longint, mandatory Description: Image_Content that is of Taxon_Name. Foreign Key To: Image_Content |
|------------------|--|

| | |
|---------------|---|
| Taxon_Name_id | longint, mandatory Description: Taxon_Name that has Image_Content. Foreign Key To: Taxon_Name |
|---------------|---|

Image_Orig

Description

This table was derived from the fact many modified images can be made from a single source, and some derived images are produced from more than one source image (.e.g, a plate). The table implements a many-to-many relationship between Images.

Primary Key

| | |
|------------------|---|
| Derived_Image_id | longint, mandatory Description: (Copy) Image that was made from (source) Image. Foreign Key To: Image |
| Source_Image_id | longint, mandatory Description: (Source) Image that (copy) Image was made from. Foreign Key To: Image |

Karyo_Slide

Description

A Collection_Object that is a karyological slide, prepared from a Biological_Individual.

Primary Key

| | |
|----------------|--|
| Karyo_Slide_id | longint, mandatory Description: The primary identifier of Karyological_Slide Foreign Key To: Collection_Object |
|----------------|--|

Field(s)

| | |
|------------------|---|
| Karyo_Prep_Meth | varchar 40, optional Description: Indicates the method used to treat tissue and affix chromosomes to slides. |
| Karyo_Stain_Proc | varchar 255, optional Description: Indicates stain type or protocol (recipe) used to stain slide. |

| | |
|----------------------------|--|
| Karyo_Slide_num | integer, optional Description: A number (visible) appended to the specimen's catalog number to identify a particular slide; a sub-number -- i.e., appended to catalog number. |
| Derived_From_Biol_Indiv_id | longint, mandatory Description: The biological individual from which the karyological slide was derived. Foreign Key To: Biol_Indiv |

Secondary Indexes

| | |
|-----------------|---|
| Karyo_SlideIdx2 | Compound alternate unique index over: Derived_From_Biol_Indiv_id, Karyo_Slide_num |
|-----------------|---|

Species_Tape**Description**

An audio tape that contains copies of vocalization series from many Master_Tapes, but all of the same species.

Primary Key

| | |
|-----------------|---|
| Species_Tape_id | longint, mandatory Description: Species_Tape that is of Taxon_Name. Foreign Key To: Collection_Object |
|-----------------|---|

Field(s)

| | |
|---------------|--|
| Taxon_Name_id | longint, optional Description: Taxon_Name is contained on Species_Tape. Foreign Key To: Taxon_Name |
|---------------|--|

Spectrogram**Description**

A printed spectrogram of a part of a vocalization series.

Primary Key

| | |
|----------------|--|
| Spectrogram_id | integer, mandatory Description: The primary identifier of Spectrogram |
|----------------|--|

Field(s)

| | |
|-----------------|--|
| Vocal_Series_id | longint, mandatory Description: Vocalization_Series that is on Tape. Foreign Key To: Vocal_Recording |
| Tape_id | longint, mandatory Description: Tape that holds Vocalization_Series. Foreign Key To: Vocal_Recording |
| Cue_Number | varchar 30, mandatory Description: Cue_Number that Spectrogram was made from. |
| Vocal_Type | varchar 30, optional Description: Vocalization_Type that describes Spectrogram. Rule: IN ("Flight Call", "Advertising Song", "Alarm Note") |

Still_Image

Description

A physical image that is a still image (not a moving image).

Primary Key

| | |
|----------------|---|
| Still_Image_id | longint, mandatory Description: The primary identifier of Still_Image Foreign Key To: Collection_Object |
|----------------|---|

Field(s)

| | |
|------------|---|
| Dimensions | varchar 20, optional Description: Dimensions of Still_Image. |
|------------|---|

Tape

Description

A reel or cassette tape that holds vocalization recordings.

Primary Key

| | |
|---------|--|
| Tape_id | longint, mandatory Description: The primary identifier of Tape Foreign Key To: Collection_Object |
|---------|--|

Field(s)

| | |
|-------------|--|
| Tape_Format | varchar 20, optional Description: Tape_Format of Tape. Rule: IN ("Reel", "Cassette") |
| Tape_Type | varchar 10, optional Description: Tape_Type of Tape. Rule: IN ("Master", "Species") |

Vocal_Recording

Description

A recording of a Vocalization_Series on a Tape. Implements a many to many relationship between the logical event (vocal_series) and the potentially many copies of it.

Primary Key

| | |
|-----------------|--|
| Vocal_Series_id | longint, mandatory Description: Vocalization_Series that is on Tape. Foreign Key To: Collection_Object |
| Tape_id | longint, mandatory Description: Tape that holds Vocalization_Series. Foreign Key To: Collection_Object |

Field(s)

| | |
|----------------|---|
| Tape_side | varchar 1, optional Description: Tape_side of Vocalization_Recording. |
| Starts_Counter | integer, optional Description: Counter that is start of Vocalization_Recording. |
| Ends_Counter | integer, optional Description: Counter that is end of Vocalization_Recording. |

Incident Foreign Keys

| Table | Field(s) | Relationship |
|--------------------|------------------------------------|--------------|
| Spectrogram | Vocal_Series_id, Tape_id | 1:m |
| Digital_Audio_File | Vocal_Series_id, Made_From_Tape_id | 1:m |

Vocal_Series

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