



**USER'S GUIDE TO COMPUTER TOOLS FOR INFORMATION
SHARING IN THE SOUTHWEST**

SWEPIC, SWEMP AND SW-WIMS

Appendix B

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Appendix B: Guide to the SWEMP Database

This guide can be used by collaborators who are submitting weed occurrence data using an excel or Access file to help format their submitted data. We recommend reading the Southwest Exotic Plant Mapping Program section in the User's Guide. This guide also describes the data fields for users of the SWEMP database.

Important database terminology

Record: The rows indicate records, or the actual information recorded for each weed occurrence.

Data type: In a database, such as Excel or Access, each field holds a type of data, for example, text, number, date. The data type, along with the field size, indicates the database structure.

Field: The columns identify fields, each one of which is a particular type of information about a weed occurrence.

Field size: In database software such Access each field is a certain size. The field size, along with the database type, indicates the database structure.

Flat file: A flat file is a database that shows rows and columns. The SWEMP team maintains the database as a relational database (many tables related to each other through a common identification number) but distributes the data as a flat file. Collaborators that send the team data usually do so with a flat file. A flat file has rows and columns.

Structure: The data type and field size for any field.

How to Collaborate

The minimum data fields required to submit data to the SWEMP regional database are:

- Collection_Date
- Scientific_Name OR USDA_Code
- GrossArea and CanopyCover OR Infested_Area
- Lat_Dec_Degrees (if in UTM SWEMP will convert)
- Long_Dec_Degrees (if in UTM SWEMP will convert)
- Datum
- State
- Source

Each of these fields is described below in the Database Fields section. If a collaborator does not provide the GrossArea and CanopyCover or Infested_Area, SWEMP will enter

the occurrence record area as 'No Data.' If a collaborator does not provide the size data SWEMP will still enter the location records and indicate no data provided on the size of infestation. While we prefer to receive the submitted records formatted as described below, we will work with you if they are not.

Database Fields

The fields contained in the SWEMP regional database follow the North American Weed Management Association's North American Invasive Plant Mapping Standards (<http://www.nawma.org/>) as closely as possible. The list below shows all fields, alphabetically, in the compiled database with the field structure (database type and size) in parenthesis following the field name. You will notice that the SWEMP team changes some contributed data fields from what a collaborator submits as part of compiling the data into the regional database. After the 2004 update, we kept an archive record of the original field entries contributed by each collaborator.

AquaWeedManArea (Text, 50)

Collaborator: The collaborator does not provide these data.

SWEMP: The SWEMP team provides this information.

Description: The AquaWeedManArea indicates in which aquatic weed management area a weed occurrence is located. The SWEMP team assigns this field using the most current weed management area map that the team has. A weed occurrence may occur in one or more aquatic weed management areas as well as a cooperative weed management area.

Example: Aquatic WMA & Lower Colorado Giant Salvia

CanopyCover (Text, 25)

Collaborator: The collaborator submits these data if GrossArea (see below) is provided.

SWEMP: No further processing.

Description: The CanopyCover field represents the percent canopy cover of the weed within a delineated GrossArea. If there is more than one weed in the GrossArea, then estimate the cover for each weed separately. SWEMP defers to the NAWMA definition for CanopyCover "[Canopy cover is]... estimated as a percent of the ground, covered by foliage of a particular weed species." The SWEMP team converts all submitted data to categories, see table 1A below. If the GrossArea and CanopyCover or Infested_Area are not provided, SWEMP will enter the occurrence record area as 'No Data'.

Table 1A. Categories for CanopyCover (Percent)

<1

1-5
>5-25
>25-100

Example: Collaborator submits a CanopyCover of 3%; SWEMP team converts this to 1-5 for the regional database.

Common_Name (Text, 50)

Collaborator: The collaborator does not need to provide this information; however, if the data are provided, use the list of common names provided in Table 3B (following the USDA_Code description).

SWEMP: SWEMP provides the common names. SWEMP uses the Weeds of the West (2000) as the first source for common names and then the USDA PLANTS database. Table 3B shows the USDA PLANT code and scientific and common names SWEMP currently uses.

Example: perennial pepperweed

Control (Text, 150)

Collaborator: The collaborator provides this information.

SWEMP: No further processing.

Description: This field indicates whether the weed occurrence was treated. Choose from the following and enter all that apply: No Action, Biological, Cultural, Herbicide, or Mechanical.

Example: The weed was pulled. "Mechanical" is entered.

COOPWeedManArea (Text,100)

Collaborator: The collaborator does not provide these data.

SWEMP: The SWEMP team provides this information.

Description: The COOPWeedManArea indicates in which weed management area a weed occurrence is located. The SWEMP team assigns this field using the most current weed management area map that the team has. However, SWEMP will add new weed management areas to the map and the database will be updated as the SWEMP team receives information.

Example: Arizona Strip WMA

Country (Text, 50)

Collaborator: The collaborator should supply this information if the weed occurrence is in Mexico.

SWEMP: The SWEMP team will assume the country to be the United States (US) unless the collaborator indicates otherwise.

Description: Identifies the country where the weed occurrence is located. To date, all entries have been from the US but SWEMP will incorporate entries from Sonora, Mexico.

Example: US

County (Text, 50)

Collaborator: The collaborator should provide this information.

SWEMP: The team provides a quality check by overlaying submitted locations on a county map in a GIS.

Description: County is the county where the weed occurrence is located.

Example: Pima

Collection_Date (Date, yyyymmdd)

Collaborator: The collaborator is required to submit this information.

SWEMP: No further processing.

Description: This field indicates the date of the observation. Enter the date in the format of year, month, day (yyymmdd). If the exact day of the month is not known, use 01 for the day of the month.

Example: 20031022. The observation was made October 22, 2003.

Datum (Text, 6)

Collaborator: The collaborator provides the datum in which the data are collected. SWEMP will accept data in NAD27, NAD83 or WGS83.

SWEMP: The team converts all data submitted to a standard datum.

Description: The geodetic datum defines the size and shape of the earth and the origin and orientation of the coordinate system used to map the earth.

Example: NAD27

Examiner (Text, 150)

Collaborator: The collaborator should provide this information although it is not required.

SWEMP: No further processing.

Description: This field represents the individual(s) who collected the field data. The Examiner is entered in the format of first initial, full last name

Example: K. Thomas

Genus (Text, 50)

Collaborator: The collaborator provides the Genus AND Species OR Scientific_Name OR USDA_Code. See Table 3B (following the USDA_Code description).

SWEMP: The team will make sure the currently accepted scientific name for the weed is applied. See Scientific_Name for more information.

Example: *Lepidium*

GrossArea (Text, 50)

Collaborator: The collaborator provides both the GrossArea AND CanopyCover OR the Infested_Area (described below) for each species at the site. The unit of measure is acres.

SWEMP: The team converts all data provided to categories, see table 2B below. The team will add more categories above >5.1 if data is submitted to support more categories.

Description: GrossArea describes the approximate size of the occurrence in acres. If the weed is searched for but is absent, enter "Absent". SWEMP defers to the NAWMA definition for GrossArea: [GrossArea] is intended to show general location and population information. Like Infested Area it is the area of land occupied by a weed species. Unlike Infested Area, the area is defined by drawing a line around the general perimeter of the infestation not the canopy cover of the plants. The gross area may contain significant parcels of land not occupied by weeds.

Gross area is used in describing large infestations. When a value is entered for gross area, the assumption is that the area within the perimeter of the weed population (area perimeter) is an estimate or the product of calculating the area within a described perimeter." SWEMP multiples GrossArea by CanopyCover to determine Infested_Area. If the GrossArea and CanopyCover or Infested_Area is not provided, SWEMP will enter the occurrence record area as "No Data'.

Table 2B. SWEMP Categories for GrossArea

Absent
< 0.1
0.1 to <=1
1.1 to <=5
>5.1

Example: Collaborator submits .3 acres; SWEMP team converts to 01. to <=1 acres.

Infested_Area (Text, 50)

Collaborator: The collaborator provides the Infested_Area OR both the GrossArea and CanopyCover for each species at the site.

SWEMP: If the collaborator does not provide Infested_Area, SWEMP calculates it as GrossArea multiplied by CanopyCover, using either the field data or the midpoints of the categories if that is not possible. The unit of measure is acres.

Description: Infested_Area is the approximate area in acres of the invasive species. An infested area of land is defined by drawing a line around the actual perimeter of the site as defined by the canopy cover of the weeds, excluding areas not infested. SWEMP defers to the NAWMA definition for Infested_Area: "Area of land containing one or

more weed species. An infested area of land is defined by drawing a line around the actual perimeter of the infestation as defined by the canopy cover of the plants, excluding areas not infested. Areas containing only occasional weed plants per acre do not equal one acre infested. Generally, the smallest area of infestation mapped will be 1/10th (.10) of an acre or 0.04 hectares." If the GrossArea and CanopyCover or Infested_Area are not provided, SWEMP will enter the occurrence record area as "No Data."

Example: <0.1

Table 2B. SWEMP Categories for Infested Area (acres)

Absent

< 0.1

0.1 to <=1

1.1 to <=5

>5.1

Lat_Dec_Degrees (Number, double)

Collaborator: The collaborator provides either the latitude or the northing (a UTM coordinate) of the location at which the weed occurs. Please provide the zone if a UTM coordinate is used. The preferred format is latitude in decimal degrees.

SWEMP: The team converts any coordinates submitted as a northing or latitude in degrees, minutes, seconds to decimal degrees latitude.

Description: Lat_Dec_Degrees is the latitude coordinates in decimal degrees.

Example: 36.85902

Local_Owner (Text, 100)

Collaborator: The collaborator should provide this information

SWEMP: The SWEMP team provides a quality check of the submitted data or adds this information using the SWReGAP land stewardship maps for the Southwest states. See Table 4B (at end of appendix).

Description: This describes the specific land administrator for the location of the weed occurrence. The list of local owners currently designated is shown in Table 4B. It is important to identify all private land records. The SWEMP team will assume that the collaborator has the proper permissions to record data from private land. To further insure privacy rights, all records identified as private land by the collaborator or by a secondary check by the SWEMP team using the SWReGAP land stewardship maps will have their location coordinates degraded by 1000 meters such that the coordinates for the occurrence are only correct within a kilometer of the infestation.

Example: Petrified Forest National Park

Long_Dec_Degrees (Number, double)

Collaborator: The collaborator provides either the longitude or the easting of the location at which the weed occurs. Please provide the zone if a UTM coordinate is used. The preferred format is longitude in decimal degrees.

SWEMP: The team converts any coordinates submitted as an easting (a UTM coordinate) or longitude in degrees, minutes, and seconds to decimal degrees longitude.

Description: Long_Dec_Degrees is the longitude coordinates in decimal degrees.

Example: -111.60088

National_Owner (Text, 100)

Collaborator: The collaborators should provide this information.

Requirement: The team provides a quality check or adds this information using the SWReGAP land stewardship maps for the Southwest states. See Table 5B (at end of appendix).

Description: The National_Owner field identifies the type of land where the occurrence is located. The list of national owners currently designated is shown in Table 5B. SWEMP will add additional national owners if necessary.

Example: National Park Service

Notes (Memo)

Collaborator: No notes are expected, but can be included for a record if some information should be included in the SWEMP regional compilation.

SWEMP: The team adds notes to a record when we have revised a record or there is some other important annotation.

Description: This field contains important information that is pertinent to the site record.

Example: For a weed occurrence believed to have been collected on private land the note reads "Latitude and longitude on private lands are degraded to 2 digits after decimal."

Revised? (Logical, Yes/No)

Collaborator: If the collaborator has discovered a mistake in the record as it appears in SWEMP, they should contact the SWEMP team and discuss the need to correct the record.

SWEMP: The team will make corrections as needed.

Description: The team will make corrections in the database as appropriate in the next edition of the SWEMP database. The Notes field will indicate who requested the change and when the SWEMP team implemented it.

Example: It was determined that a previously submitted record showed the wrong species identification. The collaborator contacted SWEMP and the record was changed. The NOTES field documents this: "9-10-03 changed from LIVU2 to LIDA per K.Thomas & L. Moser"

Revisit? (Logical, Yes/No)

Collaborator: The collaborator provides this information

SWEMP: The SWEMP team assumes that the occurrence record is new unless the collaborator indicates that the record is a revisit. Beginning in 2005 the team will conduct a spatial proximity check, as described below, and adjust the Revisit status as needed.

Description: Enter "Yes" if this is a revisit or "No" if it is not. A revisit is when a land manager initially records and treats a specific site, and then later returns to the site to assess the effectiveness of the treatment or the land manager returns another year to examine changes in the weed occurrence. Beginning with the SWEMP2005 compilation, the SWEMP team does check for any occurrence records occurring within 50 meters of a previous record and will consider a record for a subsequent year to be a revisit regardless of who initially submitted the record.

Scientific_Name (Text, 100)

Collaborator: The collaborator provides the Scientific_Name OR USDA_Code OR both Genus AND Species. See Table 3B (following the USDA_Code description).

SWEMP: The team will make sure the currently accepted scientific name for the weed is applied.

Description: SWEMP uses the USDAPLANTS database (<http://plants.usda.gov/>) as the authority for weed synonymy for the plant scientific name (genus, species and variety and subspecies, if applicable). If a weed occurrence is submitted using nomenclature that has been revised or not yet accepted, we will defer to the USA PLANTS database unless there is some compelling reason not to. In that case, we will explain the deviation in the Notes area of the database. Table 3B shows the USDA PLANT code and scientific and

common names SWEMP currently uses. A newly found non-native, invasive may be added to the database, so Table 3B list is not exclusive.

Example: *Lepidium latifolium*

Species (Text, 50)

Collaborator: The collaborator provides both Genus AND Species OR Scientific_Name OR USDA_Code. See Table 3B (following the USDA_Code description).

SWEMP: The team will make sure the currently accepted scientific name for the weed is applied. See Scientific_Name for more information.

Example: *latifolium*

SWEMP_Site_Code (Text, 15)

Collaborator: The collaborator can use this site-naming scheme if the SWEMP team has provided them a “collaborator code.” The collaborator can also use their own site-naming scheme.

SWEMP: The team will assign this site-naming scheme to each location if the collaborator has not.

Description: SWEMP_Site_Code is a unique identifier for each geographic site where a weed occurs. There may be one or many weed species at the location; hence, more than one record may have the same site number. The first four letters of SWEMP_Site_Code is an abbreviation of the collaborating entity. If you do not have an abbreviation already assigned, please e-mail the SWEMP project leader to get a unique collaborator code. The collaborator code is followed by a two-digit year suffix indicating the year the data is submitted to SWEMP (records prior to 2005 may not be consistent on the year format). The second half of the code is a sequential number, following a hyphen, assigned to each location and consists of four numbers beginning with 0001. If there are multiple weeds at a site (within a 100 meter radius), each weed will be a separate record but will have same site number.

Example: TEST03-0001. The first half of the number (TEST03) will remain the same for all of 2003. However, each occurrence will have a new site code, which is assigned sequentially (0001, 0002, 0003, etc.).

Example: LIDA, ACRE, and ALMA are all present within a 100 meter radius and the site code is BLM03-0001, then all three species will have the same SiteNumber. However, each will have an independent record since the data for other fields may be different.

State (Text, 3)

Collaborator: The collaborator provides the state in which the observation occurs.

SWEMP: The team provides a quality check by overlaying submitted locations on a state map in a GIS.

Description: State is where the physical location of the weed occurrence is located. The states included in the SWEMP database and the acronyms preferred are Arizona (AZ), California (CA), Colorado (CO), New Mexico (NM), Utah (UT), and Sonora (SO).

Example: AZ

Source (Text, 50)

Collaborator: The collaborator must provide this information.

SWEMP: The team maintains the collaborator contact information for record documentation; only the collaborator's name appears in the database.

Description: This field identifies the owner or manager of the data, in other words the person who is taking responsibility for the data. This may be a different person or entity from the landowner or the person who collected the data (see Examiner, above). In case the SWEMP team or a user of the database has a question about the weed occurrence record, the Source field indicates the person to contact. Only the name of the Source is displayed in the regional database. For each Source SWEMP maintains information on the Source identity: affiliation, e-mail address, telephone.

Example: Kathryn Thomas

USDA_Code (Text, 10)

Collaborator: The collaborator provides the USDA_Code OR both Genus AND Species OR Scientific_Name.

SWEMP: The team will make sure the currently accepted USDA PLANTS code for the weed is applied.

Description: This field indicates the USDA PLANT database code for the weed. The four-character codes are found at <http://plants.usda.gov/>. Table 3B “Non-native Invasive Plants of Note in the Southwest (below); also shows the USDA PLANT code and scientific and common names SWEMP currently uses. A newly found non-native, invasive may be added to the database, so the list is not exclusive.

Example: LELA2 (The USDA PLANTS code for *Lepidium latifolium*).

Table 3B. Non-native, Invasive Plants of Note in the Southwest

USDA_Code	Genus	Species	Common Name
ACBR5	Achnatherum	brachychaetum	shortbristled needlegrass
ACRE3	Acroptilon	repens	Russian knapweed
AECY	Aegilops	cylindrica	jointed goatgrass
AGDE2	Agropyron	desertorum	desert wheatgrass
AGST2	Agrostis	stolonifera	creeping bentgrass
AIAL	Ailanthus	altissima	tree of heaven
ALMA12	Alhagi	maurorum	camelthorn
ALPH	Alternanthera	philoxeroides	alligatorweed
ALVE2	Aloe	vera	Barbados aloe
AMBL	Amaranthus	blitoides	mat amaranth
ARDO4	Arundo	donax	giant reed
ARMI2	Arctium	minus	lesser burdock
ASFI2	Asphodelus	fistulosus	onionweed
AVFA	Avena	fatua	wild oats
AZPI	Azolla	pinnata	pinnate mosquitofern
BEIN2	Berteroa	incana	hoary false madwort
BERTE	Berteroa	species	false madwort
BRCA6	Bromus	catharticus	rescuegrass
BRIN2	Bromus	inermis	smooth brome
BRJA	Bromus	japonicus	Japanese brome
BRR18	Bromus	rigidus	riggut brome
BRRU2	Bromus	rubens	red brome
BRTE	Bromus	tectorum	cheatgrass
BRTO	Brassica	tournefortii	African mustard
CAAC	Carduus	acanthoides	plumeless thistle
CABU2	Capsella	bursa-pastoris	shepherd's purse
CACH10	Cardaria	chalapensis	lenspod whitetop
CADR	Cardaria	draba	whitetop
CANU4	Carduus	nutans	musk thistle
CAPU6	Cardaria	pubescens	hairy whitetop
CEBI2	Centaurea	biebersteinii	spotted knapweed
CEDI3	Centaurea	diffusa	diffuse knapweed
CEIB	Centaurea	iberica	Iberian knapweed
CEME2	Centaurea	melitensis	Malta starthistle
CENTA	Centaurea	species	knapweed
CESO3	Centaurea	solstitialis	yellow starthistle
CESU	Centaurea	sulphurea	sulphur knapweed
CETE5	Ceratocephala	testiculata	curvseed butterwort
CETR8	Centaurea	triumfettii	squarrose knapweed
CHJU	Chondrilla	juncea	hogbite
CHMU2	Chenopodium	murale	nettleleaf goosefoot
CHTE	Chloris	texensis	Texas windmill grass
CHTE2	Chorispora	tenella	crossflower
CIAR4	Cirsium	arvense	Canada thistle
CIIN	Cichorium	intybus	chicory
CIVU	Cirsium	vulgare	bull thistle
COAR4	Convolvulus	arvensis	field bindweed

CODI6	Coronopus	didymus	lesser swinecress
COMA2	Conium	maculatum	poison hemlock
COSE4	Cortaderia	selloana	Uruguayan pampas grass
COSQ	Coronopus	squamatus	greater swinecress
CUME	Cucumis	melo	cantaloupe
CYDA	Cynodon	dactylon	Bermudagrass
CYES	Cyperus	esculentus	yellow nutsedge
CYOF	Cynoglossum	officinale	gypsyflower
DAGL	Dactylis	glomerata	orchardgrass
DESO2	Descurainia	sophia	herb sophia
DIFU2	Dipsacus	fullonum	common teasel
DRAR7	Drymaria	arenarioides	sandwort drymary
ECCO2	Echinochloa	colona	junglerice
ECCR	Echinochloa	crus-galli	barnyard grass
EGDE	Egeria	densa	Brazilian waterweed
EICR	Eichhornia	crassipes	floating water hyacinth
ELAN	Elaeagnus	angustifolia	Russian olive
ELRE4	Elymus	repens	quackgrass
ENMO	Enneapogon	mollis	soft feather pappusgrass
ERCI	Eragrostis	cilianensis	stinkgrass
ERIC6	Erodium	cicutarium	redstem stork's bill
ERCU2	Eragrostis	curvula	weeping lovegrass
ERLE	Eragrostis	lehmanniana	Lehmann lovegrass
ERRE4	Erysimum	repandum	spreading wallflower
ERSU	Eragrostis	superba	Wilman lovegrass
ERVES	Eruca	vesicaria ssp. Sativa	garden rocket
EUES	Euphorbia	esula	leafy spurge
EUSUx	Euyrops	subcarnosus ssp vulgaris	sweet resinbush
HAGL	Halogeton	glomeratus	halogeton
HECI	Helianthus	ciliaris	Texas blueweed
HEHE	Hedera	helix	English ivy
HIIN3	Hirschfeldia	incana	shortpod mustard
HOMU	Hordeum	murinum	mouse barley
HYNI	Hyoscyamus	niger	black henbane
HYPE	Hypericum	perforatum	common St. Johnswort
HYVE3	Hydrilla	verticillata	hydrilla
IPHE	Ipomoea	hederacea	ivyleaf morningglory
IPPU2	Ipomoea	purpurea	tall morningglory
IPTR3	Ipomoea	tricolor	multicolored morningglory
ISTI	Isatis	tinctoria	Dyer's woad
KOSC	Kochia	scoparia	kochia
LACA2	Lantana	camara	lantana
LARE	Lappula	redowskii auct. non	flatspine stickseed
LASE	Lactuca	serriola	prickly lettuce
LECA5	Lepidium	campestre	field pepperweed
LELA2	Lepidium	latifolium	perennial pepperweed
LEPE2	Lepidium	perfoliatum	clasping pepperweed
LEVU	Leucanthemum	vulgare	oxeye daisy
LIDA	Linaria	dalmatica	dalmatian toadflax
LIVU2	Linaria	vulgaris	common toadflax

LOAR10	Lolium	arundinaceum	tall fescue
LOPE	Lolium	perenne	perennial ryegrass
LYSA2	Lythrum	salicaria	purple loosestrife
MAAF	Malcolmia	africana	Malcolm stock
MALO3	Matthiola	longipetala	night scented stock
MANE	Malva	neglecta	common mallow
MAPA5	Malva	parviflora	little mallow
MAVA	Manfreda	variegata	mottled tuberose
MAVU	Marrubium	vulgare	horehound
MEAL12	Melilotus	alba	white sweetclover
MECR3	Mesembryanthemum	crystallinum	common iceplant
MEIN2	Melilotus	indicus	annual yellow sweetclover
MELU	Medicago	lupulina	black medick
MEMI	Medicago	minima	little burclover
MENO2	Mesembryanthemum	nodiflorum	slenderleaf iceplant
MEOF	Melilotus	officinalis	yellow sweetclover
MEPO3	Medicago	polymorpha	California burclover
MERE9	Melinis	repens	rose Natal grass
MYAQ2	Myriophyllum	aquaticum	parrotfeather
MYSP2	Myriophyllum	spicatum	spike watermilfoil
NATR3	Nassella	trichotoma	serrated tussock grass
NEOL	Nerium	oleander	oleander
ONAC	Onopordum	acanthium	Scotch cottonthistle
PAAN4	Panicum	antidotale	blue panicum
PADI3	Paspalum	dilatatum	dallisgrass
PAGL17	Packera	glabella	butterweed
PECI	Pennisetum	ciliare	buffelgrass
PEHA	Peganum	harmala	African rue
PEIN4	Pentzia	incana	African sheepbush
PESE3	Pennisetum	setaceum	fountaingrass
PEVI2	Pennisetum	villosum	feathertop
PHPR3	Phleum	pratense	timothy
PLMA	Plantago	macrocarpa	seashore plantain
POAN	Poa	annua	annual bluegrass
POAV	Polygonum	aviculare	prostrate knotweed
POBU	Poa	bulbosa	bulbous bluegrass
POCO	Poa	compressa	Canada bluegrass
POCR3	Potamogeton	crispus	curly pondweed
POMO5	Polypogon	monspeliensis	rabbitfoot ploypogon
POPR	Poa	pratensis	Kentucky bluegrass
PORE5	Potentilla	recta	sulfer cinquefoil
POVI9	Polypogon	viridis	beardless rabbitsfoot grass
RHLA3	Rhus	lanceolata	prairie sumac
ROMI3	Rorippa	microphylla	onerow yellowcress
RUAC2	Rumex	acetosa	garden sorrel
RUCR	Rumex	crispus	curly dock
RUDI2	Rubus	discolor	Himalayan blackberry
RUOB	Rumex	obtusifolius	broadleaf dock
SAAE	Salvia	aethiopis	Mediterranean sage
SACO8	Salsola	collina	slender Russian thistle

SALSO	Salsola	species	Russian thistle
SAMO5	Salvinia	molesta	giant salvinia
SAPA8	Salsola	paulsenii	barbwire Russian thistle
SARA3	Saccharum	ravennae	Ravennagrass
SATR12	Salsola	tragus	Russian thistle
SCAR	Schismus	arabicus	Arabian schismus
SCBA	Schismus	barbatus	common Mediterranean grass
SEAR13	Senna	artemisioides	silver senna
SEVI4	Setaria	viridis	green foxtail
SEVU	Senecio	vulgaris	common groundsel
SIAL2	Sisymbrium	altissimum	tumble mustard
SIAR4	Sinapis	arvensis	wild mustard
SIIR	Sisymbrium	irio	London rocket
SIMA3	Silybum	marianum	milk thistle
SIVU	Silene	vulgaris	bladder campion
SOAR2	Sonchus	arvensis	marsh sowthistle
SOAS	Sonchus	asper	spiny sowthistle
SOHA	Sorghum	halepense	Johnsongrass
SONI	Solanum	nigrum	black nightshade
SOOL	Sonchus	oleraceus	common sowthistle
SPSA3	Sphaerophysa	salsula	Swainsonpea
TAAP	Tamarix	aphylla	Athel tamarisk
TACA8	Taeniatherum	caput-medusae	medusahead
TACH2	Tamarix	chinensis	five-stamen tamarisk
TAMAR2	Tamarix	species	tamarisk
TAOF	Taraxacum	officinale	common dandelion
TAPA4	Tamarix	parviflora	smallflower tamarisk
TARA	Tamarix	ramosissima	saltcedar
TAVU	Tanacetum	vulgare	common tansy
TRAE	Triticum	aestivium	common wheat
TRAGO	Tragopogon	species	goatsbeard
TRDU	Tragopogon	dubius	yellow salsify
TRPO	Tragopogon	porrifolius	common salsify
TRPR	Tragopogon	pratensis	meadow salsify
TRRE3	Trifolium	repens	white clover
TRTE	Tribulus	terrestris	puncturevine
ULPU	Ulmus	pumila	Siberian elm
VEBL	Verbascum	blattaria	moth mullein
VETH	Verbascum	thapsus	common mullein
VIMA	Vinca	major	bigleaf periwinkle
VIMI2	Vinca	minor	common periwinkle

Table 4B. Local Land Owners for Arizona (other states pending)

Arizona State, Dept. Game and Fish
Arizona State, State Parks and Recreation
Arizona State, Trust Land
BLM, AZ State Office, Phoenix
BLM, Farmington Field Office
Blue Range Primitive Area
Bureau of Land Management
Bureau of Reclamation
Dept. Defense, Luke-Williams Range
Dept. Defense, Navajo Army Depot
Military, Barry M. Goldwater Air Force Range
Military, Yuma Proving Grounds
National Forest, Apache-Sigreaves
National Forest, Coconino
National Forest, Coronado
National Forest, Gila
National Forest, Kaibab
National Forest, Prescott
National Forest, Tonto
National Historic Park, Tumacacori
National Historic Site, Fort Bowie
National Historic Site, Hubble Trading Post
National Memorial, Coronado
National Monument, Agua Fria
National Monument, Canyon De Chelly
National Monument, Casa Grande Ruins
National Monument, Chiricahua
National Monument, El Morro
National Monument, Montezuma Castle
National Monument, Montezuma Well
National Monument, Navajo
National Monument, Parashant
National Monument, Pipe Spring
National Monument, Sunset Crater
National Monument, Tonto
National Monument, Tuzigoot
National Monument, Walnut Canyon
National Monument, Wupatki
National Park, Grand Canyon
National Park, Organ Pipe Cactus
National Park, Petrified Forest
National Park, Saguaro
National Recreation Area, Glen Canyon
National Recreation Area, Lake Mead
National Wildlife Refuge, Bill Williams River
National Wildlife Refuge, Buenos Aires
National Wildlife Refuge, Cabeza Prieta
National Wildlife Refuge, Cabeza Prieta

National Wildlife Refuge, Havasu
 National Wildlife Refuge, Imperial
 National Wildlife Refuge, Imperial Mtn
 National Wildlife Refuge, Kofa
 National Wildlife Refuge, San Bernardino and Leslie Canyon
 National Wildlife Refuge, Cibola
 New Mexico State, New Mexico Department of Transportation
 Other
 Private
 Tribal, Ak-Chin
 Tribal, Colorado River Indian Tribe
 Tribal, Fort McDowell
 Tribal, Fort Mohave Indian Tribe
 Tribal, Gila River Community
 Tribal, Havasupai
 Tribal, Hopi Tribe
 Tribal, Hualapai
 Tribal, Kaibab-Paiute
 Tribal, Navajo Nation
 Tribal, Salt River Tribe
 Tribal, San Carlos Apache
 Tribal, Southern Paiute Field Station
 Tribal, Tohono O'odham
 Tribal, White Mtn Apache
 Tribal, Yavapai Prescott Indian
 Unknown
 Utah State, Utah Department of Natural Resource

Table 5B. National Land Owners

Arizona State
 Bureau of Land Management
 Bureau of Reclamation
 Colorado State
 County
 Department of Defense
 Department of Energy
 National Forest Service
 National Park Service
 National Wildlife Refuge
 Nevada State
 New Mexico State
 Other
 Private
 Tribal
 Unknown
 Utah State