

## Sonoran INvasivse Species (SINS) Database

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The ASDM Invaders DB was developed to track all of our volunteer citizen scientists, their invasive species observations and miscellaneous administrative items. Since there are a number of other databases running at ASDM the decision was made to integrate this project into our existing enterprise structure. Doing so allowed us to reuse a great deal of our previously written code and other objects. It may add a little overhead if used as a standalone application.

In addition to locating and identifying invasive species, the system tracks:

- Volunteer contact information
- Number of volunteer hours (useful for future grants)
- Observations submitted per person
- Contact info and interests for local and national partners
- Other species of interest that are not on our targeted list
- Website glossary and related links listings

There are very few reports built into the system. However, with a basic knowledge of database queries you can slice and dice the data in a variety of innovative ways.

The data collection and management system developed for the Invasive Species project has three main components.

Component	Software	Installation	Users	Purpose
Data tables	MySQL	Linux Server	Desktop and web components.	Container for all data and records related to the project
Desktop interface	MS Access	Invader Team PC's	ASDM administrators and Invaders Team.	Track volunteer and partner info. Manage lookup lists. Database maintenance
Web interface	PHP	Compatible with most web browsers	Volunteers, local scientists, partners.	Observation entry and verification.



maintained by the Museum's volunteer coordinator, the Invaders team needs to add only project specific items. Volunteers enter their own hours on another computer so no staff time is spent keying in these details.

Various website items are also maintained from this program. Including the glossary, related web links, and categories.

## **Web Interface**

We chose a web interface for basic data entry to provide maximum compatibility across computer platforms and make it simple for our volunteers to access it from home or other off site locations.

The web interface is not only the primary manifestation of the project for our Citizen Scientists Volunteers, it is also used by our species experts to review and approve observations before the data are allowed into the live db and submitted to the national clearinghouse.

Once a volunteer logs in, with the same username/password combination used for logging into our Volunteer Tracking system, they can enter new sites and observations, review previous entries and even edit entries that are still pending approval. This section of the site is developed in PHP using standard database connection calls and queries. A session variable is set upon first logon so users don't have to re-enter their name for each data record.

The code is written for the specific hardware/software configuration used at the Desert Museum, but can be adapted for local use by someone who is moderately skilled in PHP.

## **Table Documentation**

Listed below is a dump of fields and characteristics used by the SINS database. Keep in mind that some of these tables are used for Museum wide application so not all fields are relevant to the Invaders Project.

# SINS Table Documentation

## tbl\_address

Desc: Address and contact information for Volunteers/Partners.

Design 4/6/2005      Records 5420

<u>Field</u>	<u>Typ</u>	<u>Siz</u>	<u>AutoInc</u>	<u>Require</u>	<u>Default</u>	<u>Description</u>
address_id	Long	4	No	No		
phone	Text	50	No	No		used as key to link to tbl_name
phone_loc	Text	50	No	No		
alt_phone	Text	50	No	No		
fax	Text	50	No	No		
add1	Text	50	No	No		
add2	Text	50	No	No		
city	Text	50	No	No		
state	Text	50	No	No		
zip	Text	50	No	No		
country	Text	50	No	No		
s_add1	Text	50	No	No		
s_add2	Text	50	No	No		
s_city	Text	50	No	No		
s_state	Text	50	No	No		
s_zip	Text	50	No	No		
s_country	Text	50	No	No		
s_begin	Date/Time	8	No	No		
s_end	Date/Time	8	No	No		
notes	Text	255	No	No		

## tbl\_asdm\_privileges

Desc: Defines access level for volunteers, partners and administrators

Design 4/6/2005      Records 1213

<u>Field</u>	<u>Typ</u>	<u>Siz</u>	<u>AutoInc</u>	<u>Require</u>	<u>Default</u>	<u>Description</u>
priv_id	Long	4	No	No		
name_id	Long	4	No	No		links to tbl_name
system_name	Text	100	No	No		which ASDM database is this privledge for
privilege_level	Integer	2	No	No		numerical value relating to amount of access
start_date	Date/Time	8	No	No		
end_date	Date/Time	8	No	No		

**tbl\_asdm\_usernames**Desc Username and password for logging on to any ASDM databaseDesign 4/6/2005 Records 673

<u>Field</u>	<u>Typ</u>	<u>Siz</u>	<u>Autolnc</u>	<u>Require</u>	<u>Default</u>	<u>Description</u>
name_id	Long	4	No	No		
user_name	Text	50	No	No		logon name
password	Text	255	No	No		MD5 encrypted password

**tbl\_inv\_extras**Desc: Misc people items that don't belong in tbl\_nameDesign 4/6/2005 Records 3

<u>Field</u>	<u>Typ</u>	<u>Siz</u>	<u>Autolnc</u>	<u>Require</u>	<u>Default</u>	<u>Description</u>
inv_ext_id	Long	4	No	No		
name_id	Long	4	No	No		
level	Long	4	No	No		expertise level of a volunteer or scientist
title	Text	50	No	No		
org_id	Long	4	No	No		link to tbl_org
notes	Memo	0	No	No		
name_species_id	Long	4	No	No		

**tbl\_inv\_landform**Desc Used to populate landform combo boxesDesign 4/6/2005 Records 13

<u>Field</u>	<u>Typ</u>	<u>Siz</u>	<u>Autolnc</u>	<u>Require</u>	<u>Default</u>	<u>Description</u>
landform_id	Long	4	No	No		
landform	Text	50	No	No		
notes	Text	255	No	No		

**tbl\_inv\_name\_species**Desc linking table to map a person to many speices of interest of expertiseDesign 4/6/2005 Records 0

<u>Field</u>	<u>Typ</u>	<u>Siz</u>	<u>Autolnc</u>	<u>Require</u>	<u>Default</u>	<u>Description</u>
name_species_id	Long	4	No	No		
nameID	Long	4	No	No		
species_id	Long	4	No	No		
notes	Text	50	No	No		

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**tbl\_inv\_observation**Desc Main table containing info about a single species observationDesign 4/6/2005      Records 64

<u>Field</u>	<u>Typ</u>	<u>Siz</u>	<u>Autolnc</u>	<u>Require</u>	<u>Default</u>	<u>Description</u>
obs_id	Long	4	No	No		
species_id	Long	4	No	No		link to tbl_species
age	Text	50	No	No		
patch_type	Text	50	No	No		
obs_type	Text	50	No	No		
aided_by	Text	50	No	No		
plot_id	Long	4	No	No		
abundance	Text	50	No	No		
patch_qual	Text	50	No	No		
life_form	Text	50	No	No		
verified	Text	1	No	No		>
verifyBy	Integer	2	No	No		- flags whether data has been vetted
verifyDate	Date/Time	8	No	No		>
sent_usgs	Date/Time	8	No	No		submitted to national DB
notes	Text	255	No	No		

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**tbl\_inv\_organization**Desc general information about partner organizationsDesign 4/6/2005      Records 12

<u>Field</u>	<u>Typ</u>	<u>Siz</u>	<u>Autolnc</u>	<u>Require</u>	<u>Default</u>	<u>Description</u>
org_id	Long	4	No	No		
organization	Text	255	No	No		
add1	Text	50	No	No		
add2	Text	50	No	No		
city	Text	50	No	No		
state	Text	50	No	No		
zip	Text	50	No	No		
country	Text	50	No	No		
phone	Text	50	No	No		
fax	Text	50	No	No		
website	H'link	0	No	No		
type	Text	50	No	No		
interest	Memo	0	No	No		
mission	Text	50	No	No		
partner_status	Text	50	No	No		
logo	Text	50	No	No		
vol_field	Integer	2	No	No		
vol_research	Integer	2	No	No		
vol_eradication	Integer	2	No	No		
seas_spring	Integer	2	No	No		

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## tbl\_inv\_plot

Desc detailed info about sites visited.  
Design 4/6/2005      Records 52

<u>Field</u>	<u>Typ</u>	<u>Siz</u>	<u>Autolnc</u>	<u>Require</u>	<u>Default</u>	<u>Description</u>
plot_id	Long	4	No	No		
nameID	Long	4	No	No		links to record submitter
verified	Text	1	No	No		
verifyDate	Date/Time	8	No	No		
verifyBy	Integer	2	No	No		
date	Date/Time	8	No	No		
time	Text	8	No	No		
temp	Long	4	No	No		
conditions	Text	255	No	No		
start_lat	Double	8	No	No		
start_lon	Double	8	No	No		
start_slope	Long	4	No	No		
start_aspect	Text	50	No	No		
start_elv	Long	4	No	No		
start_notes	Memo	0	No	No		
start_water	Integer	2	No	No		
start_road	Integer	2	No	No		
rem_brng	Long	4	No	No		not currently used
rem_dist	Long	4	No	No		not currently used
end_lat	Double	8	No	No		not currently used
end_lon	Double	8	No	No		not currently used
end_slope	Long	4	No	No		not currently used
end_aspect	Text	50	No	No		not currently used
end_elv	Long	4	No	No		not currently used
end_notes	Memo	0	No	No		not currently used
end_water	Integer	2	No	No		not currently used
end_road	Integer	2	No	No		not currently used
veg_id	Long	4	No	No		
landform_id	Long	4	No	No		
rip_id	Long	4	No	No		
has_obs	Text	1	No	No		
dist_fire	Text	1	No	No		
dist_flood	Text	1	No	No		
dist_clear	Text	1	No	No		
dist_urban	Text	1	No	No		
dist_other	Text	1	No	No		

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**tbl\_inv\_riparian**

Desc Used to populate riparian combo boxes

Design 4/6/2005 Records 6

<u>Field</u>	<u>Typ</u>	<u>Siz</u>	<u>Autolnc</u>	<u>Require</u>	<u>Default</u>	<u>Description</u>
rip_id	Long	4	No	No		
rip_type	Text	50	No	No		
rip_notes	Text	255	No	No		

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**tbl\_inv\_species**

Desc list of species

Design 4/6/2005 Records 9

<u>Field</u>	<u>Typ</u>	<u>Siz</u>	<u>Autolnc</u>	<u>Require</u>	<u>Default</u>	<u>Description</u>
species_id	Long	4	No	No		
sci_name	Text	255	No	No		scientific name
eng_name	Text	50	No	No		English name
spa_name	Text	50	No	No		Spanish name
usda_code	Text	10	No	No		maps to USDA species codes
type	Text	50	No	No		animal or plant
active	Text	1	No	No		is it currently on our hit list?

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**tbl\_inv\_vegtype**

Desc Used to populate Vegetation type combo boxes

Design 4/6/2005 Records 9

<u>Field</u>	<u>Typ</u>	<u>Siz</u>	<u>Autolnc</u>	<u>Require</u>	<u>Default</u>	<u>Description</u>
veg_id	Long	4	No	No		
veg_type	Text	50	No	No		
notes	Text	50	No	No		

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**tbl\_training\_history\_dv**

Desc Tracks formal training of volunteers

Design 4/28/2005 Records 1685

<u>Field</u>	<u>Typ</u>	<u>Siz</u>	<u>Autolnc</u>	<u>Require</u>	<u>Default</u>	<u>Description</u>
name_id	Long	4	No	No		
train_id	Long	4	No	No		link to specific course
complete_date	Date/Time	8	No	No		
grade	Text	50	No	No		
expiration_date	Date/Time	8	No	No		used if re-cert is necessary

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**tbl\_name**

Desc Basic info about the person  
Design 4/6/2005 Records 6363

<u>Field</u>	<u>Typ</u>	<u>Siz</u>	<u>AutoInc</u>	<u>Require</u>	<u>Default</u>	<u>Description</u>
name_id	Long	4	No	No		
fname	Text	50	No	No		
lname	Text	50	No	No		
sal	Text	50	No	No		
gender	Text	2	No	No		
email	Text	255	No	No		
phone	Text	50	No	No		
member	Integer	2	No	No		
member_id	Text	20	No	No		
coati_club	Text	50	No	No		
birthday	Date/Time	8	No	No		
docent	Text	15	No	No		
volunteer	Text	15	No	No		
notes	Memo	0	No	No		
historical	Date/Time	8	No	No		
staff_code	Text	10	No	No		
mass_mail_optout	Integer	2	No	No		

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**tbl\_privilege\_levels**

Desc Lookup list for humans to decipher numeric privilege levels  
Design 4/25/2005 Records 33

<u>Field</u>	<u>Typ</u>	<u>Siz</u>	<u>AutoInc</u>	<u>Require</u>	<u>Default</u>	<u>Description</u>
privlevel_id	Long	4	No	No		
privilege_name	Text	50	No	No		admin, user, poweruser, etc
privilege_level	Integer	2	No	No		numeric value
docs	Memo	0	No	No		detail description of access
sysname	Text	15	No	No		Which ASDM database: INV/AST/PuPITS/etc..

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**tbl\_training\_dv**

Desc Info about a specific training course  
Design 4/28/2005 Records 15

<u>Field</u>	<u>Typ</u>	<u>Siz</u>	<u>AutoInc</u>	<u>Require</u>	<u>Default</u>	<u>Description</u>
train_id	Long	4	No	No		
train_name	Text	50	No	No		
is_docent_training	Integer	2	No	No		Required for Docents
is_volunteer_training	Integer	2	No	No		Required for Volunteers
expiration_freq	Integer	2	No	No		need to re-cert every x-units
expiration_units	Integer	2	No	No		days, weeks, months