Preliminary Invasive Species Management Plan

July 2012

ROSEMONT COPPER

A Bridge to a Sustainable Future

Table of Contents

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JULY 2012

INTRODUCTION

The Rosemont Copper Preliminary Invasive Species Management Plan (Plan) was created to minimize, reduce, or eliminate the potential for introduction, establishment, spread and impact of invasive species on and around the Rosemont mine site. Invasive species include mammals, birds, reptiles, amphibians, fish, insects, plants, and pathogens (USFS, 2004). All noxious weeds are legally enforced and will be managed. The list of state and federal noxious weeds can be found in Appendices A and B. If a species produces undesirable effects (e.g. poisonous to livestock, outcompeting seeded species, decreased species diversity, changes in fire frequency), treatment will commence. Treatment options include mechanical, chemical, or biological controls and seeding desired species. Noxious weeds, invasive species, or other undesirable species will be monitored and treated according to management objectives.

The purpose of the Rosemont Copper Invasive Species Management Plan, in accordance with the National Strategy and Implementation Plan for Invasive Species (USFS, 2004), is to:

- Prevent the introduction of invasive species
- Identify invasive species on and around the Rosemont site, access roads, utility corridors, and other disturbed areas
- Detect invasive species and initiate quick responses to prevent their spread within and near the Rosemont site
- Treat to eradicate small populations and manage large populations of invasive species
- Monitor invasive species to determine trends and treatment effectiveness in accordance with land management goals
- Rehabilitate and restore of areas where invasive species have been treated
- Communicate with agencies and organizations to determine best available science for invasive species management

PREVENTION

The most effective way to manage invasive species is to prevent their introduction. For the Rosemont Project, the following prevention measures will be implemented as part of standard practices:

- Certified weed-free seed and hay will be used for reclamation and compliance activities, including waddles and organic materials used for erosion control.
- Invasive ornamental plants will not be used for landscaping or reclamation.
- All heavy equipment will be cleaned prior to entering the Rosemont site and being used on the Project. Cleaning will remove all dirt, plant parts and material that could carry noxious weed seeds.

MONITORING

Monitoring will be conducted once per year within the perimeter fence to determine the occurance of invasive plant species. Noxious weed monitoring will occur at the peak of the warm growing season. Precise timing will depend upon precipitation. A list of potential invasive species (Table 1) was derived primarily from the Pima County Invasive Species Management Program (Pima County, 2002) and the Saguaro National Park Exotic Plant Management Plan (NPS, 2004).

Disturbed areas will be monitored, including the Rosemont landform, the plant site, access roads, haul roads, diversion channels, settling and storm water basins, soil stockpiles, reclamation test plots, and Barrel Canyon Wash to the fence line (Figure 1). As the mine is developed, the disturbed area will increase until the maximum footprint is achieved. Concurrent reclamation will occur on the landform and revegetation of desired species that are resistant to invasion will help reduce or prevent the introduction of non-native species. The goal of monitoring is to detect newly introduced invasive species and eliminate them before they infest and spread to other locations.

Table 1. Species of Concern (Pima County, 2002; NPS, 2004; USFS, 2004; ADA, 2012).

Exotic Plants of Concern	
African Daisy (*Dimorphotheca sinuata*)	Horehound *(Marrubium vulgare)*
African Sumac (*Rhus lancea*)	Horse Purselane (*Trianthema portulacastrum)*
Alfalfa (*Medicago sativa)*	Longspine Sandbur (Cenchrus longispinus)
Annual Bluegrass *(Poa annua)*	Lovegrass (*Eragrostis echinochloidea)*
Barnyard Grass (*Echinochloa* spp.)	Natal Grass (*Rhynchelytrum repens)*
Beardless Rabbitsfoot Grass (*Agrostis semiverticillata*)	Malta Starthistle (*Centaurea melitensis*)
Bedstraw (*Galium aparine)*	Mediterranean Grass (*Schismus arabicus, S. barbatus)*
Bermuda Grass (*Cynodon dactylon*)	Mexican Bird of Paradise (*Caesalpinia gilliesii*)
Blue Panicgrass (*Panicum antidotale)*	Onionweed (*Asphodelus fistulosus*)
Buffelgrass (*Pennisetum ciliare*)	Pampas Grass (*Cortaderia selloana*)
Burclover (*Medicago polymorpha)*	Prickly Lettuce (*Lactuca serriola)*
Canary Grass *(Phalaris* spp.)	Prostrate Knotweed (*Polygonum aviculare)*
Cheatgrass (*Bromus tectorum*)	Rabbit Foot Grass *(Polypogon monspeliensis)*
Common Oat (*Avena sativa*)	Red Bromegrass (*Bromus rubens*)
Creeping Bentgrass (*Agrostis stolonifera* var. *palustris*)	Redstem Filaree (*Erodium cicutarium)*
Curly Dock (*Rumex crispus)*	Russian Thistle (*Salsola* spp.)
Dallisgrass (*Paspalum dilatatum)*	Sahara Mustard (*Brassica tournefortii*)
Dandelion (*Taraxacum* spp.)	Salt Cedar (*Tamarix* spp.)
Egyptian Grass (*Dactyloctenium aegyptium*)	Sahara Mustard (*Brassica tournefortii*)
Evening Stock (*Matthiola longipetala* var. *bicornis)*	Seringe (*Mollugo cerviana)*
Field Bindweed (*Convolvulus arvensis*)	Shepard's Purse (*Capsella bursa-pastoris*)
Fetid Goosefoot (*Chenopodium graveolens var. neomexicanum*)	Sheep Sorrel (*Rumex acetosella)*
Fountain Grass (*Pennisetum setaceum*)	Slender Chickweed (*Cerastium gracile*)
Foxtail Fescue (*Vulpia myuros)*	Soft Feather Pappus Grass (*Enneapogon cenchroides*)
Giant Reed* (*Arundo donax*)	Southern Bluet (*Hedyotis crassifolia)*
Giant Salvinia* (*Salvinia molesta*)	Southern Crabgrass (*Digitaria ciliaris*)
Goathead (*Tribulus terrestris)*	Sow Thistle (*Sonchus asper, S. oleraceus)*
Goldentop Grass (*Lamarckia aurea)*	Stinkgrass (*Eragrostis cilianensis)*
Hairy Crabgrass (*Digitaria sanguinalis*)	*Sweet Clover (Melilotus* sp.)
Hairy Rapturewort (*Herniaria hirsuta* ssp*. Cinerea)*	Timothy (*Phleum pretense)*
Henbit *(Lamium amplexicaule)*	Tree of Heaven (*Ailanthus altissima*)
Hydrilla* (*Hydrilla verticillata*)	Tumble Mustard (*Sisymbrium altissimum)*
Johnson Grass* (*Sorghum halepense*)	Weeping Lovegrass (*Eragrostis curvula* var. *conferta)*
Kentucky Bluegrass (*Poa pratensis)*	Wild Barley *(Hordeum murinum)*
Lambsquarter (*Chenopodium murale*)	Wild Oats (*Avena fatua*)
Lehmann Lovegrass (*Eragrostis lehmanniana*)	Yellow Bluestem (*Bothriochloa ischaemum)*
London Rocket (*Sisymbrium irio*)	Yellow Starthistle (*Centraurea stoebe*)
	Yellow Woodsorrel (*Oxalis stricta)*

MANAGEMENT

Best management practices (BMPs) will be implemented based on the best practices. In order to determine effective treatments, risk factors, the species' biology, introduction pathways, and effects on the ecosystem will be used to develop effective control tools. Follow-up monitoring will determine the effectiveness of the treatment. The goal of management is to eradicate, reduce, or maintain the population of targeted invasive species.

While prevention of invasive species is preferred, early detection and rapid response will ensure eradication of undesired species. Once noxious weeds are identified, a plan of action will be created and treatment will begin. The method of introduction will be identified to prevent further spread of the species. In the event that multiple non-native species occur within the analysis area, each species will be prioritized based on the risk it poses to priority species, and the vulnerability of the ecosystem. Software programs like Alien Plants Ranking System will be used to determine treatment priorities. Risk assessments will consider site characteristics, species characteristics, land management goals, and expenses to determine consequences of not treating invasive species, feasibility, and likelihood of treatment success. Each category will be ranked and an overall score can determine the priority to treat each species.

Biological characteristics and mechanisms used by the invasive species will be identified to help determine effective treatment options. Information on species' biology and competitive mechanisms will come from research or field monitoring. Treatment considerations for invasive animals will be determined by its biology and habitat requirements.

Treatment Options

There are many types of treatments available to manage invasive species, including mechanical/physical, cultural, chemical, or biological treatments. Multiple treatment types and applications are often required to affect invasive species populations. For example, it may be necessary to mechanically cut down an invasive tree, and then apply an herbicide to the remaining stump to completely eradicate. There are benefits and risks associated with each treatment (see Table 2).

Application of a treatment or combination of treatments will be dependent on site conditions and the biology of the organism. Information acquired by regulatory agencies, cooperative extensions, and peer-reviewed journals will be used to help determine effective treatment methods. Monitoring will be conducted on treated areas and monitored to determine if and when follow-up treatments are needed.

Table 2. Invasive Species Treatments.

Method	Examples	Benefits	Risks
Mechanical or Physical	Disking, Chaining, Mowing	Can cover large areas, little input required	May spread invasive weeds, may be limited by topography or soil, erosion from soil disturbance
	Revegetation: Seedbed Preparation, Seeding, Amendments	Can establish a desirable plant community that is resistant to invasions, support land uses, provide wildlife habitat, increased forage, increased species diversity, soil conservation	Possible failure due to climate, competition for resources, costs, arid climatic conditions can intensify effects of weed competition during grass establishment
Cultural	Livestock grazing	Declared post-mining land use, low risk, can train livestock to target species	Some invasive species may be poisonous or not palatable to livestock
Chemical	Herbicides, Pesticides	Can be very effective, selective or non-selective	Costly, may take multiple applications, may spread by water, may have lasting effects, handling and application safety training required, may not be appropriate for an environmentally sensitive area (NPS, 2004; Sheley, 2004)

Mechanical or physical treatments may be used to eradicate or manage invasive plants or animals. Small patches of weeds will be eradicated while large infestations will be managed. Weed eradication is most effective on recently established populations or areas smaller than 100 square feet. Individual weeds will be pulled by hand, clipped, or treated with herbicides. Seeding resistant species will direct recovery. Mechanical treatments are able to treat significant infestations over large areas, but are limited by slope inclination and soil type. The biology of the invasive plant will be considered as mechanical treatments may spread pieces of the plant from which it can regenerate, leading to an increase in its population. If the species is an annual plant, mowing during the flowering phase will decrease its reproduction. Repeated mowing treatments may be necessary until the root reserves are depleted

Livestock grazing is considered a cultural treatment that may be used to control invasive plants. Cattle, goats, sheep, or other livestock can be used as tools to consume undesirable plants and may be trained to target a particular species. Cattle will forage on grasses and forbs, and will browse on trees or cacti when preferred

forage is not available. Goats prefer to browse on shrubs and trees, while sheep will graze on forbs to ground level or uproot vegetation. A number of other factors will be considered before grazing or browsing an area, including palatability of the plants present and whether poisonous plants are present

Many factors will be taken into account before using herbicide. Herbicides may inhibit photosynthesis, pigment, lipid synthesis, amino acid synthesis, disrupt growth, or target all amino acid production indiscriminately. To select the correct herbicide, the plant's biology will be taken into account. Some herbicides are designed to target broadleaf plants, seedlings, or seed production for annual plants, while other herbicides (e.g. glycophosphate) will target all plant life. Herbicides may be sprayed, injected, wiped onto stumps, or applied to the soil. All safety labels will be strictly followed and personnel applying the herbicide must wear proper Personal Protective Equipment (PPE). Herbicides will only be applied under the recommended environmental conditions. Decomposition rate of the chemical will be known to determine the risks and management. With the correct research and application, herbicides can be very effective at controlling invasive species. Herbicides brought on-site will need to be approved by the Rosemont Environmental Department, and their use and storage will follow any requirements in the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). All Material Safety Data Sheets (MSDS) will be maintained on-site.

Livestock grazing and herbicide transfer to humans will be considered. Some poisonous or unpalatable plants that have been treated with herbicides may become palatable post-herbicide treatment. Livestock will be kept out of treated pastures until targeted plants have died and herbicides have become inactive. Cattle will also be kept out of pastures recently treated by the herbicide 2,4-D as it may increase nitrate levels in plants and cause nitrate poisoning to livestock when consumed. Other herbicides, like picloram, are safe for cattle to consume, but will affect plants after it has passed through the animal. In this case, cattle will not be moved into an untreated pasture for at least 7 days (Sheley & Grubb, 1997). Due to varying affects of herbicides, selection of the treatment type, method, and post-treatment considerations will be carefully managed.

The combination of multiple and repeated treatments may be necessary to reduce or eliminate invasive species in the effort to reclaim an ecosystem. Treatments that target invasive species (described in Table 2), followed by a resistant native seed mix, and amendments to aid in establishing vegetation will direct the ecosystem repairs. One method that has been successful in other efforts includes an herbicide treatment in the fall, followed by seedbed preparation, and seeding of dormant or warm-season species (Colquhoun, 2001). Non-selective herbicide will eliminate all living plants followed by re-establishment of a desirable, perennial seed mix. Ecosystem repairs and desired results must conform to the use of the land. Land in the Rosemont area is used for grazing, wildlife habitat, and recreation. Species used in a revegetation seed mix will be native, palatable to livestock and wildlife, and resistant to invasive species. In select cases, desirable non-native species may be

used. Long-term monitoring will be used to assess the success of the treatments, need for additional treatments, and to determine when goals have been met.

AQUATIC SPECIES MANAGEMENT

As part of Endangered Species Act (ESA) Section 7 consultation, aquatic resources management will be developed for selected aquatic resources at the Rosemont Project and near vicinity. This plan will be updated to address aquatic invasive species, including bullfrogs and northern crayfish, in wetland and riparian habitats, as well as in selected stock tanks once Section 7 consultation is complete.

REFERENCES

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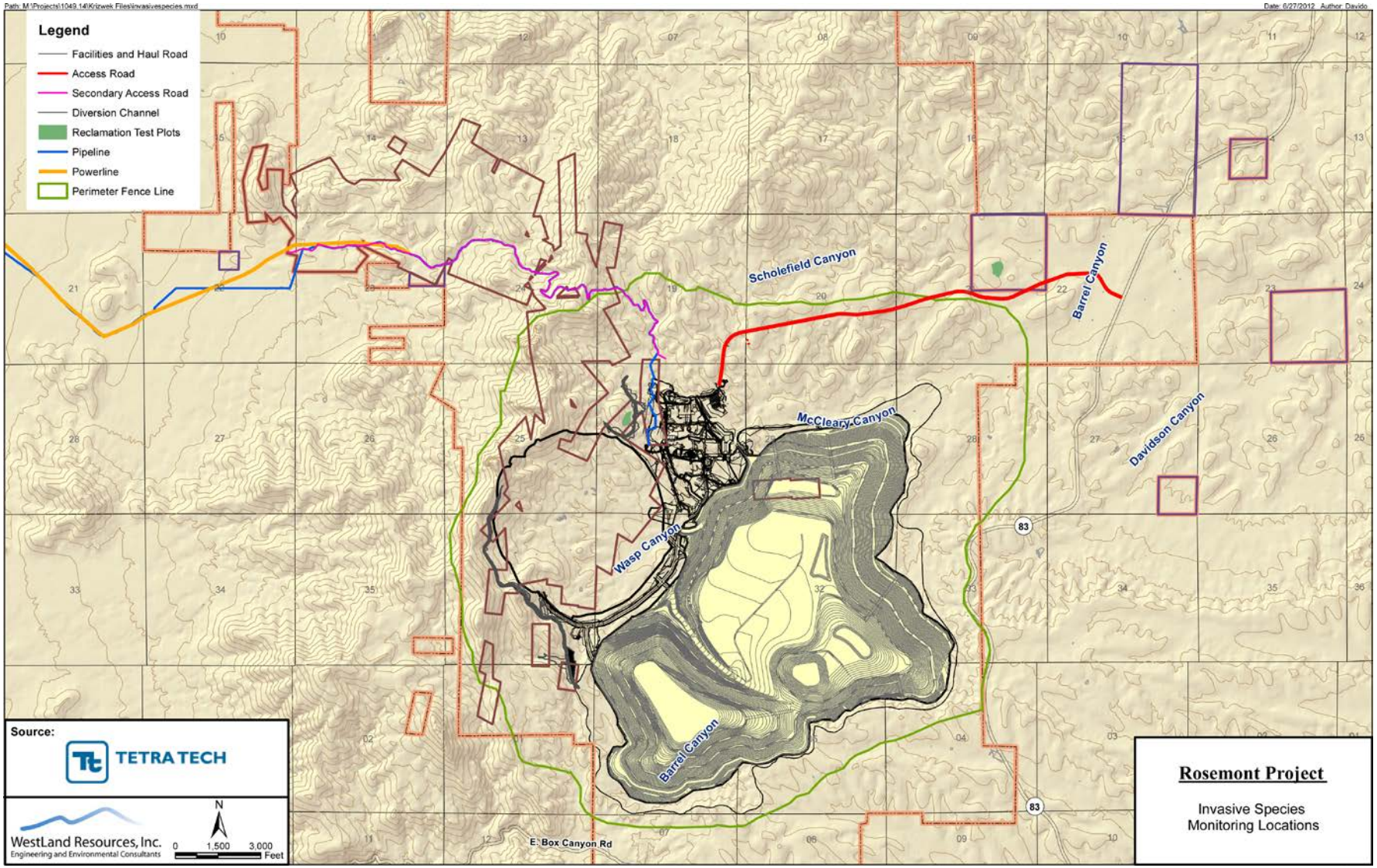
FIGURE

Figure 1. Invasive Species Monitoring Locations.



APPENDIX A

APPENDIX A

ARIZONA DEPARTMENT OF AGRICULTURE PROHIBITED, REGULATED AND RESTRICTED NOXIOUS WEEDS LIST (ADA, 2012)

PROHIBITED:
The following noxious weeds (includes, plants, stolons, rhizomes, cuttings and seed) are prohibited from entry into the state.

Scientific Name	Common Name
Acroptilon repens	Russian knapweed
Aegilops cylindrica	Jointed goatgrass
Alhagi pseudalhagi	Camelthorn
Alternanthera philoxeroides	Alligator weed
Cardaria pubescens --	Hairy whitetop
Cardaria chalepensis	Lens podded hoary cress
Cardaria draba	Globed-podded hoary cress (Whitetop)
Carduus acanthoides	Plumeless thistle
Cenchrus echinatus	Southern sandbur
Cenchrus incertus	Field sandbur
Centaurea calcitrapa	Purple starthistle
Centaurea iberica	Iberian starthistle
Centaurea squarrosa	Squarrose knapweed
Centaurea sulphurea	Sicilian starthistle
Centaurea solstitialis	Yellow starthistle (St. Barnaby's thistle)
Centaurea diffusa	Diffuse knapweed
Centaurea maculosa	Spotted knapweed
Chondrilla juncea	Rush skeletonweed
Cirsium arvense	Canada thistle
Convolvulus arvensis	Field bindweed
Coronopus squamatus	Creeping wartcress (Coronopus)
Cucumis melo L. var. *Dudaim Naudin*	Dudaim melon (Queen Anne's melon)
Cuscuta spp.	Dodder
Drymaria arenarioides	Alfombrilla (Lightningweed)
Eichhornia crassipes	Floating water hyacinth
Eichhornia azurea	Anchored water hyacinth
Elytrigia repens	Quackgrass
Euphorbia esula	Leafy spurge
Halogeton glomeratus	Halogeton
Helianthus ciliaris	Texas blueweed
Hydrilla verticillata	Hydrilla (Florida-elodea)
Ipomoea spp. -- All species except	Morning glory

Ipomoea triloba	Three-lobed morning glory
Scientific Name	**Common Name**
Ipomoea aborescens	Morning glory tree
Isatis tinctoria	Dyers woad
Linaria genistifolia var. *dalmatica*	Dalmation toadflax
Lythrum salicaria	Purple loosestrife
Medicago polymorpha	Burclover
Nassella trichotoma	Serrated tussock
Onopordum acanthium	Scotch thistle
Orobanche ramosa	Branched broomrape
Panicum repens	Torpedo grass
Peganum harmala	African rue (Syrian rue)
Pennisetum ciliare	Buffelgrass
Portulaca oleracea	Common purslane
Rorippa austriaca	Austrian fieldcress
Salvinia molesta	Giant salvina
Senecio jacobaea	Tansy ragwort
Solanum carolinense	Carolina horsenettle
Sonchus arvensis	Perennial sowthistle
Solanum viarum	Tropical Soda Apple
Stipa brachychaeta	Puna grass
Striga spp.	Witchweed
Trapa natans	Water-chestnut
Tribulus terrestris	Puncturevine
Acroptilon repens	Russian knapweed

REGULATED:
The following noxious weeds are regulated (includes plants, stolons, rhizomes, cuttings and seed) and if found within the state may be controlled or quarantined to prevent further infestation or contamination.

Scientific Name	**Common Name**
Cenchrus echinatus	Southern sandbur
Cenchrus incertus	Field sandbur
Convolvulus arvensis	Field bindweed
Eichhornia crassipes	Floating water hyacinth
Medicago polymorpha	Burclover
Pennisetum ciliare	Buffelgrass
Portulaca oleracea	Common purslane
Salvinia molesta	Giant Salvinia
* *Tribulus terrestris*	Puncturevine

* Added by Director's Administrative Order DAO 99-03 on 8/25/99

RESTRICTED:
The following noxious weeds are restricted (includes plants, stolons, rhizomes, cuttings and seed) and if found within the state shall be quarantined to prevent further infestation or contamination.

Scientific Name	**Common Name**
Acroptilon repens	Russian knapweed
Aegilops cylindrica	Jointed goatgrass
Alhagi pseudalhagi	Camelthorn
Cardaria draba	Globed-podded hoary cress (Whitetop)
Centaurea diffusa	Diffuse knapweed
Centaurea maculosa	Spotted knapweed
Centaurea solstitialis	Yellow starthistle (St. Barnaby's thistle)
Cuscuta spp.	Dodder
Eichhornia crassipes	Floating water hyacinth
Elytrigia repens	Quackgrass
Euryops sunbcarnosus subsp*. vulgaris*	Sweet resinbush
Halogeton glomeratus	Halogeton
Helianthus ciliaris	Texas blueweed
Ipomoea triloba	Three-lobed morning glory
Linaria genistifolia var. *dalmatica*	Dalmation toadflax
Onopordum acanthium	Scotch thistle

APPENDIX B

APPENDIX B

FEDERAL NOXIOUS WEED LIST (USDA, 2006)
(as of May 1, 2010)

Aquatic/Wetland
Azolla pinnata R. Brown (mosquito fern, water velvet)
Caulerpa taxifolia (Vahl) C. Agardh, Mediterranean strain (killer algae)
Eichornia azurea (Swartz) Kunth (anchored waterhyacinth, rooted waterhyacinth)
Hydrilla verticillata (Linnaeus f.) Royle (hydrilla)
Hygrophila polysperma T. Anderson (Miramar weed)
Ipomoea aquatica Forsskal (water-spinach, swamp morning-glory)
Lagarosiphon major (Ridley) Moss
Limnophila sessiliflora (Vahl) Blume (ambulia)
Melaleuca quinquenervia (Cav.) Blake (broadleaf paper bark tree)
Monochoria hastata (Linnaeus) Solms-Laubach
Monochoria vaginalis (Burman f.) C. Presl
Ottelia alismoides (L.) Pers.
Sagittaria sagittifolia Linnaeus (arrowhead)
Salvinia auriculata Aublet (giant salvinia)
Salvinia biloba Raddi (giant salvinia)
Salvinia herzogii de la Sota (giant salvinia)
Salvinia molesta D.S. Mitchell (giant salvinia)
Solanum tampicense Dunal (wetland nightshade)
Sparganium erectum Linnaeus (exotic bur-reed)

Parasitic
Aeginetia spp.
Alectra spp.
Cuscuta spp. (dodders), other than following species:
Cuscuta americana Linnaeus
Cuscuta applanata Engelmann
Cuscuta approximata Babington
Cuscuta attenuata Waterfall
Cuscuta boldinghii Urban
Cuscuta brachycalyx (Yuncker) Yuncker
Cuscuta californica Hooker & Arnott
Cuscuta campestris Yuncker
Cuscuta cassytoides Nees ex Engelmann
Cuscuta ceanothii Behr
Cuscuta cephalanthii Engelmann
Cuscuta compacta Jussieu
Cuscuta corylii Engelmann
Cuscuta cuspidata Engelmann
Cuscuta decipiens Yuncker
Cuscuta dentatasquamata Yuncker

Cuscuta denticulata Engelmann
Cuscuta epilinum Weihe
Cuscuta epithymum (Linnaeus) Linnaeus

Cuscuta erosa Yuncker
Cuscuta europaea Linnaeus
Cuscuta exalta Engelmann
Cuscuta fasciculata Yuncker
Cuscuta glabrior (Engelmann) Yuncker
Cuscuta globulosa Bentham
Cuscuta glomerata Choisy
Cuscuta gronovii Willdenow
Cuscuta harperi Small
Cuscuta howelliana Rubtzoff
Cuscuta indecora Choisy
Cuscuta jepsonii Yuncker
Cuscuta leptantha Engelmann
Cuscuta mitriformis Engelmann
Cuscuta nevadensis I. M. Johnston
Cuscuta obtusiflora Humboldt, Bonpland, & Kunth
Cuscuta occidentalis Millspaugh ex Mill & Nuttall
Cuscuta odontolepis Engelmann
Cuscuta pentagona Engelmann
Cuscuta planiflora Tenore
Cuscuta plattensis A. Nelson
Cuscuta polygonorum Engelmann
Cuscuta rostrata Shuttleworth ex Engelmann
Cuscuta runyonii Yuncker
Cuscuta salina Engelmann
Cuscuta sandwichiana Choisy
Cuscuta squamata Engelmann
Cuscuta suaveolens Seringe
Cuscuta suksdorfii Yuncker
Cuscuta tuberculata Brandegee
Cuscuta umbellata Humboldt, Bonpland, & Kunth
Cuscuta umbrosa Beyrich ex Hooker
Cuscuta vetchii Brandegee
Cuscuta warneri Yuncker
Orobanche spp. (broomrapes), other than the following species:
Orobanche bulbosa (Gray) G. Beck
Orobanche californica Schlechtendal & Chamisso
Orobanche cooperi (Gray) Heller
Orobanche corymbosa (Rydberg) Ferris
Orobanche dugesii (S. Watson) Munz
Orobanche fasciculata Nuttall
Orobanche ludoviciana Nuttall
Orobanche multicaulis Brandegee

Orobanche parishii (Jepson) Heckard
Orobanche pinorum Geyer ex Hooker
Orobanche uniflora Linnaeus
Orobanche valida Jepson
Orobanche vallicola (Jepson) Heckard
Striga spp. (witchweeds)

Terrestrial
Ageratina adenophora (Sprengel) King & Robinson (crofton weed)
Alternanthera sessilis (Linnaeus) R. Brown ex de Candolle (sessile joyweed)
Asphodelus fistulosus Linnaeus (onionweed*)*
Avena sterilis Linnaeus (including Avena ludoviciana Durieu) (animated oat, wild oat)
Carthamus oxyacantha M. Bieberstein (wild safflower)
Chrysopogon aciculatus (Retzius) Trinius (pilipiliula)
Commelina benghalensis Linnaeus (Benghal dayflower)
Crupina vulgaris Cassini (common crupina)
Digitaria scalarum (Schweinfurth) Chiovenda (African couchgrass, fingergrass)
Digitaria velutina (Forsskal) Palisot de Beauvois (velvet fingergrass, annual conchgrass)
Drymaria arenarioides Humboldt & Bonpland ex Roemer & Schultes (lightning weed)
Emex australis Steinheil (three-cornered jack)
Emex spinosa (Linnaeus) Campdera (devil's thorn)
Galega officinalis Linnaeus (goatsrue)
Heracleum mantegazzianum Sommier & Levier (giant hogweed)
Homeria spp.
Imperata brasiliensis Trinius (Brazilian satintail)
Imperata cylindrica (Linnaeus) Raeuschel (cogongrass)
Ischaemum rugosum Salisbury (murainograss)
Leptochloa chinensis (Linnaeus) Nees (Asian sprangletop)
Lycium ferocissimum Miers (African boxthorn)
Lygodium flexuosum (L.) Sw. (Maidenhair Creeper)
Lygodium microphyllum (Cav.) R. Br. (Old world climbing fern)
Melastoma malabathricum Linnaeus
Mikania cordata (Burman f.) B. L. Robinson (mile-a-minute)
Mikania micrantha Humboldt, Bonpland, & Kunth
Mimosa invisa Martius (giant sensitive plant)
Mimosa pigra Linneaus var. pigra (catclaw mimosa)
Nassella trichotoma (Nees) Hackel ex Arechavaleta (serrated tussock)
Opuntia aurantiaca Lindley (jointed prickly pear)
Oryza longistaminata A. Chevalier & Roehrich (red rice)
Oryza punctata Kotschy ex Steudel (red rice)
Oryza rufipogon Griffith (red rice)
Paspalum scrobiculatum Linnaeus (Kodo-millet)
Pennisetum clandestinum Hochstetter ex Chiovenda (kikuyugrass)
Pennisetum macrourum Trinius (African feathergrass)
Pennisetum pedicellatum Trinius (kyasumagrass)
Pennisetum polystachion (Linnaeus) Schultes (missiongrass, thin napiergrass)
Prosopis alpataco R. A. Philippi

Prosopis argentina Burkart
Prosopis articulata S. Watson
Prosopis burkartii Munoz
Prosopis caldenia Burkart

Prosopis calingastana Burkart
Prosopis campestris Griseback
Prosopis castellanosii Burkart
Prosopis denudans Bentham
Prosopis elata (Burkart) Burkart
Prosopis farcta (Solander ex Russell) Macbride
Prosopis ferox Grisebach
Prosopis fiebrigii Harms
Prosopis hassleri Harms
Prosopis humilis Gillies ex Hooker & Arnott
Prosopis kuntzei Harms
Prosopis pallida (Humboldt & Bonpland ex Willdenow) Humboldt, Bonpland, & Kunth
Prosopis palmeri S. Watson
Prosopis reptans Bentham var. reptans
Prosopis rojasiana Burkart
Prosopis ruizlealii Burkart
Prosopis ruscifolia Grisebach
Prosopis sericantha Gillies ex Hooker & Arnott
Prosopis strombulifera (Lamarck) Bentham
Prosopis torquata (Cavanilles ex Lagasca y Segura) de Candolle
Rottboellia cochinchinensis (Lour.) W. Clayton
Rubus fruticosus Linnaeus (complex) (wild blackberry)
Rubus moluccanus Linnaeus (wild raspberry)
Saccharum spontaneum Linnaeus (wild sugarcane)
Salsola vermiculata Linnaeus (wormleaf salsola)
Senecio inaequidens DC (South African ragwort)
Senecio madagascariensis Poir (Madagascar ragwort)
Setaria pallide-fusca (Schumacher) Stapf & Hubbard (cattail grass)
Solanum torvum Swartz (turkeyberry)
Solanum viarum Dunal (tropical soda apple)
Spermacoce alata (Aublet) de Candolle
Tridax procumbens Linnaeus (coat buttons)
Urochloa panicoides Beauvois (liverseed grass)

APPENDIX C

APPENDIX C

NOXIOUS WEED AND INVASIVE SPECIES MONITORING FORM

Date:_____

Surveyor(s):_____

Species Identified:

_____

Location of Species (GPS location with coordinate system, Physical location description, Road or Highway name and mile marker, etc.):

Site Description (Roadside, grassland, woodland, riparian, land ownership):

Relative Density of Species:

Plan of Action:

Other Comments: