Morphbank

V 2.8

Table Descriptions

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Morphbank Table Descriptions Contributors:

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the object shown in a given image), **TaxonName** annotations, **XML** annotations and **legacy** annotations.

BaseObject table structure

Field	Type	Null	Default
id	int(11)	No	
userId	int(11)	No	
groupId	int(11)	No	
dateCreated	datetime	No	
dateLastModified	datetime	No	0000-00-00 00:00:00
dateToPublish	datetime	No	0000-00-00 00:00:00
objectTypeId	varchar(50)	No	
name	varchar(64)	Yes	*NULL*
description	varchar(255)	Yes	*NULL*
submittedBy	int(11)	No	
objectLogo	varchar(25)	Yes	*NULL*
keywords	text	Yes	*NULL*
summaryHTML	text	Yes	*NULL*
thumbURL	varchar(30)	Yes	*NULL*
published	int(11)	No	0
geolocated	tinyint(1)	Yes	*NULL*
imageAltText	text	Yes	*NULL*

Definition: Holds basic key information about every object in Morphbank. Objects in Morphbank include:

and .

BasisOfRecord table structure

Field	Type	Null	Default
description	varchar(64)	Yes	Not provided
name	char(2)	No	

Definition: a Darwin Core field (dwc) clarifying the nature of the Morphbank Specimen. From http://wiki.tdwg.org/twiki/bin/view/DarwinCore/BasisOfRecord, *A descriptive term indicating whether the record represents an object or observation.* This field may help the Morphbank user to discern whether or not a voucher may exist. Current **Basis of Record** options in Morphbank include: Specimen, Observation, Living Organism,

Germplasm/Seed. In general, a dwc specimen (voucher, collection, lot) refers to a *physical object representing one or more organisms, part of organism, or artifact of an organism.*

Darwin Core field: BasisOfRecord

CharacterState table structure

Field	Type	Null	Default
id	int(11)	No	
charStateValue	varchar(32)	No	

Definition: Character States can be defined in Morphbank. Images can be used to illustrate and delimit the defined character states. A Character is considered in Morphbank to be a collection of states. The Character is stored in the Collection Table. The Morphbank object ids related to a particular Character State are stored in the CollectionObjects table which is related to the Collection Table by the Character collection id. The CharacterState table stores the id for each character and the value for that state.

Collection table structure

Field	Type	Null	Default
id	int(11)	No	
userId	int(11)	No	
groupId	int(11)	No	
name	varchar(50)	No	New collection

Definition: Any Morphbank object can be placed into a unique Morphbank Collection. A Collection is one of the object types in Morphbank. The Collection table stores the basic information about each Collection made: the Morphbank user who created the collection (userId), the Morphbank group(groupId) they were logged into when making the collection and the name of the collection.

CollectionObjects table structure

Field	Type	Null	Default
identifier	int(11)	No	
collectionId	int(11)	No	
objectId	int(11)	No	

objectOrder	int(11)	Yes	*NULL*
objectTypeId	varchar(50)	Yes	*NULL*
objectRole	varchar(128)	Yes	*NULL*
objectTitle	varchar(25)	Yes	*NULL*
startSubCollection	tinyint(1)	Yes	*NULL*
parentId	varchar(18)	Yes	*NULL*

Definition: Any Collection in Morphbank may have one or more objects and the order in which they appear in the Collection may be determined by the user and stored. This table stores the details for each object stored in each Collection. Collections may contain a single object type, for example, a collection of Images. Or, a collection may contain various object types as desired by the user. For example, as outlined above, a Collection might be a Character Collection or an OTU collection.

In adding the ability to upload data via XML, this table is also used to store the relationships between the upload objects. For example, in the online interface, Morphbank users may only set one View per Image uploaded. But, if an Image can be used to represent various specimen parts from more than one angle, one image may have several Views. With this table, an image is uploaded to Morphbank only once, with multiple related views. In this manner, when sharing data in the future, all annotations, will be related to a single image. Basically, it is an elegant way to prevent the occurence of uploading an image to Morphbank more than one time with annotations then present for any or all of each occurence of the image.

ContinentOcean table structure

Field	Type	Null	Default
description	varchar(64)	Yes	*NULL*
name	char(2)	No	*NA*

Definition: Table used as reference for the oceanContinent value in the Locality table. Undergoing revisions, note that the Locality table now has separate fields for Continent and Ocean. This ContinentOcean field is still in use via the Excel Workbook as well the Morhpbank Web interface.

Darwin Core fields: Continent, WaterBody

Country table structure

Field	Type	Null	Default

continentOcean	char(2)	No	
description	varchar(128)	No	*Not provided*
name	char(2)	No	

Definition: Table used as reference for the country value in the Locality table.

Data Source: ISO-3166-1; id is the two letter ISO abbreviation of the country.

Darwin Core field: Country

DeterminationAnnotation table structure

Field	Type	Null	Default
annotationId	int(11)	No	
specimenId	int(11)	No	
tsnId	bigint(20)	No	
rankId	smallint(6)	No	
kingdomId	int(11)	No	
rankName	varchar(140)	Yes	*NULL*
typeDetAnnotation	varchar(10)	Yes	*NULL*
sourceOfId	varchar(128)	Yes	*NULL*
collectionId	int(11)	No	
materialsUsedInId	varchar(25)	Yes	*NULL*
prefix	varchar(25)	Yes	*NULL*
suffix		Yes	*NULL*
resourcesused	varchar(128)	Yes	*NULL*
altTaxonName	varchar(35)	Yes	*NULL*

Definition: There are five types of Annotations in Morphbank. See the definition (above) of the AnnotationType table. For Determination Annotations where a user wishes to comment on the current identification of the object represented in the Image, Morphbank stores the details. A Determination Annotation is an Object in Morphbank.

Fields in this table are almost identical to those in the **HISPID** schema http://www.tdwg.org/standards/110/download/110-540-1-RV.h

name	varchar(128)	No	
description	varchar(255)	Yes	*NULL*

Definition: When a user chooses to add an External Link to an Object, they categorize the type of External Link being added. Current categories are stored here and the user may add more categories. Examples are: GenBank, Project, Institution, Publication, Ontology, Other. This choice is stored via the extLinkTypeId field in the ExternalLinkObject table above. Users opting to place their unique identifiers (GUIDs) in Morphbank, also choose an ExternalLinkTypeId = 4= External Unique Identifier).

Form table structure

Field	Type	Null	Default
name	varchar(128)	No	
description	varchar(128)	Yes	*NULL*

Definition: A supporting table that provides the items in a drop-down list for users to choose from when constructing a Morphbank View or uploading a Specimen. This table is used to hold the values that are valid entries into Specimen table field **"form". The field "form"** in the Specimen table must point to a specific record in this table.

Geolocated table structure

Field	Type	Null	Default
id	int(11)	No	

Definition: Stores the Object ids for Objects in Morphbank having latitude and longitude values. Can be used to create maps for a given set of Objects using **http://services.morphbank.net/mb2/**

Image table structure

Field	Type	Null	Default
id	int(11)	No	
userId	int(11)	No	
groupId	int(11)	No	
dateToPublish	date	No	*0000-00-00*

specimenId	int(11)	Yes	*NULL*
viewId	int(11)	Yes	*NULL*
imageHeight	int(11)	Yes	*NULL*
imageWidth	int(11)	Yes	*NULL*
resolution	int(11)	Yes	*NULL*
magnification	float	Yes	*NULL*
imageType	varchar(8)	No	
accessNum	int(18)	Yes	*NULL*
copyrightText	varchar(255)	Yes	*NULL*
originalFileName	varchar(127)	Yes	*NULL*
creativeCommons	text	Yes	*NULL*
photographer	text	Yes	*NULL*

Definition: Data associated with the Image object in Morphbank is stored here. Note the dateToPublish field. The user controls if the image is private or published. Once published, the data associated with the object cannot be changed. If the image is private, the user can upload a replacement image in the event the uploaded image for a given image record was not correct.

ImagingPreparationTechnique table structure

Field	Type	Null	Default
name	varchar(128)	No	
description	varchar(128)	Yes	*NULL*

Definition: Supporting table that provides values for the imaging preparation technique field in the View table. Users may add these as needed.

ImagingTechnique table structure

Field	Type	Null	Default
name	varchar(128)	No	
description	varchar(128)	Yes	*NULL*

Definition: Supporting table that provides values for the imaging technique field in the View table. Users may add these as needed.

Keywords table structure

Field	Type	Null	Default
id	int(11)	No	
userId	int(11)	Yes	*NULL*
groupId	int(11)	Yes	*NULL*
dateToPublish	datetime	Yes	*NULL*
objectTypeId	varchar(50)	Yes	*NULL*
keywords	text	Yes	*NULL*
submittedBy	int(11)	No	
geolocated	tinyint(1)	Yes	*NULL*

Definition: Table constructed nightly from all Morphbank Objects. Provides a unique single table to query which facilitates faster searching by users and a quicker, more responsive user-interface.

Locality table structure

Field	Type	Null	Default
id	int(11)	No	
continentOcean	varchar(128)	Yes	*NULL*
country	varchar(128)	Yes	*NULL*
locality	text	Yes	*NULL*
latitude	double	Yes	*NULL*
longitude	double	Yes	*NULL*
coordinatePrecision	int(11)	Yes	*NULL*
minimumElevation	smallint(6)	Yes	*NULL*
maximumElevation	smallint(6)	Yes	*NULL*
minimumDepth	smallint(6)	Yes	*NULL*
maximumDepth	smallint(6)	Yes	*NULL*
imagesCount	bigint(20)	Yes	*0*
county	varchar(128)	Yes	*NULL*
state	varchar(128)	Yes	*NULL*
paleoGroup	varchar(128)	Yes	*NULL*
paleoFormation	varchar(128)	Yes	*NULL*
paleoMember	varchar(128)	Yes	*NULL*
paleoBed	varchar(128)	Yes	*NULL*

continent	varchar(128)	Yes	*NULL*
ocean	varchar(128)	Yes	*NULL*
informationWithheld	text	Yes	*NULL*

Definition: Locality information is stored separately from the Specimen data. This was originally done to facilitate others being able to use any given locality record if the same data applied to their own Specimens. In reality, it seems most users' localities are unique to their own data. It is likely that given more development time, these fields would be moved to the Specimen table.

Darwin Core fields:
continent
waterBody (= to Morphbank Locality.ocean)
decimalLatitude
decimalLongitude
coordinatePrecision
county
stateProvince
locality
minimumElevationInMeters
maximumElevationInMeters
minimumDepthInMeters
maximumDepthInMeters
Group
Formation
Member
Bed
informationWithheld

Matrix table structure

Field	Type	Null	Default
id	int(11)	No	
numRows	int(11)	Yes	*NULL*
numChars	int(11)	Yes	*NULL*
gap	char(5)	Yes	-
missing	char(5)	Yes	*?*

Definition: This table is currently still in the testing/development phase. The Matrix component of Morphbank may be further developed in the future. It includes the MatrixCell and MatrixCellValue tables. Purpose is to create functionality to associate images in Morphbank with a Matrix to illustrate the character states for each taxonomic entity in the Matrix.

MatrixCell table structure

Field	Type	Null	Default
id	int(11)	No	
matrixId	int(11)	No	
rowNum	int(5)	Yes	*NULL*
columnNum	int(5)	Yes	*NULL*
charStateList	text	Yes	*NULL*
value	varchar(45)	Yes	*NULL*

Definition: Stores the information for each object in each cell of a matrix. Again this functionality of morphbank is in development/testing phase only.

MatrixCellValue table structure

Field	Type	Null	Default
id	int(11)	No	
matrixId	int(11)	Yes	*NULL*
row	int(11)	No	
col	int(11)	No	
value	varchar(12)	No	

Definition: Stores the information for each cell of a matrix. This functionality of morphbank is in development/testing phase only.

MbCharacter table structure

Field	Type	Null	Default
id	int(11)	No	
label	varchar(8)	Yes	*NULL*
characterNumber	varchar(32)	Yes	*NULL*
discrete	tinyint(1)	No	
ordered	tinyint(1)	Yes	*NULL*
publicationId	int(11)	Yes	*NULL*

pubComment	text	Yes	*NULL*

Definition: A Character can be defined in Morphbank and states for that Character delineated. Continuous and ordered characters are not supported in this version.

MirrorInfo table structure

Field	Type	Null	Default
serverId	int(5)	No	*1*
imageId	int(11)	No	*1*

Definition: Stores data needed for mirror sites.

Otu table structure

Field	Type	Null	Default
id	int(11)	No	
label	varchar(32)	No	

Definition: *Operational Taxonomic Units* (OTU)s are Objects in Morphbank defined using Specimen Records and / or Taxon Names. OTUs express a concept of a possible new classification, or grouping of taxa. Each OTU id is stored here. The Specimen Record and / or Taxon Name ids that compose each OTU are stored in the CollectionObjects Table and related by the Otu.id

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Publication table structure

Field	Type	Null	Default
id	int(11)	No	
doi	varchar(128)	Yes	*NULL*
publicationType	varchar(18)	Yes	*NULL*
address	varchar(64)	Yes	*NULL*
annote	varchar(255)	Yes	*NULL*
author	varchar(128)	Yes	*NULL*
publicationTitle	varchar(256)	Yes	*NULL*
chapter	varchar(256)	Yes	*NULL*
edition	varchar(64)	Yes	*NULL*
editor	varchar(256)	Yes	*NULL*

Field	Type	Null	Default
id	int(11)	No	
doi	varchar(128)	Yes	*NULL*
publicationType	varchar(18)	Yes	*NULL*
address	varchar(64)	Yes	*NULL*
annote	varchar(255)	Yes	*NULL*
author	varchar(128)	Yes	*NULL*
publicationTitle	varchar(256)	Yes	*NULL*
chapter	varchar(256)	Yes	*NULL*
edition	varchar(64)	Yes	*NULL*
editor	varchar(256)	Yes	*NULL*
howPublished	varchar(128)	Yes	*NULL*
institution	varchar(128)	Yes	*NULL*
key	varchar(64)	Yes	*NULL*
month	enum('Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun', 'Jul', 'Aug', 'Sep', 'Oct', 'Nov', 'Dec')	Yes	*NULL*
day	tinyint(5)	Yes	*NULL*
note	tinytext	Yes	*NULL*
number	varchar(11)	Yes	*NULL*
organization	varchar(128)	Yes	*NULL*
pages	varchar(64)	Yes	*NULL*
publisher	varchar(128)	Yes	*NULL*
school	varchar(128)	Yes	*NULL*
series	varchar(128)	Yes	*NULL*
title	varchar(256)	Yes	*NULL*
volume	varchar(11)	Yes	*NULL*
year	varchar(10)	Yes	*NULL*
isbn	varchar(64)	Yes	*NULL*
issn	varchar(64)	Yes	*NULL*

Definition: Users may add Publication records to Morphbank to verify when and where a Taxon Name was first published. Users may also add their own Publication data to Morphbank associated with their image contributions to Morphbank. For example, a Character may be illustrated in a Publication, that character is delineated in Morphbank with associated images. The Publication can be linked to the Character in Morphbank as well as the Images.

Sex table structure

Field	Type	Null	Default

name	varchar(128)	No	*Not provided*
description	varchar(128)	No	*Not provided*

Definition: Supporting table holding values that populate a drop-down for choosing the sex of the Specimen and the sex of the View related to the Image of a given specimen.

Darwin Core field: sex
see: http://rs.tdwg.org/dwc/terms/history/index.htm#sex-2009-04-24

Specimen table structure

Field	Type	Null	Default
id	int(11)	No	
basisOfRecordId	char(2)	Yes	*NULL*
sex	varchar(128)	Yes	*NULL*
form	varchar(128)	Yes	*NULL*
developmentalStage	varchar(128)	Yes	*NULL*
preparationType	varchar(255)	Yes	*NULL*
individualCount	int(11)	Yes	*NULL*
tsnId	bigint(20)	Yes	*NULL*
typeStatus	varchar(64)	Yes	*NULL*
name	text	Yes	*NULL*
dateIdentified	datetime	Yes	*NULL*
comment	text	Yes	*NULL*
institutionCode	varchar(128)	Yes	*NULL*
collectionCode	varchar(128)	Yes	*NULL*
catalogNumber	varchar(128)	Yes	*NULL*
previousCatalogNumber	varchar(128)	Yes	*NULL*
relatedCatalogItem	varchar(128)	Yes	*NULL*
relationshipType	varchar(128)	Yes	*NULL*
collectionNumber	varchar(128)	Yes	*NULL*
collectorName	text	Yes	*NULL*
dateCollected	datetime	Yes	*NULL*
localityId	int(11)	Yes	*NULL*
notes	text	Yes	*NULL*
taxonomicNames	text	Yes	*NULL*
imagesCount	bigint(20)	Yes	*0*
standardImageId	int(11)	Yes	*NULL*
ocr	text	Yes	*NULL*
barCode	varchar(45)	Yes	*NULL*

labelData	text	Yes	*NULL*
earliestDateCollected	datetime	Yes	*NULL*
latestDateCollected	datetime	Yes	*NULL*

Definition: Specimen data stored in this table is related to the Image Records via the specimenId stored in the Image table. Note some fields are new and appear here in the table, but have not yet been added to the user-interface (earliestDateCollected, latestDateCollected).

Darwin Core fields:
basisOfRecord
institutionCode
collectionCode
collectionId (=Morphbank Specimen GUID via ExternalLinkObject table)
catalogNumber
occurrenceRemarks (=Specimen.notes)
recordNumber (=Specimen.collectionNumber)
recordedBy (=Specimen.collectorName)
individualCount
sex
lifeStage (=Specimen.developmentalStage)
preparations (=Specimen.preparationType)
otherCatalogNumbers (=Specimen.previousCatalogNumber)
identificationID (?Specimen.tsnId)
identifiedBy (=Specimen.name)
dateIdentified
identificationRemarks (=Specimen.comment)
typeStatus

For Darwin Core terms & definitions, see: http://rs.tdwg.org/dwc/terms/index.htm

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SpecimenPart table structure

Field	Type	Null	Default
name	varchar(255)	No	
description	varchar(128)	No	*Not provided*

Definition: Users may add Specimen Parts as needed (via the web or other upload strategies). Specimen Parts are part of the Morphbank View Object. A View provides information about what is seen in a particular image.

TaxonConcept table structure

Field	Type	Null	Default
id	int(11)	No	
tsn	bigint(20)	No	
nameSpace	varchar(32)	Yes	*NULL*
status	varchar(32)	Yes	*NULL*

Definition: The TaxonConcept table links new Taxon Names added to the database via the TaxonConcept.id = BaseObject.id and the tsn. Taxon Names are in Tree via the TSN. Names in the TaxonConcept table appear in the Taxa tab of My Manager. It is intended that the Taxon Names added to Tree also get added to the Taxa Table. This is occurring via the web, but not via other upload strategies. The tables are not in sync. This means some names do not appear in the Taxa table that are present in Tree. Those wishing to edit their taxon names can only do so if their names are present in the Taxa table. Only Taxon Names present in the Taxa table are available to create OTUs. Further development of the OTU functionality in Morphbankn will require synching these tables.

Tree table structure

Field	Type	Null	Default
tsn	bigint(20)	No	*0*
unit_ind1	char(1)	Yes	
unit_name1	varchar(35)	Yes	
unit_ind2	char(1)	Yes	
unit_name2	varchar(35)	Yes	
unit_ind3	varchar(7)	Yes	
unit_name3	varchar(35)	Yes	
unit_ind4	varchar(7)	Yes	
unit_name4	varchar(35)	Yes	
scientificName	text	Yes	*NULL*
taxon_author_id	int(11)	Yes	*NULL*
letter	char(1)	Yes	
usage	varchar(12)	No	
unaccept_reason	varchar(50)	Yes	*NULL*
credibility_rtng	varchar(40)	No	
completeness_rtng	varchar(10)	Yes	*NULL*
currency_rating	varchar(7)	Yes	*NULL*
parent_tsn	bigint(20)	Yes	*NULL*

kingdom_id	smallint(6)	Yes	*NULL*
rank_id	smallint(6)	Yes	*NULL*
lft	int(11)	Yes	*NULL*
rgt	int(11)	Yes	*NULL*
imagesCount	bigint(20)	Yes	*0*
nameType	varchar(32)	Yes	*NULL*
nameSource	varchar(64)	Yes	*NULL*
comments	text	Yes	*NULL*
tradeDesignationName	varchar(64)	Yes	*NULL*
pages	varchar(32)	Yes	*NULL*
publicationId	int(11)	Yes	*NULL*

Definition: Basically a table copied from ITIS. Morphbank used this table of Taxon Names as a starting point. Many new names have been added to it. TSNs beginning with 999 are Morphbank added taxa.

Added Fields: (not in the original ITIS table)
scientificName – the name given to a specimen; the name string only (not authority)
imagesCount – from a cron job script, the number of images for a given taxon name
nameSource – when a user adds a name, the place where (or group who has) the authority and taxonomic history can be found (IPNI, TROPICOS, uBio, SCAMIT,…)
tradeDesignationName – for the botanical gardens
pages – referring to the pages in a given publication where the name data is found
publicationId – the Morphbank Publication Id when a user provides the publication information for a given taxon name.

TypeStatus table structure

Field	Type	Null	Default
name	varchar(64)	No	
description	varchar(255)	Yes	*NULL*

Definition: From a standard list of accepted terms for indicating Type Status for a given specimen. The list is controlled, users may not add new terms to the list. Current terms are from ICBN and ICZN nomeclature protocols.

UserProperty table structure

Field	Type	Null	Default
id	int(11)	No	

objectId	int(11)	No	
name	varchar(255)	No	
value	text	No	
namespaceURI	varchar(255)	Yes	*NULL*

Definition: Morphbank sometimes finds users wish to store fields & the related data for fields Morphbank does not have. Using the triple store concept, currently via xml upload only, this table enables users to insert this related data.

This table stores the id for the *user property,* the Morphbank <objectId> with which to associate the *user property*, the <name> of the *user property* field, the <value> to display for the field and the <namespace URI> if the field is from an accepted Schema. Therefore, this table, the BaseObject table & the table pertaining to each Morphbank Object Id makes up the *triple store.*

Vernacular table structure

Field	Type	Null	Default
tsn	bigint(20)	No	*0*
vernacular_name	varchar(80)	No	
language	varchar(15)	No	
approved_ind	char(1)	Yes	*NULL*
update_date	date	No	
vern_id	bigint(20)	No	*0*

Definition: From ITIS. This table was adopted from ITIS at the beginning of the Morphbank project. Users have added new common names. Any TSN beginning with 999 has been added by Morphbank users.

View table structure

Field	Type	Null	Default
id	int(11)	No	
viewName	text	Yes	*NULL*
imagingTechnique	varchar(128)	Yes	*NULL*
imagingPreparationTechnique	varchar(128)	Yes	*NULL*
specimenPart	varchar(255)	Yes	*NULL*
viewAngle	varchar(128)	Yes	*NULL*
developmentalStage	varchar(128)	Yes	*NULL*

sex	varchar(128)	Yes	*NULL*
form	varchar(128)	Yes	*NULL*
viewTSN	bigint(20)	Yes	*NULL*
isStandardView	int(1)	Yes	*NULL*
standardImageId	int(11)	Yes	*NULL*
imagesCount	int(20)	Yes	*0*

Definition: In Morphbank, a View provides information about the Image. The Image table is related via Image.viewId. The standardImageId holds the Image Id to be used to pull up a given image to represent that View. imagesCount comes from a cron job script that counts how many images are present using a particular View.

ViewAngle table structure

Field	Type	Null	Default
name	varchar(128)	No	
description	varchar(128)	Yes	*NULL*

Description: Via the web, or Excel spreadsheet, users can add items to this drop-down. viewAngle is part of a Morphbank View.